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NEW YORK STATE JOURNAL OF MEDICINE

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A Journal Devoted to the Interests of the Medical Society of the State of New York

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EDITORIAL DEPARTMENT

TWO IMPORTANT MEETINGS.

TWO meetings of unusual importance to the Medical profession of New York are to be held in the state during the coming season. The one is the 111th Annual Meeting of the Medical Society of the State of New York, which will be held in Utica during the last week of April. The other is the 68th Annual Meeting of the American Medical Association, which will be held in New York City during the first week in June. Both meetings are worthy of heartiest support by the medical profession of New York State. New features are being arranged for each meeting. At the Utica meeting a scientific exhibit is being prepared, modeled on that of the American Medical Association. As a first attempt it will not be large, but will certainly prove of much value to the New York practitioners. County laboratories will be especially featured. At the New York meeting an extensive medical and surgical clinical congress will precede the Scientific Assembly. The latter will be even more extended than heretofore, as additional time is available under a new arrangement.

At the meeting held last year at Detroit, radical changes were made in the conduct of the meetings of the American Medical Association. The House of Delegates will meet on Monday and Tuesday of the convention week and the general meeting will be removed from Tuesday forenoon to Tuesday evening. This will enable the delegates to complete their work and attend the Section meetings which has often been prohibited to them in the past. The meetings of the Sections will be held on Wednesday, Thursday, and Friday. The placing of the General Meeting on Tuesday evening leaves free one-half day more for the Section meetings than under the old system.

The two free days, Monday and Tuesday, thus left by the new arrangement will be utilized by the New York Committee for the holding of a Clinical Congress, for which extensive preparations are being made. This Congress will be unique. Heretofore such Clinical Congresses have been purely surgical. This one will not be limited to surgery, but will cover every phase of surgery, medicine, and allied topics. Vast facilities are offered by New York not alone for surgical and medi-

cal demonstrations, but for modern laboratory and health board methods, and all that is included in the great field of preventive medicine. Provisions are being made which will interest every type of medical worker in practice and research and in hospital management.

It is of the utmost importance that the New York members shall understand clearly the membership and fellowship requirements necessary for registration and attendance upon the various meetings and clinics that are to be provided. Every physician, when elected to a County Society becomes automatically a member of the American Medical Association. This provision was made four years ago to meet certain legal requirements. Only members of the County Societies are members of the American Medical Association. The County Society is the only door of entrance to the State Society and the American Medical Association.

Extended privileges are granted to Fellows of the American Medical Association. Members of the American Medical Association only, are eligible for Fellowship. Fellowship may be obtained by members by a very simple process. They should apply to the Secretary of the State Society (17 W. 43d Street, New York City), for an application blank. If they are members of the State Society in good standing the Secretary will return to them a blank attesting that fact. This they will sign and forward to the American Medical Association. If the member is already a subscriber to the *Journal* of the American Medical Association, he simply fills out the blank and makes application for transfer to fellowship list. If he is not a subscriber to the *Journal* he should send his blank, together with a check or money order for $5.00, which will promptly assure his Fellowship.

Each Fellow of the American Medical Association receives the weekly issue of the *Journal,* the largest and most complete weekly journal ever published in this country, and is also granted all the scientific and social privileges of the Association, which are very valuable.

In view of the approaching meeting of the American Medical Association in New York, the following extracts from the By-Laws of the Association are of interest: "None but Fellows, Affiliated, Associated and Honorary Fellows and invited guests, shall be allowed to register or take part in the Scientific Assembly of the Association. No Fellow shall take part in the proceedings of the Association or of any of the Sections until he has registered his name and address in the registration office."

It is thus clear that Fellows only can participate in the scientific and social functions of the annual meeting. The returns for the small outlay are so large that it would hardly seem necessary to urge members of the State Society to qualify as Fellows, even though they do not attend the Annual Meeting.

This has been written in considerable detail, that there may be no misunderstanding on the part of the New York members as to the requirements necessary to obtain all the advantages of the approaching meeting, advantages which are certain to be very great.

The selection of meeting places and headquarters has been fully completed. As New York is to be the host of the American Medical Association it would be discourteous to our guests to give advance information upon such matters to our own members. Full details will be given in a future number of the *Journal* of the American Medical Association devoted to the New York Meeting. This journal will then present a number of matters of especial interest to the New York members. A list of Chairmen of the New York Committee on Arrangements will be found on another page of this number of the Journal.

F. M. C.

Original Articles

TECHNIC OF VAGINAL PLASTIC OPERATIONS FOR CYSTO-RECTOCELE AND PROLAPSE OF THE UTERUS.*

By ROBERT T. FRANK, A.M., M.D.,
NEW YORK CITY.

THIS paper was written less with the object of describing any radically new operative procedures in the treatment of cystocele, rectocele and prolapse, than with the intention of standardizing operative technics. Such standardization should enable the experienced operator to obtain a greater uniformity of results, and should aid the budding gynecologist to learn the proper methods of repair more readily and with fewer initial failures.

Any operator who deliberately claims, as I have repeatedly heard men assert in the heat of discussion, that his results in plastic work are uniformly good and satisfactory from both an anatomical and a subjective standpoint, is either wilfully concealing his failures or has not conscientiously followed up his cases after operation. Moreover, there are cases, which even as early as the time of discharge from the hospital, show an unsatisfactory state of repair. If in such a comparatively simple and well standardized operation as inguinal hernioplasty 8 per cent or more[1] of recurrences have been noted, is it surprising that the far more varied conditions encountered in prolapse should show an even greater percentage of failures?

The technics to be described are those which after ten years of trial of many different operations give the most uniform results in the writer's hands, and which are most readily taught to operators of but little experience, such as for instance the house-surgeon of a general hospital.

The individualization, the selection of cases for conservative treatment or operation, special indications, regional anatomy, etc., cannot be dwelt upon in a short paper, but are reserved for a more lengthy communication.

Choice of Operation.

The operations to be described in detail are plastic repair of cystocele and rectocele.—When combined with other conditions such as retroflexion or prolapse, the following procedures are recommended: In the childbearing period, 1. *a.* if fertility must be preserved, Alexander's operation for both movable retroflexion and prolapse; *b.* in adherent retroflexion Küstner's transverse skin incision, paramedian vertical incision through the deeper layers, liberation of the uterus, and after-closure of the abdomen, Alexander's operation through the same skin incision; 2. *a.* in the childbearing period with permission to sterilize (double ligation and division of tubes) *b.* or after the menopause; paramedian incision with firm ventrofixation (Leopold's method) or extraperitonealization of the fundus in case of either prolapse or adherent retroflexion.

In the childbearing period preliminary curettage should be performed in every case to exclude unsuspected pregnancy.[2] Lacerations of the cervix are repaired by Emmet's technic; hypertrophy, cystic conditions of the cervix or hypersecreting cervices are dealt with by a low Schroeder amputation. The high circular amputation, flush with the vault, is strongly condemned.[3]

Only in the few cases in which a large exactly globular cystocele (size and shape of a billiard ball) is encountered, unassociated with prolapse, is the interposition operation advised.

Operation for Repair of Cystocele.[4]

Exposure.—The anterior lip of the cervix is seized with a volsellum and pulled to the vulva. Half an inch below the urethral orifice the mucosa is seized with an artery forceps. The mucosa is incised between the two fixed points and reflected on both side for one-quarter inch along the line of incision as superficially as possible. Neither deep nor wide reflexion is permissible at this juncture.

Raising the Bladder; Demarcation of the "Pillars."—The narrow flaps are seized on each side with two forceps and spread apart by assistants. At the lowest angle of the wound the bladder is now freed from the cervix in exactly the median line by a few snips of the scissors. The tyro will do well to make sure of the right spot by first inserting a bladder sound with which to demonstrate the lowest border of the bladder. The finger, or the finger wrapped with gauze, next gently but firmly frees the bladder by pushing it upward (pressing against the cervix) in the median line until lateral fibers, arising partly from the cervix and partly from the vaginal flaps become plainly demarcated. Not until these structures are seen on both sides (often their development is unequal) should any attempt be made to extend the liberation of the vaginal flaps laterally. After these musculo-fibrous strands—

* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

[1] Moschcowitz, A. V. Hernia in "Operative Therapeusis," edited by A. B. Johnson, 1915, Vol. IV, D. Appleton, p. 41.

[2] If, as occasionally happens, pregnancy is discovered, the plastic operation should not be performed for at least three months after curettage because of their great increase in vascularity, and the added danger of infection, and thromhosis.

[3] The poor functional results ohtained hy amputation have been described by V. N. Leonard, of Johns Hopkins Hospital, in *Surgery, Gynecology and Obstetrics*, 1914, XVIII, 35: By performing a small Schroeder amputation, large unwieldy cervices involute to a surprising degree. High amputations frequently leave painful stumps, cause dysmenorrhea and sterility.

[4] In looking through the literature, the writer finds that E. Martin, "Der Haftapparat der weiblichen Genitalien, Part II, 19, S. Karger describes a quite similar operation for cystocele, with utilization of the bladder pillars." In this operation the pillars are united in the median line, hut not sewn to the cervix.

the bladder "pillars"—have been exposed, it is safe to separate the vaginal flaps more widely. This separation may be performed bluntly by the finger which should penetrate between mucous membrane flap and superficial surface of the "pillars." The "pillars" will be found to be continuous with a thin but very firm fascia which must be carefully preserved.

The bladder should be liberated well above the peritoneal reflexion in the median line, and to a similar level laterally behind the pillars, without however interfering with their integrity. The hemostasis is now carefully attended to.

Repair.—Two transverse sutures of medium chromic catgut are passed, taking in first one pillar, then the cervix, and next the opposite pillar. The uppermost suture is passed at the lower border of the peritoneal reflexion, the second one-half inch below it. Neither must penetrate the pillars too deeply, as the ureters enter the bladder in this region and might be included. On tying the sutures the pillars are united in the median line and firmly fixed to the cervix, permanently raising the bladder to a higher level.

As the pillars are dragged together, the fascia which is attached to their anterior and lateral surfaces becomes more apparent. Interrupted sutures of chromic catgut are passed at successively higher levels, uniting the fascia in front of the bladder. The bladder will now be found not only at a higher, but also at a deeper level, and flattened instead of bulging.

The redundant mucous membrane is resected, care being taken not to remove too much, as otherwise not only will difficulty be encountered in uniting the middle of the incision, but an annular stricture will become apparent high up in the vagina after the rectocele has been repaired.

The mucosa is united with interrupted sutures of silk, beginning at the lower angle, and pushing the cervix farther up and inward as each stitch is tied.

Operations for the Repair of (a) Lacerated Perineum, (b) Rectocele, and (c) Enterocele.

Unless the repair is divided into these subsidiary steps it is impossible to formulate general directions applicable to practically every case. Most textbooks and monographs carefully describe a multitude of procedures for the cure of lacerated perineums and low rectoceles; almost all, with equal unanimity refrain from describing the treatment for high rectocele and enterocele! In a woman during the childbearing period, the perineum must be made lower, and the vagina less narrow than when the same operation is performed on a widow of mature age.

(*a*) *Repair of Lacerated Perineum.*—This injury usually involves the separation of the superficial perineal muscles and a tear of the triangular ligament. Almost any operation which brings the parts together will permanently cure the condition. As this repair is the second step in the treatment of rectocele, the description will be taken up under this heading.

(*b*) *Repair of Rectocele.*—In some instances the rectocele will descend over an intact perineum. In most cases the perineum is torn.

Exposure.—The method of exposure is unessential, but in the writer's hands the Hegar triangle has proved satisfactory. A point immediately below each Bartholinian opening is grasped with a volsellum. By crossing the instruments, the size of the aperture will be approximately indicated. A third point is seized in the median line, above the crest of the rectocele. On moderate traction it ought to be possible to draw this point up to the urethral orifice. If this is impossible, a lower point must be selected. The area included between the three points is now denuded in the usual way, care being taken not to injure the rectum.

Repair of Rectocele.—Within the main triangle a smaller central area which roughly resembles the modern bullet projecting from its shell (corresponding to the uncovered rectum) presents. If the original injury was unilateral, or if, as usually happens, not sufficient of the lateral fascial surfaces are exposed, it becomes necessary to push the rectum away from the lateral structures. This should be done bluntly with the finger, great care being exercised neither to penetrate into the bowel nor to injure the fascia, which includes between its layers the transversus perinei profundus, *i. e.*, the triangular ligament; and higher up the anal and levator fasciæ. Penetration of these fasciæ, and direct suture of the muscle has given the writer less satisfactory results than the technic now described.[5] The point selected for approximation of the lateral muscular and fascial structures should be in a plane just cephalad the descending rami of the pubis (about 3 cm. from the vulva), except in old women or in complete prolapse with sterilization, in which a longer and higher perineum is sought for, and in which the point is therefore selected higher up in the vagina. The rectum is held aside, and a mass of tissue is grasped laterally (with a volsellum by the inexpert who desires to first test the dimensions) on each side. When brought together for trial, the vaginal canal should still admit one to two fingers, depending upon the conditions sought. The points having been selected a suture of heavy chromic catgut is passed, taking in the lateral fascia and underlying muscle on one side, then forming a partial purse string suture, grasp-

[5] The actual union by suture of the levator, or the transversus perinei profundus is not satisfactory. Much hemorrhage from thin walled veins results. Frequently a weak spot develops between levator (pubo-rectalis) and transversus fibers. The perineum may be high and even thick centrally, but pockets, which impair the result, can be noted laterally.

ing the rectal fascia, between rectum and mucosa, around the upper part of the rectocele and again grasping the lateral structures on the opposite side. When this suture is tied, not only is the rectum held fixed and back, but the upper margin of the new perineal body is demarcated. It is well at this point to suture the gap in the mucosa at the upper angle with interrupted silk sutures as this region later becomes less accessible.

Repair of Perineum.—Two or three sutures of heavy chromic gut are now passed transversely below the first stitch, taking in good bites of the lateral tissues (triangular ligament) and placed as close to the rectum as possible. When these are tied a firm perineum will have been built up. The more superficial gap still remaining is readily approximated by a running suture of thinner chromic gut, the mucosa and skin being closed with interrupted silk sutures.

(*c*) *Repair of Enterocele and High Rectocele.*—In rare instances, complicated or uncomplicated by prolapse Douglas' cul de sac descends to the vaginal outlet forming a true hernia. In other cases the rectum bulges downward from just below the level of the cervix. An exploring finger in the rectum can readily differentiate the conditions.

Exposure.—The posterior lip of the cervix is seized and drawn downward and forward. The point usually selected as the crest of the rectocele (vide ante) is seized below and pulled backward. An oval area between the two points is denuded to an extent still allowing lateral approximation without much tension.

Repair of Enterocele.—Blunt dissection with the finger exposes the sacro-uterine ligaments behind the cervix. The posterior cul de sac is either bluntly pushed upward, or if this is impossible, the peritoneal cavity is opened. The peritoneal opening is closed by a superficial purse string suture, taken within the peritoneum at as high a level as possible. This suture includes the posterior surface of the cervix, the peritoneum along the lateral pelvic wall (beware of the ureters!) and on the anterior wall of the rectum. The subperitoneal space is closed by a chromic gut suture including the posterior wall of the cervix, the sacro-uterine ligaments (grasped as far back as possible) and the anterior rectal wall.

Repair of High Rectocele.—The next step is the same as that used in high rectocele. The mucosa is reflected slightly on each side until the thin but firm fascia of the rectum is exposed. This is approximated by a running suture of chromic gut which holds the rectum back. The vaginal mucosa is separately sutured. The succeeding steps are those already detailed under "Repair of Rectocele."

By keeping in mind the various points detailed in these descriptions, the writer has not only been able to obtain more uniform results in his work, but has also been able to teach the principles involved, with greater ease. It is naturally impossible to describe by word or picture as complicated an operation as vaginal plastic work to anyone unacquainted with the practical execution of the details with any hope of success. To those already versed in operative technic, some of the suggestions may prove of service.

RESULTS AND TECHNIC OF VAGINAL SUBTOTAL HYSTERECTOMY FOR PROCIDENTIA AND CYSTO-RECTOCELE, ASSOCIATED WITH FIBROID GROWTHS OR FIBROSIS UTERI.*

By HIRAM N. VINEBERG, M.D., F.A.C.S.,
NEW YORK CITY.

IN a short paper read before the Obstetric Section of the New York Academy of Medicine, February 23, 1915, and published in *Surgery, Gynecology and Obstetrics,* December, 1915, I described a method of dealing with the uterus, in those cases of procidentia with cysto-rectocele, in which the uterus contains fibroid growths of moderate size, or, in which the uterus, as a result of chronic metritis or fibrosis, is too large to be interposed between the bladder and vaginal wall. A third condition, not so frequently met with as these two, was included. It is that known as I-diopathic or Essential uterine hemorrhage, occurring, as it is prone to do, at or about the climacteric period.

The method consisted in amputating the body of the uterus at or about the internal os, and making use of the cervical stump as a *pelotte* to hold up the bladder by anchoring it to the subpubic fascia ligament. The claim was made that this method possessed advantage over total hysterectomy in that it supplied a solid support to the bladder, and, hence, the recurrence of the cystocele was less likely. Another claim can be made for it on the basis of its being less serious and, of its being attended with less hemorrhage.

At that time I had employed the technic in only ten cases, covering a period of three years. Since then I have performed the operation in twenty additional cases.

Before analyzing the results, let me again describe briefly, the technic: (1) Longitudinal incision of the anterior vaginal wall, extending from near the urethral meatus to within an inch or an inch and a half of the cervical os. (2) Separation by sharp or blunt dissection of the vaginal walls from the underlying bladder. (3) The bladder is pushed up from the uterus and the base of the broad ligaments by gauze or scissor dissection. (4) Transverse incision of

* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

the vesico-uterine peritoneal fold. (5) Delivery of the body of the uterus through the vaginal incision. Up to this, the steps are identical with those followed in vesico-uterine interposition. (6) If the ovaries are to be preserved, a ligature is passed around the ovarian ligaments and the uterine end of the tube, on either side, and the tissues cut between the ligature and the uterus. If the ovaries are to be removed, the ligature is passed around the infundibulo pelvic ligament, containing the ovarian vessels. (7) A ligature is passed at the level of the os internum, to embrace the uterine artery on either side. The body of the uterus is then amputated at the desired level by a wedge-shaped incision, the thin edges of the wedge pointing toward the cervix. The edges of the wound in the cervix are then brought together by a continuous or interrupted catgut suture, and the raw area of the cervix laterally is sutured in the same way. (8) Suturing of the cervical stump to the subpubic fascia and anterior vaginal wall as above described.

When the vaginal portion of the cervix is very deeply lacerated and hypertrophied, or very much elongated, as it frequently is, in cases of procidentia, a partial amputation of it is done, and there will still be a good sized cervical stump left to hold up the bladder. Finally, a suitable operation is done upon the inferior pelvic floor by which the Levator ani are brought together and the perineum repaired when it is torn. Some cases when there was very great relaxation and thinning of the pelvic structures and I feared the suturing of the cervical stump to the subpubic fascia alone would not be sufficient, I have, in addition, sutured the severed round ligaments to the cervical stump. This may be a good feature, to be adopted in every case and, it is my intention, in the future, to do so.

A couple of experiences I have had has prompted the thought of still further modifying or adding to the technic in those unpromising cases just referred to. These experiences related to two cases in which the results seemed very good for some months after operation. Then on a later examination the cervix appeared at the introitus, although there was no recurrence of the cystocele nor of the rectocele. It seemed to me as if the vaginal portion of the cervical stump acted as a wedge forcing its way downwards and forwards. The thought occurred to me that this probably could have been avoided had I shortened the utero sacral ligaments, by plicating them with a suture. In the future I shall add this feature in the technic, in this class of cases. There was an incident, not infrequently encountered, which has given me food for considerable thought, I refer to the fever many of the cases exhibited from the fourth or fifth post operative day, for some days afterwards. At first I thought it might be due to tying the ligatures too tightly, as one is apt to do, when performing a vaginal hysterectomy, or it might be due to not being careful in coaptating the cut edges of the cervical stump, or that the edges were too thick to insure primary union. I then endeavored to avoid these probable errors in the technic and while some improvement was manifest, in the fever record a rise in temperature was still noted in most cases. It is just to state in this communication that at Mt. Sinai Hospital, all operative cases have the temperature taken in the rectum and, naturally, register one or two degrees higher than when taken in the mouth, as is done in many hospitals. But, leaving this out of consideration, the fact remains that in the same hospital and with the same operator, supravaginal hysterectomies done through the vagina showed a higher temperature curve than when done through a ventral incision. I do not believe the difference in the routes *per se,* would explain the difference in the fever curve. To my mind, it is more likely to be due to the technic which is inseparable from an amputation of the body of the uterus done through the vagina. The bladder, of necessity, must be separated extensively from the cervix, to which it is intimately connected, as also from the bases of the broad ligaments. All the vessels are very much congested and it is nigh impossible to ligate all bleeding points. Hence, there must be more or less oozing after the operation, no matter how painstaking one may be. Consequently, the conditions are favorable for a mild and local infection. In simple Interposition cases I have been able to practically eliminate any rise of temperature by inserting a narrow gauze packing between the vaginal wall and uterus, at the angle formed by the body and the cervix. In the operation under consideration, the anatomic conditions created, do not lend themselves to the employment of a similar gauze drain or packing. But, it has occurred to me that the parts could be suitably drained by a strip of gauze carried through a stab wound in the posterior vaginal vault, and it is my intention to do so in the future.

In analyzing the end results of the thirty-two cases operated upon, three are of too recent date (from two to three months), to be included. The remainder have been under observation from six months to four years. In one the result was a complete failure, the cervix and anterior vaginal wall appearing outside of the vulva. In three cases the cervical stump came down to the introitus without any recurrence of the cystocele, from six months to two years after the operation. In the remaining twenty-five cases the results were excellent in every respect.

The operation was first briefly referred to by Löwit in the *Zentb. f. Gyn.,* Bd. 30, 1911, p. 304. In presenting it to the profession in this country, I am keenly alive that it is still in the process of development and my object in presenting it at this time is based upon the hope that others may

aid in its development, and probably in its improvement.

I have, however, already had sufficient experience with the results of the operation, extending over a sufficient length of time, to affirm that in the class of cases in which it is indicated, it has distinct advantages over total hysterectomy or partial hysterectomy, by excising a wedge from the fundus and body.

THE FIELD FOR PESSARY TREATMENT IN RETROVERSION AND PROLAPSE.*

By ROBERT L. DICKINSON, M.D., F.A.C.S.,
BROOKLYN, N. Y.

(The speaker used a large number of wall charts and diagrams as text for a practical talk. Therefore the following is only a synopsis of the matter presented, which will appear in full later.)

To be avoided:

A. The office putterer who gives long and futile treatment to cases only curable by surgery.

B. The surgeon who sees only operation as the remedy for displacement and prolapse.

To be let alone:

1. Retroversions—many.
2. Prolapses—none.

Retroversions best let alone—

Those without symptoms or complication;

Those merely part of a general enteroptosis;

Those whose symptoms are merely part of neurasthenic sensitiveness.

Requiring pessary:

1. Retroversion in early pregnancy (every patient needs to be examined: worn three months).
2. Retroversion in the post-partum months (present in one-fifth the cases).
3. Retroversion between pregnancies while waiting until child-bearing is past.
4. Retroversion in cases of relatively short duration.
5. Retroversion in bad surgical risks.
6. Retroversion in extreme neurasthenia.
7. Retroversion in patients who cannot find time for operation.
8. Retroversion in patients waiting for operation.
9. After retroversion operation.
10. Prolapse in aged women.
11. Prolapse in bad surgical risks.
12. Prolapse before operation, to reduce edema and heal ulcers.
13. Prolapse in waiting for operation.

Calling for trial of pessary:

1. Retroversion with symptoms but no complications; e. g., dysmenorrhea and backache marked, but without tears or tumor.
2. Retroversion in some neurotics as test.
3. Retroversion to test whether symptoms are due to the retroversion.
4. Retroversion in some borderline cases.
5. Retroversion where pessary is not feasible—to convince patient.
6. Prolapse of the uterus alone, of slight degree, easily held.

Contraindications:

1. Lack of skill in use of pessaries.
2. Lack of opportunities to watch patient with pessary not self-removable.
3. Any degree of prolapse of bladder needs operation.
4. Inability on the part of skill to place pessary that will hold uterus in place after fair trial.
5. Persistent nervous disturbances after office treatments.
6. Most young virgins.
7. Some acute-angled retroflexions.
8. Solid adhesions.

Selection of pessary:

1. By measurement of vagina.
2. By experiments with various forms and sizes, and standing, corseted.
3. Soft rubber only—a, for trial or b, for self-treatment by nightly removal.
4. Hard rubber or equivalent otherwise.
5. Small and medium sizes (3 inches and under).
6. Gradual reduction in size.
7. For nightly removal in prolapse, circle; or ball with handle; or Hodge with scant "S" curve.
8. Few forms, few sizes needed.

Watching pessary:

1. Printed directions for details of bi-weekly douche and for regular return to office.
2. Weekly examination at first—monthly or bi-monthly later.
3. Inspection for chafing or ulceration of vagina, or crusting of pessary.
4. Entry on diary or tab on history to flag pessary cases for recall to office.
5. Test by removal after three or six months.

New points:

1. Written diagnosis given, with outlook stated.
2. Written or printed directions.
3. Automatic index for follow-up.
4. Tracing of pessary on history.
5. Examinations standing, corseted.
6. Forms for nightly self-removal in prolapse.
7. Methods of training surgeons and practitioners.

* Summary of paper read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

Discussion.

Dr. J. Riddle Goffe, New York City: The usefulness and the definite limitations of the pessary in the treatment of retroversion and prolapse has been very clearly and convincingly presented by Dr. Dickinson. In my mind and in my practice the pessary has a definite place in the treatment of these conditions, but, speaking broadly, it is only a *temporary device,* to be discarded and supplanted by operative procedure when the time and place serve. Age is rarely a contra-indication for surgical procedure in the woman who is able to be upon her feet. I find that old women stand vaginal operations surprisingly well, and the age of women in the sixties or seventies, in itself, does not forbid the surgical procedure.

Coming now to Dr. Vineberg's paper, I have had a very limited experience with the operation described, and then more for the purpose of testing it out than because of its appeal to me as a rational and desirable operation. I am a great stickler for following Nature, in her arrangement and physiological functions, in dealing with all human organs and indeed with every part of the body. In the completion of all operations the fundamental principle and guide is *Nature's plan.* Why has Nature arranged and placed organs as she has in their relation and juxtaposition to each other? What physiological purpose has been accomplished thereby? For the operator, that is the pattern in accordance with which he must do his work and complete his operation. It is not possible always to follow exactly Nature's arrangement but when possible it should be done.

Now this operation of Dr. Vineberg's comes into direct competition with supravaginal hysterectomy. To my mind there is no question about the superiority of the latter. In the completion of the operation the normal relation of parts is restored and the physiological functions of the ligaments and the bladder maintained. The accepted method of completing the operation of supravaginal hysterectomy leaves the stump or the cervix in normal position, covers it with a peritoneal flap that gives it the appearance and contour of an infantile or atrophied uterus, attaches the ligaments, that have been severed, to this little uterus to give it support, and, if a cystocele has complicated the enlargement and fibrosis of the uterus, it can be easily corrected by dissecting off the bladder to a desired extent from the cervix and vagina and stitching the trigone of the bladder to the cervical stump at whatever level the situation may demand. Of course if a rectocele complicates the situation a further special procedure is necessary in the repair, by the accepted muscle operation, of the pelvic floor. When there are no complications this is the most straight-forward, simple and satisfactory operation in the whole range of gynecological surgery. Its absolute recovery is as near 100 per cent as any *simple* operation has attained. Its results are most satisfactory to the patient and are permanent. The parts are restored to their normal positions in the pelvis and Nature's plan, in subsequent physiological function of the remaining parts, is followed almost to the letter.

Coming to Dr. Frank's paper the remarks already made would seem to apply with equal force. The question is, is there an operation that will accomplish to the same or even a greater degree all the results that he claims for his operation, and by following Nature's plan, commend itself more to our consideration?

In dealing with these cases of procidentia complicated by rectocele and cystocele is there not something more to be considered beyond simply tucking these organs into the body and sewing them in there like so many potatoes in a bag? That is not Nature's method. Observation and experience have demonstrated that any foreign body, and that is what the uterus becomes when placed as a pad beneath the bladder resting for its support upon what is beneath it sooner or later thins out the tissue and robs it of its sustaining power. This is true of pessaries of all kinds, especially large rubber rings or ball supports either solid or inflated, which were at one time in vogue for the relief of prolapsus. The uterus when fastened beneath the bladder is not in itself a support further than it blocks up the way and thus acts as a foreign body, *unless* its ligaments have been shortened sufficiently to give it its required support. As a matter of fact in some of these cases of inter-position the ligaments have not been short enough to retain the uterus and the whole mass, uterus, bladder, and rectum, has been extruded through the vulva. At a recent operation for inter-position of the uterus of which I was a witness, after the uterus had been turned down the constant tendency was for it to slip out through the vulva, and the operator had the greatest difficulty to keep it in while he stitched together the vaginal wall in front. Question: Did the uterus hold up the vaginal wall or the vaginal wall the uterus? If the latter why not eliminate the uterus and simply use the vaginal wall to support the bladder?

The point of the argument is that Nature does not keep these organs inside the body simply by blocking the way out through the natural exits, but by controlling and directing intra-abdominal pressure. The importance of this deflecting plane of tissue represented by the uterus and its broad ligaments in controlling and deflecting intra-abdominal pressure cannot be over estimated. By the resilience of its ligaments and their muscular contractions this force is reflected back into the axis of the pelvis. The nearer, then, we can come to the normal arrangement of the uterus, the bladder and the rectum in the pelvis the more

perfectly will the important function of the uterus and broad ligaments as a deflecting plane control the pressure and the organs ride more comfortably in their normal positions. That is the principle on which the operation which I have devised and employ rests. All cases of procidentia with rectocele and cystocele are divided into two classes, viz., cases in which the patients are in the childbearing period and those which are at or have passed the menopause. In the first class the uterus is retained. After attending to any minor lesions the uterus is restored to its normal position by shortening the round ligaments, through the vagina, and in extreme cases the utero sacrals as well. The trigone of the bladder is then spread out upon and made fast to the anterior face of the uterus and broad ligaments where it originally belonged. The bladder is carried up sufficiently high to overcome all sagging, and, by stitches passed through the upper border of the trigone, it is permanently fixed. The vaginal mucous membrane with its fascia is then cut away sufficiently to make it hug tightly the base of the bladder and the incision stitched along the median line. The floor of the pelvis is then restored by the muscle operation and the vagina packed with gauze.

In the second class of cases the uterus is removed, after which the broad ligaments are stitched together, making them draw taut across the pelvis. In this position they take the place of the original deflecting plane composed of the uterus and broad ligaments. Upon the anterior face of this newly constructed plane of tissue the bladder is spread out and stitched there, as previously described, in the position that Nature originally placed it. The vaginal wall is then cut away and made to fit the new situation as before. In cases having extremely large rectocele the posterior vaginal wall is incised along the median line and the rectum laid bare. It is then plicated by a chromic catgut suture passed up and down parallel with its axis and running across the rectum from side to side. Sometimes two such plications are made. The plicating stitch is firmly anchored at either side in the strong rectal fascia. The vaginal wall is then closed over it and the muscle operation on the perineum is performed.

In my hands this is a much simpler operation than the inter-position operation in which the central part of the uterus is cut away as in the Vineberg procedure. The results are most satisfactory both to the patient and myself as is evidenced by the series of cases which I reported in 1912. In the cases composing this series careful description was given of each case, the details of the operation and the results. To my mind it restores the parts to a more normal position and function, and justifies itself by therein following Nature's plan both anatomically and physiologically.

Dr. Samuel W. Bandler, New York City: It is worth while coming a very long distance to head Dr. Dickinson's plea for the use of the pessary. I simply wish to emphasize two or three of the factors which he has brought out, points which I myself have followed with the greatest satisfaction.

In the first place, and I mention this first because I think it is a point that has been very much neglected, every post-partum case is examined by me on the twelfth to the fourteenth day, again a week or two later, and again two or three weeks later, up to three to six months. On the first appearance of any retroversion, needless to say, a pessary, usually a Smith-Hodge pessary, is introduced. I believe this procedure is a very valuable thing, and I have followed it for a number of years.

In the next place, I must say that the pessary is a very satisfactory diagnostic factor. If a patient comes to you complaining of pelvic disease and at the same time you find a retroversion or a retroflexion, if you can place that uterus into normal position by any form of pessary and let that patient wear that pessary for several weeks and if then she comes to you and says, "Doctor, all my symptoms have disappeared," you have made the diagnosis that her retroversion or retroflexion was the cause of her annoyance, and then you can say to her, "My dear lady, you have the choice of wearing this pessary for the next twenty-five or thirty years or you have the opportunity of having a suitable operation done and wear no pessary."

As regards the operation for prolapse of the uterus, the point I wish to bring out is that in Dr. Frank's pictures and in the pictures of Dr. Vineberg, a longitudinal incision was made in the anterior vaginal wall. I believe that for technical surgical reasons one ought to make a transverse incision and then a longitudinal incision. In other words an inverted T, because it brings in the point which Dr. Frank brought out beautifully in his pictures, and it brings out the points that others have mentioned when they said that the broad ligaments should be fixed in front of the cervix. If you make a transverse incision and then a longitudinal, you can get a tremendous, a huge separation of the bladder from all contact with every structure practically speaking but the ureters. You simply leave it hanging by the ureters. Then you may resect as much of this anterior vaginal wall as you will, and when you sew, after the high amputation of the cervix, which is the important part, the denuded vaginal mucosa around the os from the posterior area to the front as you go around on either side, you catch the lower part of the broad ligaments, you catch the edges of this pubo-vesical ligament and they are fastened in front, which lifts the cervix high up and far back. After all, no matter how

you fasten the fundus in front by the Dührssen or other operations, unless your cervix is put high up and far back, your cervix descends. With a properly done Dührssen no cystocele can ever recur, but the uterus can descend. Therefore, the important part is to fix these elastic ligaments and elastic tissue that support the bladder in front of the cervix.

Dr. Hiram N. Vineberg, New York City: I thank you very much for the discussion on pessary treatment and for saving me from some criticism. It shows the tendency of the time, that we are going from perhaps doing too much surgery to doing more conservative work. I am fully in accord with Dr. Dickinson in what he has said in the matter, and it is a method that I have been practicing for years and thought perhaps I was old-fashioned. I am very glad to find that it is coming into fashion again.

I am also pleased to see that Dr. Frank has followed in his description the method of suture that I have been using. It never appealed to me at all to try to isolate the levator ani muscles separately. I have always passed my sutures in such a manner that the muscles, the fascia, just as Dr. Frank has described here, are held together.

I am not surprised, however, that Dr. Frank has had difficulty in teaching the house staff if he has tried to teach them all the anatomy that he has shown us here today, because that is somewhat complicated as are the anatomy and the pictures of all plastic operations.

In reference to what Dr. Goffe says about the abdominal hysterectomy, I think, if I got the meaning of his remarks, that you could get a better result by doing this operation through a ventral incision and stitching up the cervix through the abdominal wall.

Now, it just happened that when I began to do this operation, a case of this kind presented itself to me at the hospital in which a woman had been operated on three months before by that method and the cervix came out completely through the vulva. In that case, I performed the operation just as I have described here and the woman has been under observation ever since and there has been no recurrence of the prolapsus.

One word more about the transverse incision—I used to do that when I did the work formerly, about twenty years ago, but have given it up as entirely unnecessary. When you make your longitudinal incision and you separate the vaginal wall from the bladder, and you get all the space that you need and as much as you can get from a transverse incision, and you get a nicer union and coaptation afterwards.

Dr. Robert T. Frank, New York City: Nature might have improved matters very much if it had made the pelvis completely bony and would have thus simplified obstetrics by forcing us to make all deliveries through Cæsarean section, but we are dealing with actualities and not with theories, and therefore even the complicated anatomy that we encounter and which I have been reproached for showing must be considered.

We use a great many terms here in very loose fashion. Dr. Goffe and others speak of ligaments. What is a ligament? Here is the cervix and that is the center of anything that we have to work with. The cervix is held in equilibrium by connective tissue. To borrow the familiar example of an automobile, the cervix is held in position by springs. These springs are the connective tissue forming the sacro-uterine ligaments, the cardinal ligaments and the pubo-cervical ligaments. Besides these springs that we have to deal with, there is a shock-absorber and that is the levator ani and its fascia.

In a normal individual with good, strong ligaments—I am using now the conventional term for the cardinal, etc., but it is really connective tissue—the cervix, I believe, would be kept in place if you paralyzed or temporarily cut the levator, but after childbirth, when these ligaments have been traumatized and have been torn and have been stretched, then the levator has to do more work than it is ordinarily called upon to do.

Now, we can't very satisfactorily shorten the cardinal ligament or the sacro-uterines or the pubo-cervical. Therefore, I say that our main reliance when possible must be placed upon makeshifts such as ventrofixation in fastening up the cervix or the uterus or upon interposition if the uterus is fitted into the levator hiatus.

The reason that the inter-position operation is so popular is that the inter-position operation, although it is a deforming one, is applicable in a great many conditions in which the various other operations are not applicable or in which they have to be carefully selected. In other words, given a surgeon of only moderate experience, he can always fall back on the inter-position operation if he is willing to sterilize the woman, because it really does work in a great many cases.

What I am advocating is an operation which is less deforming and which can be used even during the childbearing period and which can be used by surgeons of even less experience. This operation—and when I say "this operation," it is simply a technique, there is nothing absolutely original in the operation, for it is a modification of many other operations, can be used under as greatly varying conditions as inter-position with as good or better results. You have heard various speakers today who have claimed that they have been doing such operations in one form or the other for a number of years, and that is certainly true. I simply wanted to give you a general outline of a reliable standardized technique.

Dr. Richard R. Smith, Grand Rapids: I would endorse most heartily all that Dr. Dickinson has said in regard to the indications for the use of the pessary and for operations upon cases of retroversion. I would especially emphasize what he has said in regard to not operating upon the uncomplicated cases. I do not believe in employing local treatment in any form in the uncomplicated cases of retroversion found in young women before childbearing. The pelvic symptoms of such patients are almost invariably neurotic, and the less attention we pay to their pelvis, the better.

Now, in regard to the prolapse cases, I think it is well to bear in mind one thing, that no woman during the childbearing age should have any operation done, which can in any way possibly interfere with childbearing. To the woman, the matter of childbearing is far more important than the little discomfort she may have from an uterine prolapse. After she is through with childbearing, then we may well consider operation. Of all the operations which I have done for prolapse, there is none that has given patients such thorough relief as the Watkins' operation. I cannot speak too highly of it.

Dr. Robert L. Dickinson, Brooklyn: Interposition is of extreme value in the little old uterus past the menopause, and particularly where the bladder isn't pulled completely away from its anterior (pubic) attachments. With a bladder all out in the world, including the urethra (as compared with some of these other cases, as shown in the charts from Halban-Tandler, where the bladder is still hitched in place), there will occur prolapses after inter-position.

As to whether we shall remove the uterus, as Goffe suggests, or shall take a piece out of it, I have faithfully tried what Dr. Watkins and Dr. Vineberg advised—amputating the cervix and then taking out a piece of the body of the uterus. It is long and bloody and troublesome no end. Therefore, I have gone back, after trying it some eight or nine times, to doing Dr. Goffe's operation. In the big uterus, the chronically inflamed uterus, the fibroid uterus, and so many of these cases where the moderately enlarged uterus would better come out, I do the vaginal hysterectomy of Goffe with great satisfaction (and I think my service has run this up beyond three figures). We sew the broad ligaments together and fasten the bladder to that bridge. The whole merit of the Goffe operation of vaginal hysterectomy, in cases of bladder prolapse, is that, though it is long and fussy, it does give a first class bridge across the pelvis to which to fasten the bladder. The bowel is untouched. The patient is unshocked.

Dr. Frank enters a protest that should be voiced against dissecting the levators. It has been a fad. Levator apposition has its valuable place in high rectoceles and a few bad injuries, but we should all, even in these cases, restrict ourselves to seizing the levator mass and hitching those two bunches together. Even then have a care: Beware of a tense and painful bridge.

I am greatly pleased with the reception given to the discussion of so old a subject as the pessary.

Dr. Thomas J. Watkins, Chicago: It seems to me that Dr. Dickinson's paper is a very timely one, that we are very much in need of reviewing a good deal of the old work and bringing it up to modern ideas, which Dr. Dickinson has done very efficiently.

It would seem to me to be highly desirable if Dr. Dickinson would publish a monograph on the pessary. The pessary is tending to go out of use on account of its abuse. The pessary, I believe, is a very important instrument with limitation. Its use requires a good deal of experience and knowledge of the mechanics of the pelvis and the pessary.

As regards the prolapse operation, I think Dr. Dickinson mentioned a very important thing in regard to cystocele and rectocele, namely—that they are conditions that invariably get worse. They become much worse after the menopause. Rectocele and cystocele, consequently, should be repaired if possible before they become extensive as then less operative work is needed and better results are obtained.

After an experience of eighteen years with the "transposition operation," I feel that the more cases that I have done and the more I have studied the subject, the greater number of problems I encounter. There is no one operation that is adaptable for all cases of prolapse of the uterus and bladder. The operative procedure should be modified to suit the case.

After the transposition operation, there is danger of the fundus protruding, as mentioned in Dr. Goffe's discussion. Its occurrence is either an error in the selection of case or in the technique.

When the uterus is very large or broad ligaments extensively elongated, the modified operation should be done of removing a portion of the uterus and of shortening the broad ligaments by severing portions from the cervix and uniting the cut ends in front of the cervix. We prefer this to a hysterectomy as the technique is simpler. If one builds a firm floor for the bladder, and in case of infection which is very prone to occur in extensive vaginal operations, the final result with the modified transposition operation is almost certain to be excellent; whereas, with the other, there is great danger of recurrence of the cystocele. In case of recurrence of cystocele after hysterectomy nothing can be done for relief, except obliteration of the entire vaginal canal.

It is high time to object to the frequent statements made relative to imitation of Nature in the correction of pelvic lesions. An operation done

for prolapse after the menopause should be an improvement upon Nature, as Nature was handicapped in the development of the female pelvis as a support, because she had to provide for pregnancy and labor. If Nature had not been thus handicapped, she would have given woman efficient pelvic support of the male type of pelvis. If Nature had not been thus handicapped, she would have probably placed the bladder on the posterior surface of the uterus.

Dr. Harry S. Crossen, St. Louis: I was particularly pleased to see the pessary so well studied and so clearly demonstrated in the different cases by Dr. Dickinson. I heartily second Dr. Watkins' suggestion that Dr. Dickinson give us in a monograph the results of his careful study. There is just one class that I hoped Dr. Dickinson would touch on which I believe he did not, and that is the class of cases in which there is no satisfactory shelf left. The ball pessary slips out within a half hour perhaps or as soon as the patient puts a little strain on it. The ordinary pessaries, the Smith and the other forms, will not stay in at all. That class of cases has troubled me considerably, and I have been using in recent years with a great deal of satisfaction the Gehrung Pessary, otherwise known as the double horseshoe pessary. I hope that when Dr. Dickinson brings out his monograph he will describe that pessary so that it will get into the hands of the general practitioner and will be used. I believe when it is understood it will come more and more into general use for that particular class of cases. The heel of the horseshoe on each side takes hold far out on the side of the pelvis, even in those cases where there is almost no shelf left or a very small shelf.

Now, another point that the doctor made, and I think it applies particularly to this form of pessary, and that is the experience that is gotten in dispensary work. You can't learn how to use the Gehrung pessary from descriptions; it must come from actual use under proper instruction. When you get that, it is very easy. That is one form of pessary that I find satisfactory to leave in for a long time without disturbing it—of course, having the patient come at regular intervals. As a matter of fact, in watching these patients, I find that they go for many months often without having to remove the pessary.

Dr. J. Wesley Bovée, Washington, D. C.: I think this is a matter in which the farther we get away from any particular operation or any particular form of treatment, the safer we are. Those who are so addicted to one particular operation find they have to use pessaries after operation, as some distinguished surgeons have told me they have done—not as a precautionary measure, but months afterwards for reputation-savers. I think the best time to use the pessaries is before operation, and I am quite in accord with what Dr. Dickinson said. A large proportion of these cases will be successfully treated by the use of properly fitting pessaries, and no pessary is properly used unless it does fit well, and under such conditions, it should never give symptoms. The pessary that gives any pain or any discomfort to the patient should be removed; it is not the proper one. This is a question that requires a great deal of attention. We should teach our students very thoroughly, I think, on the subject of pessaries, particularly the introduction of pessaries. Every student, you know, wants to operate. Your internes in your hospitals, as has been said, are not easily taught plastic surgery. No, it is the wrong part of the patient. They want to be inside the abdomen, and they are willing to trim their feet to get them small enough to get them inside between the ensiform and the pubes, but they must get there. As I say, the use of the pessary is very advantageous.

I agree with Dr. Dickinson that the soft pessary is to be condemned. The hard rubber pessary is the best we have at present so far as I know. I haven't had experience with the glass pessary, but in the hard rubber pessary, I think, we probably have the best.

I must say a word about the Hodge pessary. I haven't heard very much said about it, but in my judgment the Hodge is the best type we have, and, next to the Hodge is the Smith modification of the Hodge, which is not applicable to such a large variety of cases. A great many think they are using a Smith pessary when they are using a Hodge, and vice versa. There will be traumatic cases, post-perineal cases, as Dr. Dickinson says, in which the pessary cannot be expected to do much for the patient.

There is another class of cases, those of anatomical developmental anomalies, in which we have an improper leverage of the ligaments on the uterus, and in which there will be a retroversion; so long as she has those organs, she will have these displacements unless there is a proper operation done.

These various procedures are all based upon a proper readjustment of the fascia, and any operation, unless it be based upon that principle, will be a failure.

Dr. Edward E. Montgomery, of Philadelphia: I heartily coincide with what Dr. Watkins has said as to the importance of adapting the operation to the patient rather than adapting the patient to some particular operation which we have instituted. There is no operation that will be applicable to every patient so that the procedure must consist of what is best for the particular individual under consideration.

In regard to the operation suggested by Dr. Vineberg, there are cases of prolapse where the cervix is more or less diseased as a result of the protrusions from the vagina where great irritation has caused ulcers and sores. In these cases

there is a certain amount of degeneration of the cervical glands and more or less danger exists from the retention of such structures. I have seen a number of instances in which it was necessary to remove the cervix where supra-vaginal hysterectomy had been done because of the occurrence of cancer in structures which remained. The operation which I have employed in these cases in which there is considerable prolapse and protrusion is vaginal hysterectomy and the utilization of the broad ligaments for the maintenance and support of the bladder by crossing the ligaments beneath the protruded structures which are sutured to their upper surface. After this suturing has taken place the anterior wall of the vagina is closed and a good strong support of the pelvic floor is formed by the recto-vaginal interposition of the levator ani muscles brings these well together in front of the intestines, making sure that no subsequent diastasis of these muscles or protrusion of the rectum through the vagina can take place.

Occasionally in such cases there is seen an individual who is desirous of sustaining the size of waistline with which she started in life when there is protrusion of the viscera through the vagina, or in other words, a vaginal hernia. This is particularly likely to occur under great pressure as the contents of the abdomen must find some place for their accommodation. In these cases the peritoneum should be pushed off in Douglas' pouch and the tissues brought together below it to make sure that no protrusion or hernia takes place subsequently.

Dr. LeRoy Broun, New York City: These three excellent papers cover such a wide field that it is very hard to take them up individually. The problem that Dr. Vineberg presents to us is how to deal with large uteri that cannot be interposed. He advocates the amputation of the fundus and fixing the stump under the bladder.

In such uteri the removal of a large wedge from the fundus to the internal os of the uterus is recognized as a good procedure. This brings the uterus to such a size as it will not protrude from the vagina. Dr. Vineberg has modified this operation in making the uterus smaller by taking it off antro-posteriorially, making it shorter instead of making it narrower. He also, if I understand correctly, makes a point of leaving the cervix, *i. e.*, not amputating the cervix. When the stump of the uterus is fixed under the bladder and the cervix is allowed to remain, its posterior lip is pushed on by the posterior wall of the vagina as a fulcrum and will eventually tend to cause the cervix to project at the vulval orifice. This is what at times occurs in the interposition operations where the cervix is left and the uterus interposed; and Dr. Vineberg mentions this has occurred in some of the cases on whom he has done the operation he proposes. My custom is always to amputate the cervix and I think it should be done also in the operations proposed by Dr. Vineberg.

As to the limitations of Dr. Vineberg's operation I would feel inclined to limit it to partial prolapse and not use such an operation in a complete procidentia. In complete procidentia I feel that the operation that gives the best results in my hands is that of complete hysterectomy, sewing together the broad ligament and putting the bladder on top.

As for Dr. Frank's paper, I have had the opportunity of examining carefully the excellent models that he has brought and which he has not had the opportunity to show you. These models are the result of his dissections and they bring out one thing admirably, the importance when repairing the posterior vaginal wall of not attempting to isolate the levator ani muscle? He shows the triangular ligaments resting against these muscles. In putting in your sutures through the triangular ligament and running the sutures well out to the side, the levati and fibres are firmly caught up and brought together. In this way a firmer and better perineum than from the levator ani alone is obtained. For several years I have discarded isolating the muscle itself, yet know that each deep suture grasps firmly the fibers of this muscle underlying the ligaments.

Your limit of time prevents my speaking of Dr. Dickinson's admirable presentation of the subject of pessaries.

THE NEUROPATHIC OR NERVOUS CHILD.*

By E. B. ANGELL, M.D.,
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WITHIN recent years much has been written about the pathological, the defective, the backward or the feebleminded school child. Little, however, is to be found in the literature about the ordinarily nervous child. Perhaps it is because he is not often brought to our attention, or if so, we dismiss him and his mother or teacher with the chilling remark, that it is a mere matter of nervousness, and he must get over it or be disciplined.

The nervous child needs better treatment at our hands than this, and it is to this class of children that I wish to devote a few moments of your time today.

Dr. Francis Warner, of London, who studied some one hundred thousand cases of children in the London schools, has so far given us the best description of nervousness, such as we note in certain types of school children. I can do no better than quote his description of nervous children from his book on "The Study of Children," from which indeed I have garnered freely for

* Read at the Annual Meeting of the Medical Society of the State of New York at Saratoga Springs, May 16, 1916.

the purposes of this paper: "They are apt to complain of headaches, are difficult to get off to sleep, are bad sleepers, talking at night and grinding their teeth, while in the morning they are tired and not ready for breakfast. They are children who are delicate without having any disease; who indeed are rarely laid up with any definite illness. But they are not strong, cannot walk far without getting tired; some days they are too tired to do anything and must rest; are capricious in appetite, sometimes ravenous, yet easily lose weight. A typical nervous child is generally well made in body, with a good head and well-cut features, a fine skin and light complexion. She may be tall and rather thin, with subnormal body weight. In the nerve-signs we see indications of weakness and over-spontaneity." This group of cases can be distinctly separated from the pathological condition we find in the defective or feebleminded child.

In observing the general character of brain action in the child, we find certain characteristics or expression of cerebral activity. Early we recognize *spontaneity,* those movements of infancy uncontrolled, without co-ordination yet early giving pleasure to the babe. Later one notes the development of *impressionability* and *imitativeness.* The eyes of the normal infant will follow a bright light or a glittering object, showing that through the visual sphere his mind has been impressed with a certain quality of the object shown. With the growth of the child the power of *inhibition* of *movement* is manifested; a most valuable characteristic of the brain in later life, the power to arrest a motor concept, to modify or even deny its recognition. Thus is developed a control through the senses by which the mind gradually acquires desire and volition, the relative values of sensory impression and motor action. Another quality of the mind that is developed early is that of *retentiveness,* through which memory becomes a working power in the normal mind. *Co-ordinated* action, the result of many past impressions, desires and resulting movements, is a later development of the infantile brain.

In the child of eight or ten years, who is normally developed, the reaction of these qualities of the mind are manifested in other ways as well. *Response* to *stimulus* becomes quick, without hesitation. The normal child responds to question or suggestion without delay. The tendency of ideation to spread from one group of muscles to others, is also an early trait and common to the normal child. A smile may spread to the face, the mouth may widen, the eyes half close until the child explodes in a burst of laughter at some ludicrous idea. Again it is not uncommon to see a young child, who is engaged in writing, a too difficult task of co-ordination for his age, with eyebrows contracted and tongue protruded while his lips seem to move in unison with the fingers in forming the difficult words. This spreading movement of mental action is most emphasized in anger when the whole body is influenced by the turgescent idea. Stammering, indeed, is but a spreading muscular spasm associated with the pronunciation of certain sounds.

I have given you enough in substance from Dr. Warner's description of the characteristics of the child, to indicate how valuable is a study of the physiognomy and muscle action in the proper observation of children. It is in the play of the muscles, in the expression of the face, that one can gain information regarding the state of the child's mind, whether it is in normal active condition, whether it is fatigued and needs change of activity or rest, or whether it is in a condition of nervous tension, demanding immediate attention for its relief.

The normally constructed brain of the healthy child in its motor action, presents well balanced muscular movements. The child in standing has its head erect, its arms at its sides and a calm expression on the face; neither wrinkling nor puckering the brows; his gaze is direct and his attention is fixed. Furthermore, a test, which was first employed by Dr. Warner in this examination, is of great value in determining the state of the child's brain. If you ask a child whom you may be examining to extend his arms in imitation of your own example, the arms should come out parallel, the hands almost on a level, while his fingers when extended are flexed or curving slightly downwards from the wrist, the thumbs closely applied to the hands, a condition which denotes the balanced action of a normally acting brain. In the nervous child, however, this test gives a different result. If the child is tired, there is a drooping of one arm below the other, usually the left. The thumb drops away from the hand and in extreme cases the hands drop from the wrist. In the child whose nervous system is in a tense, unbalanced condition, the fingers, in place of drooping, are over-extended with the knuckles inclined slightly backward, marking over-muscular action. This is a condition found rather frequently in the purely nervous child. It was noted in at least 25 per cent of my recorded cases. So valuable have I found this as a sign of the state of the "nerves" in discriminating between normal nervous activity and that due to nervous fatigue or over-tension, that for the last fifteen years I have constantly employed it in testing adult cases of so-called "nervousness" as well.

Absolute nervous fatigue, as shown by the drooping hand, is much less common. I am inclined to regard nervousness in children as dependent upon illy balanced nervous control, rather than exhausted nervous energy, although I am aware that the common view is to regard the nervous child as a neurasthenic.

Relationship between muscular activity and

brain activity is very direct. I can never forget an instance in my own experience, wherein an autopsy showed definitely the value of muscular action in increasing the size of the corresponding motor convolutions as well as the depth of the cortex. At the age of five the child had had a right hemiplegia following an infectious disorder. She recovered the power of speech in the course of two years, but the right arm developed very slightly and by the time she reached adult life it was a "withered" arm. Compelled to use her left arm in place of the useless right, it had become exceedingly well developed. At an autopsy, following her death at thirty-two, the right motor convolutions, corresponding to the left arm, were out of all proportion not only to the convolutions of the left side, but also to the other convolutions of the right hemisphere, while the cortex itself was materially thicker. This one example unquestionably indicates how much muscle activity has to do with the development of the brain. Normal muscular activity has also much to do with quick perception and ready motor response. The physician cannot be too emphatic in stating that military drill not only develops the muscles, but the brain itself is stimulated in growth, while the habit of instant obedience does much to establish healthy brain activity and normal self-control. And self-control cannot be too thoroughly established for the growing child lest an unstable nervous equilibrium later gives rise to the vagaries of a neurasthenic or hysterical patient. Study the nervous child, especially his unconscious attitude or behavior. Note the position of the head, erect in self-assurance or defiance, drooping in self-consciousness or weariness, lopsided in fatigue or nervousness, the latter more common in girls.

Observe the hand, straight and correct when normal; drooping when weak and exhausted, with the knuckles almost over-extended when tense or nervous. Watch the face; its expression vacant or fixed, in contrast to the normal, which is intelligent, mobile in expression and responsive to every impression. In the nervous child, observe the over-acting frontal muscles, indicative of untrained mental action or an unemployed mind. Corrugation of the brows expresses mental stress, a condition of turgescent brain activity. It may be the scowl of ill-temper or fright, or a sign of intense mental effort. This brain sign is more frequent in boys than in girls. Perhaps the orbicularis is relaxed. Note the fullness under the eyes, indicative of fatigue or of low brain power. The eyes are not controlled, the gaze wanders, significant of fatigue and exhaustion. The grinning often seen on the face of the little street urchin marks a weak mind, while over-smiling is a well-known characteristic of the feebleminded. Twitching of the fingers, jerking of the body, twisting of the head, all signify a lack of inhibition power, in a measure a reversion to the spontaneous, uncontrolled movements of infancy. Spreading movements, laughter, for example, dissipate a turgescent emotion, such as anger, or, on the contrary, intensify simple muscular activity to spasm as in stammering. As a rule responsiveness to stimuli is more readily secured through the visual than through the auditory channel, there being a greater readiness to respond to signs than to commands. This is readily seen in any group of boys lined up for drill. A few will respond quickly, almost automatically to the word "attention" from the Scout Master. Many will glance about to see what the others are doing before responding to the command. Slowness of response to auditory direction is noted in the tired and nervous child. Undoubtedly the pathway to the brain through the ear in children is not as well developed as the pathway through the eye. Here again military drill would be of real value in developing ready control and quick response in the mind. This weakened power of inhibition among the nervous, gives rise to habit formation of repeated movements, such as grimaces or other tics. Another habit easily acquired by the nervous child is that of introspection and readily predisposes in later years to unstable equilibrium and self-consciousness, to the detriment of efficient mental activity. Day-dreaming in children is not an evidence of mental activity and should be broken up by stimulation to normal action through muscular activity and the formation of concrete ideas. The uselessness of this mental quality is well illustrated by the frequenter of the corner grocery, "who sets and thinks, but mostly sets."

These considerations, however, important though they be in a comprehensive presentation of the subject of nervousness in children, are by no means the cause of nervousness. Unstable equilibrium, illy balanced muscular effort, undue spreading movements, are indicative of a sensitive or overwrought nervous system, but the cause of this uneasiness must be sought for further.

The neurotic inheritance plays a far more important part in the neurosis of children than it does in those of adult life. In the course of my study of this type of child, I have carefully gone over the records of some seventy-five or eighty cases of typically nervous children. This collection is made up almost exclusively of patients in private practice during the last three or four years and may well represent the average clinical case of simple nervousness in the child. Seventy per cent gave a history of neurotic inheritance; insanity or alcoholism, however, being a specific form of this inheritance in only one-third of the number. This proportion is materially larger than is the case in adults, where I found the percentage of neurotic inheritance not over 50 per cent.

Next to the neurotic inheritance, the arthritic

diathesis is an important feature apparently in nervous instability among children; about 30 per cent giving a family history of arthritic trouble in the immediate ancestry. In fact this proportion of arthritic ancestry is about the same either in children or among adults. In only one case, curiously, did I get a history of tuberculosis in the family, although I doubt not that tuberculosis plays a more important part than this indicates in the transmission of an unstable nervous constitution.

The birth record was normal in most of the cases, as might be expected, although nearly 25 per cent gave a history of some abnormality in pregnancy or delivery. There is not, of course, the common occurrence of traumatism at birth, delayed delivery, forceps cases or suspended animation, so frequently met with in the cerebral palsies, feeblemindedness, epilepsy or other organic brain troubles of childhood.

Amongst specific troubles as well-known causes of nervous, dull, irritable children, are abnormal conditions of the respiratory tract, due to nasal obstruction from enlarged turbinates, deflected septum, adenoids or enlarged tonsils. Visual defects are also commonly regarded as causes of nervousness in children. Indeed, so generally recognized as well-established causes of nervous irritability or inefficiency are these disorders of early life, that the mere mention of them is sufficient to indicate a possible source of the nervous trouble and the means of correcting it. Since the introduction of the inspection of school children by the trained medical observer, much has been accomplished in the transforming of the nervous, irritable yet dull pupil to a happy, normal, intelligent child through the work of the laryngologist. Less well recognized, however, in the correction of nervous defects in children, is the importance of oral hygiene, particularly the correction of defective, deformed or undeveloped teeth. Already many brilliant results have been recorded and there is much to be expected through the active agency of the dental clinic in this connection. Orthodontia, however, lies within the realm of the dentist rather than of the physician, but it is of great importance to the physician to know the bearing this subject has upon a normal mentality, for it is during the age of childhood that proper correction can be made and efficient results obtained.

In a large proportion of nervous children under my care, a direct cause was disorder of the digestive tract or faulty metabolism. Such symptoms as constipation, headaches, mental depression, irritability, vertigo, a sense of fear and poor circulation, were characteristic evidences of disturbed nutrition. The physical signs of a sallow skin, coated tongue, bad breath, distended abdomen, a persistent acidity of the urine, as well as a characteristic reaction of the urine to nitric acid to which I have elsewhere called attention as significant of disturbed metabolism in nervousness, were present in nearly two-thirds of the cases. Nearly one-third of this group of cases were victims of night-terrors and evil dreams. In over one-half of my cases proteids entered altogether too largely into the dietary. Inasmuch as this disturbance in metabolism is readily corrected by a proper diet and an abundance of out-of-door air, I cannot too strongly emphasize the importance of attention in this direction to the treatment of nervousness in children. I venture to say that it is by far the most important element in the direct causation of nervousness in children of unstable equilibrium.

It is undoubtedly true, however, that despite the utmost care and skill in the management of nervous children, a certain small group, unfortunately, will resist all efforts towards correction. It will be found in this class that fear plays a very important part in the mental imagery. The fear instinct is undoubtedly one of the primal instincts of existence, and most difficult at times to eliminate. Shyness or self-consciousness is in a sense the physical manifestation in the child of an instinctive fear thought. Correction of this misfortune requires and deserves most careful treatment and mental training.

In early childhood the most important function in education, is the development of the brain; the training and controlling of its activities, rather than the instillation of knowledge. A well-balanced and responsive brain is of far more importance to the subsequent welfare of the child mentally as well as physically, than early knowledge of books.

The Boy Scout movement, unquestionably, has done much towards the true education of our youth and suggests a direction of effort which deserves more consideration in educational methods at the present time. As a neurologist, I cannot emphasize too much the value of training, such as military drill and the exaction of obedient response which it evokes, in brain development. Those of you who have observed how a group of restless nervous boys can be transformed by proper drill into an alert, efficient squad of scouts, do not need to have brought to your attention the value of this sort of mind training. The recent agitation for military drill in the schools has special significance in this direction and should command the hearty support of the physician.

Another constant cause of a restless, useless mind, is bad air in home and school. Insufficient oxidation is a direct cause of inefficient elimination, especially of proteid material, by far the commonest source of nervous disorder either in children or adults.

The growing prevalence of out-of-door schools is due to increasing recognition of this need. The success of experimental schools of this sort

is almost startling in its influence upon the nervous constitution of the growing child.

For the immediate control of excessive nervousness through nervous tension or undue emotional states, nothing is better than the full neutral bath prolonged from half to an hour. The temperature of the bath should be about that of the body, 98-100 degrees. Its value consists in the well-known influence such a bath has in slowing the heart action, relieving congestion of the central organs by drawing the blood to the peripheral capillaries, and by relaxing the nervous system. This simple procedure alone has oftentimes been of great service in controlling nervousness and has indeed become with myself a routine method in the treatment of restlessness, sleeplessness, simple tics and chorea of the ordinary type in children.

In conclusion, I wish to impress upon you again the need of study of the individual child, not his symptoms alone. Discover by his nerve signs whether he is drooping with a tired brain, or tense with over-active but illy balanced nervous energy. Correct manifest defects of a physical character, see that he is free from the burden of a faulty dietary, secure an abundance of fresh air. Above all insist upon a proper muscular development and ready responsive mental reaction through muscle drill, military in character, if you would have the best, and most of our nervous children, and many of our defective ones would develop into normal, healthy and efficient individuals.

Discussion.

Dr. Brainerd H. Whitbeck, of New York City, stated that in his experience he had found that neuropathic children very frequently had flat feet. He cited an instance of a child where he was very backward at school, nervous, would not eat, tired easily, and had headaches. The doctor attending him put him on a tonic without effect, and was then sent to an oculist, but this did not cure the headaches. On further examination this doctor found the boy had a hollow back and he was then sent to Dr. Whitbeck for further examination, who found that the boy also had flat feet, and after Dr. Whitbeck treated his feet, by putting braces in his shoes and giving him exercises, his condition very much improved. His color came back and his headaches left him and in eighteen months the boy was in excellent condition. Dr. Whitbeck stated that flat feet and hollow backs are very often associated, and that unless a person has had a large experience in these conditions it is very hard to believe this can have such a marked effect upon the general condition.

It is perfectly proper to suppose that the foundation we stand upon must be proper and that if it does not perform its function properly it must have an effect of strain on the knees and feet, and what is the good of giving tonics in a condition of that kind. He said that only by the proper treatment of the child's feet and making him use his feet properly, can he perform the proper function, and only in this way is the foot going to serve him as it is intended to do.

Dr. Angell, in summing up, stated that while in his paper he cited some rules for the classification of nervous children, of course there were many other conditions that cause nervousness to which he had not referred. He also approved Dr. Whitbeck's remarks regarding flat feet, and said that he had often found flat feet associated with hollow backs.

THE RADICAL MASTOID OPERATION.*

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In the year 1891, Stacke, at present professor of otology in Erfurt, brought forward an operation for the cure of chronic suppuration of the ear, which in its modified form is known the world over as the Schwartze-Stacke, or the radical operation on the ear. In the twenty-five years which have elapsed, the operation has been performed hundreds of times and by many operators. The present time, then, is a fitting one for an unbiased consideration of how far the operation may justly be regarded as accomplishing what it was designed for. We undertake this, not unmindful of the recent excellent paper on the same subject by Dr. S. MacCuen Smith.

To do this with any degree of satisfaction a correct understanding of two points is essential. For want of doing this, many a like inquiry has proved a failure. First, exactly what is the radical operation? Second, when is it indicated?

These two questions may be answered together in a single sentence, by saying that the radical operation, applied to the ear, means as elsewhere in the body, an operation for the radical or complete removal of all disease, and is indicated when cure by other measures is found impossible.

The simple opening of the mastoid as devised by Schwartze had at the time that Stacke reported his operation been performed for eighteen years. While successful in many cases, especially in those of an acute nature, all operators found that it often failed to completely cure the disease where the suppurative process was a chronic one. To accomplish this, Küster in 1889 in an article in the *Deutsche Medinische Wockeschraft* recommended a more thorough eradication of the disease by the removal where necessary of the posterior wall of the external auditory canal, together with the malleus and incus. Two years later, Stacke,

* Read at the Annual Meeting of the Medical Society of the State of New York, May 16, 1916, held in Saratoga Springs.

with the same end in view, based on a series of twenty-five cases which he had performed, advised attacking the disease in the middle ear through the auditory canal, for this purpose exposed by the familiar post-auricular incision. When this had been done, the antrum was opened through the aditus and all disease removed. In addition if dead bone or granulation was found in the mastoid cells, these were opened and cleaned out. To cover the bony defect, a flap was recommended to be thrown from the posterior wall of the membranous canal.

As now practiced, the radical operation has widely departed from the original procedure of Stacke, and follows more closely the lines laid down by Küster, in that the antrum is opened in the usual way and then by an extensive lowering of the posterior canal, the mastoid cells and antrum, the middle ear and the external auditory canal are thrown together into one cavity, after thoroughly removing all disease.

It must be constantly borne in mind that the original indication for the operation, as laid down both by Küster and Stacke, was solely to cure a chronic suppuration. The fact that in the course of the operation, intercranial complications are discovered, or of its performance as a means to relieve intercranial complications already discovered, must not be allowed to befog the simple and usual indications for its use.

Assuming that we are agreed now as to exactly what is the radical operation and what the true indication for its performance is, we are prepared to consider the main question before us—to what extent does the radical operation succeed in accomplishing what it is usually performed for? As far back as 1906, Dench in a paper read before the American Laryngological, Rhinological and Otological Society (*Transactions of the American Laryngological, Rhinological and Otological Society*, 1906, page 258), reported his results to be 75 per cent of cures out of 173 cases, the last ninety-five cases in this series showing 80 per cent of cures. Smith, in a paper read before the same society in 1915, reported 80 per cent of cures, which he claimed could be increased 95 per cent or better in private work; "in 32 per cent of operated cases the hearing was definitely better, in 49 per cent relatively the same, and of the remaining 19 per cent, in 11 per cent the hearing decreased after operation according to actual record, and in the balance, or 8 per cent, it decreased according to the statement of the patient."

These two distinguished surgeons possess in the highest degree the technique essential to produce the best results. It must be recognized, however, that all operators, and indeed most operators, do not possess their degree of surgical skill, and our inquiry has to do with the results obtained not merely by a few, but by many operators. Are the results reported by Dench and Smith the results which are being secured by the rank and file of aural surgeons today? Stated succinctly, have we the right to expect from the results of the last twenty-five years that the radical operation will usually cure chronic suppuration; second, that it is a safe operation so far as injury to the hearing is concerned; third, that it is reasonably free from dangerous complications?

An authoritative answer to these three questions is difficult. It may be impossible. Statistics are proverbially misleading and any one who has had occasion to consult hospital records knows how woefully lacking they are.

Straws, however, show the direction in which the wind blows. A short time ago the writer had an opportunity to follow the dressings in probably the largest of the foreign clinics. He was amazed to see the number of suppurating ears persisting after the radical operation, as well as the large number of facial palsies. The operations had been performed by half a dozen or less operators possessing the highest surgical skill. In this country he has been permitted to examine in one of the leading special hospitals, all the records obtainable of the radical mastoid operation performed during the last two years. These numbered eighty-five. In most of them an accurate functional test before operation was lacking. Also, in most cases no statement appeared of the condition of the ear at the time of discharge from the hospital. Twenty-four patients responded to a postal card requesting them to call for examination. These cases were carefully examined, and the result of the examination is given under the four headings of:

	Discharge	*Hearing*	*Epidermization*	*Condition of Tube*
1.	Yes	Worse	Granulation	Granulation and on wall
2.	Yes	V-10′, W-2′		Open
3.	No	?	Yes	Closed
4.	No	?	Yes	Closed
5.	No	?	Yes	Closed
6.	Yes	Lost	Yes	Except at open tube
7.	Yes, odor	Same	Still under treatment	
8.	Yes	Worse	Partial	Open
9.	No	Lost	Yes	Open
10.	Yes	1′ worse	Partial	Open
11.	No	1′	Yes	Closed
12.	No	None	Yes	Closed
13.	Yes	2′ better	Granulation inner wall	Open
14.	No	Lost	Yes	Closed
15.	No	Loud voice	Yes	Closed
16.	Yes, odor	Same 2′	Canal filled	
17.	Yes, odor	Same 2′	Under treatment	
18.	Yes	Same	Granulation middle ear	Open

19. Rt. yes, slight	1′ better	Small post. wall	Closed
L. No. (Lecture case)	2′ worse	Yes	Closed
20. No	3′	Yes	Closed
21. Yes	1½′	Yes, except at open tube	
22. Yes, odor	2′	Except inner wall and open tube	
23. No	2′	Yes	Open
24. No	2′	Yes	Closed

This summarized, represents twenty-four cases with twenty-five ears operated upon. Of these twelve ears were found upon examination to be perfectly dry, or 48 per cent. Thirteen, of 52 per cent, were still discharging. Of these odor was detected in five. As regards epidermization, the ear was found fully epidermized in fourteen, partly in three, while granulations were found in five. Two cases were still under treatment. It may be added that in no instance had the operation been performed less than five months previous.

As regards hearing, except in one or two cases no pre-operative tests had been recorded. We were accordingly compelled to depend upon the statement of the patient as to the condition before operation. The Barany noise producer was used in our examination in each case. Accurate statistics were found to be well-nigh impossible. The general impression gained from our questioning was that the hearing in the operated ear was for all ordinary purposes lost. Whether this condition obtained in most of the cases before operation it is impossible to state. Two patients, or 8 per cent, reported the hearing improved; in four, or 20 per cent, it was reported as having remained the same; while in four, or 20 per cent, it was reported worse. Of the remaining fifteen, we were in doubt as to the condition in three cases, in four cases the whispered voice was heard at two feet, one at one foot, one at one and a half feet, and one at three feet. In all of these seven cases, only one of which heard at more than two feet, we can fairly regard the tests as showing the hearing lost, and in a general way, in spite of the lack of accurate statistics before operation, we are forced to the conclusion that the contention of those who claim that the hearing is improved or maintained by the operation, is not borne out.

In eleven of the twenty-five cases the eustachian tube was closed so far as could be determined. In nine cases it was open. In ten of the cases where the ear was found perfectly clean, the tube was permanently closed. In only two of the perfectly healed cases was the tube found open.

These statistics represent the work of approximately a dozen operators, all of them men with large experience. They do not differ in our opinion from the results obtained in other hospitals. The number of cases actually examined is not large. We cannot, however, with any degree of confidence believe that the remaining fifty-five cases would have given any different results. Moreover, from conversation with colleagues the country over, the findings are entirely in line with what in their experience exists.

Indeed, a careful analysis of the results reported by Dench indicates that what he regards as a cure differs from what we understand it to be, for he qualifies his statement of "80 per cent of cures" by stating that "in no instance did the discharge remain profuse after the operation, all of the cases being either dry or presenting but slight discharge from the meatus." Further on he refers to cured cases returning at intervals with the complaint of discharge from the canals. Exclusion of such cases would decidedly alter the figures which he gives.

With the limited and insufficient data before us we are forced to the conclusion, then, that the results so enthusiastically claimed by some of the advocates of the radical operation are not being uniformly secured. It would appear that approximately 50 per cent, or every other case, shows after an interval of several months following operation, persistence of the discharge to a greater or less degree.

We were, moreover, impressed in our study of the cases by the frequency with which patients volunteered the information that the discharge from the ear was no whit better following the operation. In a still greater percentage of cases the *hearing* in the operated ear was for all practical purposes lacking, although we have no accurate information to show in how many cases the hearing was unsatisfactory before operation. This aspect of the ear, particularly from its economic standpoint, was to us most distressing, and should give food for thought.

Is the operation then on this account to be condemned or given up? A thousand times no. The innumerable cases that it has cured is sufficient proof that it has come to stay. Such being the case, what are the reasons for the failures in so large a percentage of cases? In our opinion, the two chief reasons are, first, *failure in determining the proper indications* for the operation, and, second, *faulty technique in the operation* or in the *post-operative treatment.*

First in regard to the indications. There is no question in our mind that in many instances the radical operation is unnecessarily performed. An important discussion on this subject took place before the American Otological Society in Boston, in 1907. At that meeting papers were read by Dr. Crockett, of Boston, and Dr. McKernon, of New York.

while the discussion which followed was engaged in by numerous aurists from all over the country. The whole trend of the discussion was in line with the assertion just made, namely, that the operation was being performed without a careful determination of the indications for its use. A suppurating ear extending over a few weeks or months, where the probe shows that no dead bone is present, is not a proper case for the radical operation. Such cases should be subjected to a careful and systematic course of treatment before any operation is to be considered. Especially is this true if the discharge is only intermittent and the hearing only slightly reduced. Proper drainage through incisions in the drum and unremitting care in keeping the nasopharynx clean, will perfect a cure in a large percentage of these cases.

The second group, where the radical mastoid is not required, as pointed out by McKernon, is composed of children with the history of discharge following the exanthemata. Here removal of the adenoids and tonsils with conservative treatment to the ear is the proper course to pursue. In this way the hearing is preserved. It is impossible in any of these cases to say how long local treatment should be kept up. The statement of McKernon is significant, that he has seen a number of cases in both hospital and private practice where after a radical operation the patient has volunteered the statement that if he had known the hearing would have become so poor he would never have had the operation performed.

With the risk of being regarded as an ultra-conservative, we venture to say that the fetish that every suppurating ear is a volcano which may explode at any moment, is far from the truth and is responsible for many an operation which otherwise would not be performed. Kipp, who at the time of his death had as large an experience as any one in America, stated at the meeting just referred to that he had never seen intercranial complications follow ear trouble which was under treatment. While Kipp may have been more fortunate than most of us, the total number of such cases in any one man's practice cannot be large. Crockett is particularly emphatic in his advice against operating radically upon an ear with good hearing, in case the hearing in the other ear is destroyed, unless the indications are particularly exacting.

With patients with double chronic suppurative middle ear disease, he feels that only in the presence of symptoms indicating danger to life should the radical operation be performed.

Again, when conservative treatment has failed to stop the discharge, it is by no means certain that the complete or radical operation is necessary. In the words of Blake, "The all-important point is the determination of the main source of the suppurative discharge, whether it is antral or post-antral, or mainly from the tympanum including the carious process in the ossicles, or whether spontaneously ceasing and frequently recurrent it has its source from reinfections in the eustachian tube."

Careful study of the case, including the aid given by a good X-ray picture, will generally show whether the disease is limited to the antrum and mastoid cells. If so, the classical Schwartze operation will prove sufficient. In this way the middle ear will be left undisturbed and the hearing unimpaired.

All aurists are agreed as to the important rôle that the eustachian tube plays in keeping up infection in the middle ear. Bryant goes so far as to assert that every case of suppuration from the middle ear can be cured by appropriate treatment addressed to the nasopharynx. Hays in a paper read before the New York Academy of Medicine (Volume 1911, page 86, *Annals of Otology*) in 1910, quotes as the opinion of a large number of men with whom he has talked that 80 per cent of all cases of suppuration from the ear can be cured by appropriate measures directed to the tympanum, without resorting to the radical operation.

An all-important part of such treatment is an effective checking of the infection from the nasopharynx. This the favorable reports presented in the paper by Yankauer in Chicago last year, would show can be secured by the closure of the tube according to his method. This operation has now been before the profession for six years. We at first were inclined to feel that the closure of the tube was not a scientific procedure. In the light of the statistics given by Yankauer, representing 119 operators and a total of 735 operations performed, in which 609, or 83 per cent, of the cases presented a closed tube, and in fifty-one, or 5/10 per cent, the suppuration cured, makes us feel that the operation is of decided merit. Yankauer, indeed, is so optimistic that he feels that every case should be given the chance of a cure by closure of the tube before proceeding to the radical operation. While most of us are not prepared to follow him to that extent, it seems reasonable to assert that in cases where no necrosed bone is discoverable and the secretion is mucus rather than purulent, without odor, especially if the X-ray picture reveals little or no trouble in the mastoid cells, the operation should be performed if only, as Yankauer suggests, as a preliminary step to the radical operation, which always demands the closure of the tube. Yankauer in his paper touches upon the all-important question of the effect

of the operation upon the hearing. Concerning this he is equally encouraging, inasmuch as he states that in only 4 per cent of the cases was the hearing made worse, while in 46 per cent of the cases it was reported as improved.

We are not enthusiastic in regard to the benefits of the conservative mastoid operation of Mr. Heath, but certainly his insistence upon the importance of an attempt to preserve the hearing and the neglect that aurists have shown in their operative work in this respect is deserving of the most careful consideration. It was clearly the intention and advice of Küster and Stacke that the radical operation should be performed only when the disease has been found to extend into the middle ear. If the operation is performed in this way, the criticism of Mr. Heath is not warrantable, but too often it is performed without any proper investigation of the exact situation of the disease. We fear the statement of Mr. Heath is only too true, that "with the exception of those patients the condition of whose ears had become so dangerous to life as to demand early operative assistance, the saving of the hearing has been purely a matter of good fortune."

To recapitulate, as the result of this investigation we are drawn to the following conclusions:

First—That the radical operation is an operation of undoubted merit.

Second—That it has been in the past, and is today, being performed often when not called for.

Third—That the results are by no means uniformerly good, partial or complete failures occurring in a considerable percentage of cases.

Fourth—That improvement in the hearing cannot be promised. The most that can be offered, in the light of our statistics, is that the hearing will not be altered, although there is sufficient risk of lowering or destroying it to warrant reluctance or refusal to operate in case the hearing in the other ear is destroyed.

Fifth—That while accidents, including facial paralysis, are met with in the course of the operation, they are not of sufficient frequency or significance to have any bearing upon a decision in regard to the operation.

Discussion.

Dr. Percy Fridenberg, New York City: This paper of Dr. Harris' opens up a number of important points. The question of operative results after the radical mastoid; the question of narrowing the indications for the operation; the degree to which coincident adenoid growths in the nasopharynx are responsible for continued suppuration; and the point of possible overlooked bone involvements, with which such adenoid suppurations would have nothing whatever to do, in a continuation of a discharge from the ear, which could be operated on by the radical operation.

Dr. Isidore Friesner, New York City: I think we should be very grateful to Dr. Harris, particularly for emphasizing the question of indications; and I only wish that he had emphasized it more. Conservative men do not think of doing the radical mastoid operation where there is only a chronic discharge. There must be something else; something else which when the case is carefully weighed leads one to believe that there is imminent danger from that chronic suppurating ear. There must be, for instance, cholesteatoma; there must be large granulations occluding the canal and interfering with drainage; there must be necrosed bone; there must be vertigo or headache; there must be pain in the mastoid. In other words, each case of chronic discharging ear is put upon its own basis and weighed carefully, and only when the surgeon considers that that chronic ear is a menace to the life of the patient should a radical mastoid be undertaken. So much for indications; now, a word as to treatment:

Indiscriminate use of the currette in the middle ear is fraught with a great deal of danger. We do not know where these granulations grow from, and it is exceedingly dangerous to curette them or to treat them by means of caustics. There are cases—and I have contributed my report to Dr. Yankauer—there are cases of chronic discharging ears amenable to treatment by closure of the tube. However, there surely are cases of chronic discharging ears which are not amenable to such treatment in that they will not be cured nor will the menace to the life of the patient be eradicated by closure of the tube. These cases demand the radical mastoid operation.

A simple mastoid is a safe procedure in the hands of anybody who has a reasonable working knowledge of the anatomy of the mastoid. However, the radical mastoid operation must be particularly well done, and one who attempts the radical mastoid must have made himself thoroughly familiar with the anatomy of the temporal bone through years of deadhouse work, before he can expect to get a considerable proportion of cures. It is not an operation that must be attempted lightly. In the last year, for instance, I have had—among others—two little girls in Dr. Phillips' service at the Manhattan Eye and Ear Hospital, upon whom I did the radical mastoid operation. One had a large polyp at the external auditory meatus. I found that this granuloma started from an exposed dura over the tegmen antrum, eroded the aditus—

so that it was almost large enough to admit my little finger—filled up the middle ear, and presented a mass of considerable size at the external auditory canal. As far as I know—and I tried conservative treatment—no method of treatment except the radical mastoid operation would have cured that child. That little girl has remarkably good hearing; tested with a noise apparatus in the other ear she hears my whisper at ten feet.

Another case—the other little girl came to the hospital with a suppurating cholesteatoma, with pain, with mastoid tenderness, with vertigo, with fever. I did a radical mastoid on her; she healed, but is totally deaf. Now, of course, I am rather disappointed at the result of the hearing in this case, but I am not very deeply chagrined even with the loss of hearing, because I feel that I instituted that measure to save the little girl's life.

Dr. John Kepke, Brooklyn: Like the most of us, eight or ten years ago almost every case of chronic suppuration of the ear that came under my care was operated on radically. But after seeing my own results and those of better operators than I, I came to the conclusion that this operation was not the panacea for chronic suppuration; and began to treat cases rather more conservatively, seeing them every day if necessary, with attention to the eustachian tube and tympanic cavity. In that way most cases of suppuration were brought to a standstill.

But there is one class that has hardly been mentioned today—or when it was mentioned it seemed to me that evidently all the experts agreed that in those cases a radical mastoid was indicated. For some time, where a suppuration didn't cease by any other procedure, I have adopted what is practically the simple mastoid operation, leaving the posterior wall alone, and differing only from the method of the ordinary operation for a simple mastoid by opening the antrum very completely so as to make, as nearly as may be, the mastoid and the antrum one smooth cavity. But now, what do you do in the fulminating cases? As Dr. Harris says, those cases in which a radical operation is indicated or in which we have severe symptoms are those that are not treated, those cases which come on suddenly with fever and labyrinthine symptoms. I have found even in those that by doing a simple mastoid operation—or rather, modified in that way, making it rather more complete than the simple operation, we get exactly as good results as in the simple mastoid, because most of those cases that threaten life threaten life through the mastoid or through the antrum. And there is very little reason, in my opinion, for removing the ossicles or in any way endangering the hearing of the patient when the result may be obtained by a clearing out of the mastoid and the antrum alone. So that our procedure now is to do a simple mastoid with a little rather more attention to the antrum and then closing it up as the radical mastoid is now closed up, treating the suppurating tympanum if necessary afterwards. But as a rule, as we all know, suppurations that are confined to or have their origin in the eustachian tube and the middle ear may be practically cured with a conservation or a betterment of hearing by attention to the tympanic cavity and the eustachian tube alone.

Dr. W. Meddaugh Dunning, New York City: I regret exceedingly that I haven't with me two specimens of the temporal bone which I have recently secured. My judgment regarding the temporal bone and its complications is based primarily on anatomical specimens of this bone. For example, I cite the following case: A short time ago I was fortunate enough to have in my hands a pair of temporal bones of a man—we have his history to a certain extent—who entered the hospital as an alcoholic, with profuse discharge from both ears; he developed pneumonia and died. Subsequently the bones were secured. The amount of destruction that had been done to the middle ear was surprising. The external horizontal on one side was uncovered; the facial nerve was entirely uncovered; and the external horizontal on the other side had nearly the same amount of damage done to it. This man was able to give a fairly good history of his condition running back for a number of years. And I think, had any one used a curette on those ears, he'd have undoubtedly found himself in serious trouble. And we often see the same danger in cases where there is a fistula in the external horizontal semi-circular canal, at which point it usually appears, although at other times it does not confine itself to that point alone, but seems to follow around the outer edge of the circle. In such instances I consider it a rather dangerous procedure to go in with a curette or any other instrument where you cannot see exactly what you are doing.

However, the specimen bones which, unfortunately, are not available this afternoon will be on exhibition in a short time, so that any one who wishes to, may see them. I reiterate my regrets in not having them with me on this occasion.

Dr. Fridenberg: Before we close, I would just like to call attention to one point; and that is, it seems that there is an unfortunate use of the words "chronic suppuration." It seems to me that that covers a multitude of conditions, and that according as it applies to one or the other condition, we have to deal with cases requiring a radical operation, or at

least an intensive mastoid operation, and those cases which can be treated by Yankauer's operation or by removal of adenoids or both combined. In the one case this chronic suppuration is a discharge of true bone pus, and the continuance of that suppuration indicates progressive bone involvement, with or without the classical symptoms of pain and tenderness and prolapse of the posterior wall or fundus changes in the ear. In the other case, in the narrow sense it is not a true suppuration; it is a discharge of mucoid secretion from changed mucous membranes or from polypoid growths or directly from the nasopharynx carried off into the ear. But if we call all of those cases chronic suppuration from the ear, I think we are obscuring the picture of indications for operation; and I think that that is particularly true in children, where we so often see these sufferers with adenoid growths getting acute earache, perforations of the drum, discharge of decidedly mucoid pus, clearing up after perhaps a week or two, with a slight fever, and then after a fresh infection of the nasopharynx, getting their "head cold," and having an infection as in the first discharge, without any case of bone involvement.

A STUDY OF THE CEREBRO-SPINAL FLUID IN FIFTY CASES OF CEREBRO-SPINAL SYPHILIS.*

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THE value of the examination of the cerebro-spinal fluid as a differential diagnostic agent in many obscure neurologic and psychologic disturbances is steadily growing in importance. The information derived is not only of value in differentiating between functional and organic affections of the nervous system but is a guide to therapy and in deciding when to terminate treatment after a complete disappearance of all clinical manifestations.

Every case of syphilis as well as every case which suggests infections of the nervous system should have a lumbar puncture made and the fluid examined. This examination should include the estimation of the pressure, the globulin determination, the cell count, Lange's colloidal gold chlorid reaction and the Wassermann reaction. The cell count should be made as soon as the fluid is removed to prevent error from hemolysis.

The study of the cerebro-spinal fluid is of greater importance in nervous cases than that of the blood serum, for it shows not only that the patient has syphilis but also indicates that the nervous system is implicated. A positive reaction in the cerebro-spinal fluid is present only when the nervous system is involved. In syphilis the Wassermann reaction will usually be positive, the globulin in excess, the gold chlorid reaction present and the cell count increased above six per c.m.m., the number depending on the meningeal irritation. If the syphilis is confined to the brain alone, the Wassermann reaction in cerebro-spinal fluid may either be negative or fleeting, whereas the blood serum is generally positive. The reason for this is the stasis in the lower part of the cord and to the small amount of active communication between the fluid of the brain and spinal fluid.

The *cytology* is a very important element in the study of the cerebro-spinal fluid. When studied differentially it gives some insight into the severity of the meningeal reaction. The Wassermann and other reactions are of value in determining the etiology of the affection, but the intensity of the meningeal affection is usually more clearly shown by the cytology. Variations in the cell count is sometimes found at intervals in any stage of the disease. Sometimes high or low counts persist for considerable lengths of time in various stages of the disease. A large number of counts were made by Dr. Paul Weston, of the Warren State Hospital, Pa. He found that they varied from day to day and without apparent reason. In all instances, the counts were made within a few minutes of taking the spinal fluid, so that no opportunity for cytolysis was given.

The dividing line between normal and pathological spinal fluid appears, according to statistics, to be about 5 or 6 cells per c.m.m. In tabes dorsalis the count is never higher than about 100, usually from 40 to 60. This number diminishes in the declining stages of the disease.

The *globulin reaction* gives us a means, in doubtful cases, in differentiating between functional and organic affections of the central nervous system, but not between luetic and non-luetic conditions. Excess of globulin always means organic disease, while its absence, like most negative findings, is not of equal value in absolutely excluding organic conditions. Real significance in the findings in differential diagnosis becomes apparent only when the presence or absence of the reaction is carefully construed with a full knowledge of all the clinical facts in the case. The Noguchi Butyric acid test seems the most reliable and delicate. It is always present when the other globulin reactions are positive.

The Lange *colloidal gold chlorid* reaction is a useful adjuvant to the Wassermann and other tests in the cerebro-spinal fluid. It is present in most cases of syphilitic involvement of the central nervous system. In general paresis there is a distinct curve, which is known as the "paresis curve." In tabes dorsalis the reaction is not

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quite so characteristic and is present less frequently. The reaction is more delicate than the Wassermann, the cell count or the globulin content. It is nearly constant in syphilis of the central nervous system; it is extremely sensitive and is reliable when positive; the amount of fluid used is quite small (0.2 cc.); definite conclusions are reached with ease and rapidity; the margin of errors is exceedingly small; it runs parallel with the Nonne Phase I and Noguchi and bears relationship to the Wassermann reaction, which is constant. The chief advantages in this reaction are the small amount of fluid, its technical simplicity, the sharpness of the reaction, and its delicacy. The reaction is particularly useful in differentiating incipient general paresis and neurasthenic disturbances in a syphilitic.

The *Wassermann reaction,* when unmistakably positive in the cerebro-spinal fluid, is highly characteristic of the syphilitic process, and, generally speaking, is of greater significance than the blood Wassermann when it is desired to establish the nature of a given nervous disorder. The positive reaction, because of the possibility of many technical errors, is of more value than a negative reaction. The chief source of error is in the employment of various technics and reagents by the different serologists. Uniform results cannot be expected until all laboratory men agree to use the same technic and the same type of reagents. The Wassermann reaction is so difficult to perform that it should be entrusted only to those trained and experienced in laboratory technic and by those who give their exclusive time to this work.

A review of the literature gives quite confusing and contradictory reports. Many reports are published showing positive reactions in many different diseases. These results we now know must have been due largely to technical errors. Positive reactions may occur in leprosy and frambesia and in a few cases after anesthesia, but not in scarlet fever, malaria and the other infections reported by the earlier investigators. Diseases like leprosy and frambesia give symptoms of such character that they may easily be differentiated from syphilis. Consequently the Wassermann reaction, when properly performed, is highly specific of the syphilitic reaction.

The positive Wassermann reaction is now a more constant finding in the cerebro-spinal fluid since larger (five times) quantities of fluid is used in performing the reaction. Sometimes the reaction, negative with the smaller amounts, is positive with the larger amount. Hence, a negative response should not be accepted as decisive until the technic with the larger amount has been used. The use of such large amounts of spinal fluid do not tend to non-specific finding in non-luetic cases.

The Wassermann reaction has the great advantage that as yet it has never been found positive except where actual syphilitic infection of the central nervous system is present.

In this analysis fifty cases of syphilis of the central nervous system has been observed. Some of these cases have been from my private practice, but most of the fluids are those given me for analysis by the physicians of the Rochester General Hospital. I am especially indebted to Drs. Joseph Roby and Charles Boswell for their help in this study. The pressure of the cerebro-spinal fluid does not appear in this series because most of the lumbar punctures were not done by the writer. The determinations which were made were by different men and by different methods so that they were too inaccurate to appear in the analysis. Ten cases of cerebro-spinal syphilis, 11 cases of tabes dorsalis, 20 cases of general paresis and 9 cases of taboparesis were studied.

Table I. Cerebro-Spinal Syphilis.

Case No.	Globulin: Noguchi Butyric	Globulin: Nonne-Apelt	Globulin: Ross-Jones	Cell Count per c.mm.	Lange Colloidal Gold Chlorid	Wassermann: Serum	Wassermann: Fluid	Remarks
1	††	††	††	24	1442200000	††	††	
2	†	†	†	18	0011100000	†	†	
3	†	†	†	20	0000000000	†	††	
4	—	—	—	0	0000000000	—	—	C. Sp. Syph. 6 years ago. Clinically cured.
5	†	†	†	10	0001111000	‡	†	
6	††	†	†	12	001210000	†‡	††	
7	‡	†	†	8	0000000000	‡	†	
8	††	††	††	20	0133100000	†‡	‡	Appeared in the guise of neisserian infection. No secondary symptoms.
9	†	†	†	9	0012100000	‡	†	
10	††	††	††	36	0231000000	††	††	

Wassermann: †† No hemolysis; †‡ slight tinging of supernatant fluid; † 50 per cent. of cells not hemolyzed; ‡ few cells not hemolyzed; — complete hemolysis.

Globulin: — Opalescence to very faint haze; ‡ faint haze to haze; † fine granular precipitate; †† heavy granular or coarse flocculent precipitate; ††† very heavy flocculent precipitate.

Gold Chlorid: 5 colorless; 4 pale or gray-blue; 3 blue; 2 purple or lilac; 1 red-blue; 0 red or no change from the control.

Signs and symptoms in cerebro-spinal syphilis are quite manifold and varied. This is due to the variation in site of involvement and to the character which the process exhibits. In the cerebro-spinal fluid we find a more constant picture. Almost every case shows a strong globulin reaction, a positive gold chlorid reaction and a positive Wassermann reaction. Case No. 4 was diagnosed as clinically cured and the examination of the fluid confirmed the diagnosis. Cases 2 and 3 had rather doubtful clinical findings at the time of the study of the fluid. Later study of these cases confirmed the laboratory findings. Case No. 8 is interesting because it appeared in the guise of a neisserian infection and did not show the ordinary secondary symptoms. Without the examination of the cerebro-spinal fluid the diagnosis might not have been made. Specific infection is now recognized as possible without the appearance of a chancre or the so-called secondary symptoms. The reasons for this have been ascribed as either that the infection is very mild or the resistance of the tissues is such that it overcomes the toxic invasion. It is important to recognize that such cases are possible, for it is these mild cases of syphilis which later on may be followed by involvement of the central nervous system.

Eleven cases of clinically diagnosed tabes dorsalis appear in this series. Most of these examinations were made after the patients had been given considerable treatment. This alters the findings somewhat. The globulin reaction was present in 7 cases, weakly positive in 2, and negative in 2 out of the 11 cases. The cell count increased in 8, normal in 1, and borderline in 2 cases. The highest count was 55. The Lange gold chlorid reaction in this series of 11 cases did not show any characteristic curve. Five cases showed some color changes but no marked color changes in the tubes were seen except in cases 14 and 20. Both of these cases also showed a large increase in globulin and in the cell count.

The Wasserman reaction was positive in the serum in 5 cases and in the fluid in 7 cases out of 11 cases. In 1 case (No. 11) it was negative in the serum and positive in the fluid. In all the other cases the findings were consistent. Case 20 has decided ataxia but no other clinical signs. It was diagnosed as irregular tabes.

The examination of the cerebro-spinal fluid in

Table II. Tabes Dorsalis.

Case No.	Globulin: Noguchi Butyric	Globulin: Nonne-Apelt	Globulin: Ross-Jones	Cell Count per c.mm.	Lange Colloidal Gold Chlorid	Wassermann: Serum	Wassermann: Fluid	Remarks
11	‡	—	—	0	0000000000	—	†	Early case.
12	†	†	†	20	0012200000	‡	††	
	weak	weak	weak					
13	†	†	†	7	0000000000	—	—	After systematic treatment.
14	††	††	††	55	0342100000	††	††	
15	—	—	—	6	0000000000	—	—	After systematic treatment.
16	††	††	††	45	0111100000	††	††	
17	†	†	†	13	0000000000	—	—	After systematic treatment.
18	†	†	†	18	0112210000	†‡	††	
19	†	†	†	15	0000000000	—	†	Decided ataxia but no other signs.
20	††	††	††	50	1444100000	††	††	
	weak	weak	weak					
21	†	†	†	10	0000000000	—	—	Quiescent for about 10 years.

Table III. General Paresis.

Case No.	Globulin: Noguchi Butyric	Globulin: Nonne-Apelt	Globulin: Ross-Jones	Cell Count per c.mm.	Lange Colloidal Gold Chlorid	Wassermann: Serum	Wassermann: Fluid	Remarks
22	††	†	†	15	5553210000	†	†	
23	—	—	—	16	4442421000	—	†	
24	—	—	—	0	4443310000	†	†	
25	†	†	†	24	4444332010	†	†	
26	††	††	††	24	5553322200	†	†	
27	††	††	††	46	5554211000	†	††	
	†	†	†	20	3321122000	†	†	Same patient a few weeks later.
28	††	††	††	24	5555332000	†	†	
29	†	†	†	8	5555000000	†	†	
30	†	†	†	23	5555000000	†	†	
31	††	††	††	21	5554222110	†	†	
32	‡	—	—	0		—	—	Clinical diagnosis of general paresis disputed.
	—	—	—	5	4444420000	—	—	
	†	..	..	†	Reported †			
33	†	†	†	12	5554433100	‡	‡	
	weak	weak	weak			†‡	†‡	
34	†	†	†	21	5553210000	†	†	
35	††	††	††	50	5553210000	††	††	
36	††	††	††	44	5555110000	††	††	
37	††	††	††	32	4543310000	††	††	
38	††	††	††	18	5544310000	††	††	
39	††	††	††	45	5555221000	††	††	
40	†	†	†	16	4443220000	†	†	
41	†	†	†	35	5544321000	†	†	

tabes does not yield quite as much information as in paresis or cerebro-spinal syphilis but nevertheless the findings are of value. In some cases an early diagnosis can often be confirmed and a valuable index of the result and efficiency of subsequent therapy is obtained.

The strongest and most characteristic reactions were seen in this series of 20 cases of paresis. All cases showed well marked color changes in the Lange colloidal gold chlorid reaction. The typical "paresis curve" was seen in all the tests. The highest cell count was 50. It was normal in 2 cases and only a slight increase in another. The globulin was positive in 16 cases, weak in 2 cases and negative in 2 cases. The Wasserman reaction was positive in every case except 2. One case showed negative reaction in the serum and positive in the fluid. Case 32 had two examinations in one laboratory and one in another. The findings were at variance. The clinical diagnosis was paresis by one neurologist and not-paresis by another neurologist of equal standing. The gold chlorid reaction made by the writer gave the typical "paresis curve." The report from the

Table IV. Tabo-Paresis.

Case No.	Globulin: Noguchi Butyric	Globulin: Nonne-Apelt	Globulin: Ross-Jones	Cell Count per c.mm.	Lange Colloidal Gold Chlorid	Wassermann: Serum	Wassermann: Fluid	Remarks
42	††	††	††	70	5510000000	††	††	
43	†	†	†	20	5543100000	†	†	
44	††	††	††	46	5544110000	††	††	
45	†	†	†	20	5554211000	†	†	
	weak	weak	weak					
46	†	†	†	15	3321122000	(—) †	(—) †	Wass. made in two different laboratories.
47	†	†	†	22	554321000	†	†	Irregular tabes.
48	†	†	†	21	4433100000	†	†	
49	††	††	††	30	5543332000	†	†	
50	†	†	†	10	4431100000	—	†	

other laboratory was positive, but did not give the type of curve. Most of these cases have had some anti-syphilitic treatment before the fluid was examined.

Nine cases of tabo-paresis were studied. In all cases all the tests were positive. The cell count varied from 10 to 70. The globulin was strongly positive in all but one case. The Wassermann reaction in this case was positive in one laboratory and negative in another in both serum and fluid. In case 47 the clinical diagnosis sent in was irregular tabes. In all other cases observed the clinical signs were well marked.

The clinical picture of paresis, especially in those cases which come under observation in private practice, are most commonly of the tabetic type and are better known as tabo-paresis.

In conclusion I should like to emphasize the value of the examination of the cerebro-spinal fluid in the study and treatment of syphilis of the central nervous system. It would also be advantageous if we could go a step further and examine the serum in all cases of illness of any kind, with or without a history of venereal disease. It should be a part of every physical examination as well as the blood-pressure, or the blood count and urine examination. A positive reaction in the serum should be followed in each case by a lumbar puncture with a study of the fluid. Lumbar puncture is a simple procedure and the information obtained is of extreme value. Repeated examinations should be made in cases under treatment as a guide to therapy. Treatment should not be suspended until after a systematic course of treatment and only after a negative Wassermann reaction to the larger amounts of fluid. It sometimes happens that the Wassermann reaction persists positive, notwithstanding repeated vigorous courses of treatment. If the tests in the cerebro-spinal fluid are all negative one can conclude that the nervous system is free from involvement. The remaining spirochete, located in other organs, are not so dangerous and the outlook not so serious.

The exact nature of the morbid process in the early cases cannot be determined without an examination of the cerebro-spinal fluid even if the clinical signs are present.

In the light of our present knowledge lumbar puncture with cerebro-spinal fluid examinations is demanded in all cases of syphilis. With proper technic and careful interpretation of the findings, the examination of the cerebro-spinal fluid, although not always conclusive, is of unequaled and incalculable diagnostic value.

Discussion.

Dr. William A. Groat, Syracuse: I didn't come here with the idea of discussing this paper but to enjoy it and be informed. I have enjoyed it very much, and I have also been informed.

The Doctor has made a very careful study, and there is little I can add. I would like to point out, however, in connection with the colloidal gold test, that, in spite of other ideas on the subject, we apparently do have a qualitative globulin reaction in syphilis rather than simply a quantitative one. You will note how regularly he gets the stepping down reaction, beginning at the lower dilutions and stepping down as the dilution goes up. This is quite characteristic, as he has pointed out.

Another thing I would like to point out from his chart is that, while, as he says and as most

observers have pointed out in the earlier days, the serum Wassermann is not as reliable as the spinal fluid Wassermann in these cases, nevertheless he gets a very close parallel in all of his cases between the serum Wassermann and the spinal fluid Wassermann. While this, in a longer series, will show up a little bit differently, yet in the main that has been my experience.

Dr. L. Duncan Bulkley, New York City: I would just like to say one word, simply about the remark made by the speaker in regard to syphilis being recognized where there is no history of it.

I continually see it, and statistics show that syphilis from other than sexual contact forms about 5 or 10 per cent of the cases that you see in your office. In the great cities, of course, we see a great deal from sexual intercourse, but in my experience, from all over the country, between 5 and 10 per cent of the patients have acquired it on the lips, tongue, and other places quite innocently, to say nothing of marital and hereditary syphilis. I have seen scars of syphilis of various kinds on people who are perfectly positive that they never have had any early primary lesions, people who never realized they have had anything of the kind—never had eruptions. Now, the same thing is certainly true of spinal syphilis.

In these cases treatment cannot be prolonged too long. I find that mercury used rightly can be taken any length of time. Don't be afraid of it at all!

Dr. Sutter's closing remarks: In regard to the Wassermann in the chronic blood poisoning cases, I had never given that a thought, and I don't know why we should get a positive Wassermann in such a case unless there is also syphilis. Such an analysis never appeared in any of my series.

INTERNAL SECRETIONS AND EYE DISEASES.*

By OTTO SCHIRMER, M.D.,
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THE doctrine of internal secretions is of recent date. Although the ductless glands have been known to anatomists for many centuries, and although some diseases which are due to a disturbed function of these glands have long ago attracted the attention of physicians, nevertheless a more thorough study of the pathology of these glands does not date back more than two or three decades. During this brief period, however, experimentalists, physiologists, clinicians and surgeons have done such extensive and intensive work that the doctrine of the internal secretions has become a science by itself. The books and articles on the subject would fill a well sized library. This is therefore my excuse for not having exhausted the whole literature in the short space of three months.

We know that the ductless glands: Epiphysis, hypophysis, thyroid, parathyroids, thymus, spleen, adrenals, gonadal system, are possessed of functions of such importance that the extirpation of each one of these glands may be followed by the gravest of consequences. All these glands produce an internal secretion, which enters into the system. It is working here as an Hormon and influences the functions of distant parts, increasing or reducing normal activities. The normal growth and structure of the bones, for instance, the carbohydrate-metabolism, the normal blood-pressure and the tonus of the blood-vessels, the development of the secondary sexual characteristics are under the supervision and the direct influence of the ductless glands.

This regulating effect on the development and functions of the organism is of lesser import for our subject. We are more interested in the fact that a certain amount of the secretion is necessary for the endocrine equilibrium. If produced in excess the secretion leads to intoxication. If there is hyposecretion again a condition results, which has a striking similarity to the clinical picture of poisoning. This leads to the possible conclusion that toxic substances which originate during the normal metabolism are detoxified by the secretion of the gland extirpated. The absence of these detoxifying substances permits the poisonous action to persist and to exert its harmful influence. Most authors agree that in this way we have to explain the clinical entities which are due to a hypofunction of these glands.

The clinical picture of hypofunction differs according to the gland affected. Apparently the glandular secretion of different glands has a neutralizing effect on different poisons. Everybody knows nowadays that myxœdema, for instance, is due to a hypofunction of the thyroid, tetany to a hypofunction of the parathyroids.

Not only hypofunction, but also hyperfunction may be produced by diseases of these glands. Hyperfunction is incompatible with the normal condition of the body. The secretion in excess over-irritates or paralyses certain tissues directly; it influences some or all of the glands with internal secretions. Many of the endocrine symptoms are not due to the gland primarily affected, but to one of the other glands which becomes atrophic or hypertrophic. Graves' disease for the thyroid, acromegaly and gigantism for the hypophysis are the best known instances of a disease due to hyperfunction. It seems that certain tumors of the adrenals are capable of producing a polyglandular syndrome which centers in a hyperfunction of the adrenals, especially the cortex, as far as we know.

The variety of clinical pictures is not exhausted with the effects of hyper- and hypofunc-

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tion. Several authors, especially Cushing, insist that it is indispensable for the explanation of some clinical signs to assume a dysfunction.

It is a well known fact that in times when new ideas become popular we are inclined to overestimate their importance and to look at everything from the angle of these ideas. So it is not to be wondered at that physicians are inclined to hold these new diseases responsible for many affections whose etiology is still in the dark. It hardly would serve the purpose of this paper if I would relate the eye diseases which have been brought in connection with internal secretions. I should prefer to go the other way and to see what diseases we might expect to find and what knowledge may be considered our firm possession. It is impossible to go into details owing to the restricted time; I hope that the discussion will make up for this and bring out interesting details.

Let me begin with the hypophysis. All diseases due to hypophyseal trouble refer to the optic nerves; rarely to the motor-nerves of the eye. All these nerve-affections are the consequence not of disturbed internal secretion, but of direct pressure of the enlarged gland. And I want to emphasize that the enlargement of the gland may go with hyperfunction as well as with hypofunction.

The characteristic optic nerve-affection is descending atrophy from direct pressure, sometimes papillitis or choked disc, a symptom of the increased intracranial pressure. The fields are mostly contracted after the type of temporal hemianopsia. There are quite a few cases, however, which show homonymous hemianopsia or concentrical contraction of the formfield and the colorfields. The excellent book of Cushing contains carefully observed instances of this type. Another remarkable fact is the power of resistance of the nerve fibers. The pressure may paralyze the fibers for a long time and abolish the vision without destroying the life of the fiber. After the pressure has been relieved—by operation or by internal treatment—the fibers recover and the vision is restored more or less completely. Cushing's writings contain several instances of this kind. From my own experience I could quote three cases if time would permit to go into details.

In many cases the hypophysis is not the primary seat of the disease. Tumors of the neighborhood may induce an enlargement or displacement of the gland and even from distant parts such enlargement may be brought about. I refer here to cases of passing temporal hemianopsia during the last period of pregnancy in multiparæ.[1] The hypophysis swells considerably during every pregnancy and shrinks as soon as the child is delivered. With every subsequent pregnancy the gland becomes larger so that in some cases pressure on the chiasm may occur.

I have observed a lady of sixty-one years who was suffering for several years from a very slow progressive atrophy of both optic nerves with irregular contraction of the colorfields. She had been examined by the most eminent physicians and her system had been found absolutely healthy in every respect. This lady was operated upon about twelve years ago and both ovaries had been removed. She had suffered for years from severe menopausal symptoms. As the hypophysis is apt to swell after extirpation of the gonadal system, I am inclined to assume an etiological relationship although I am unable to prove it.

All the cases mentioned refer to the pressure of the enlarged gland on the optic fibers. No eye diseases are described as a result of changes of the hypophyseal secretion. Neither extirpation of the hypophysis in different animals nor injections of hypophyseal extract for long periods to simulate a hyperfunction have produced morbid consequences for the eye. Strong arguments will be necessary therefore before we can accept hypophyseal disturbance as an etiological factor in choroiditis or in cataract, etc.

The eye complications in diseases of the pineal gland, although frequently present, do not require an extensive discussion. The eye symptoms are not due to a disturbance of the pineal secretion; they are neighborhood symptoms. The close position of the corpora quadrigemina accounts for the frequency of eye-muscle symptoms (paralysis, deviation conjugee, nystagmus, ophthalmoplegia). Almost constant findings are choked disc, rarely optic atrophy because the pineal diseases are tumors and always followed by brain-pressure symptoms.

These short remarks may suffice for the two ductless glands of the head. Now for the thyroid and parathyroids.

It is nearly unanimously accepted that Graves' disease is the clinical expression of a hyperfunction of the thyroid. This does not mean that all the symptoms observed are produced by the excessive secretion of the thyroid. Other glands, thymus, adrenals, and hypophysis participate and will do their share to add to the clinical picture. It seems probable though that the eye symptoms are a direct consequence of the hyperthyroidism. Kraus and Friedenthal[2] have observed, after intravenous injection of thyroidin in rabbits, passing protrusion of the eyeball with dilatation of the palpebral fissure. Hoenicke[3] has produced exophthalmus by continuous ingestion of thyroid juice. There seems to be no doubt that the hyperthyroidism produces a hypertonus of the sympathetic nerve which accounts for the well-known eye symptoms. For the characteristic wide palpebral fissure and for Graefe's symptom a hypertonus of the levator is generally accepted. As far as the exophthalmus goes I do not believe that it can be explained by a continuous contraction of the non-striated muscular system in the orbit, the so-called "Landstroems muscle." I assume that already at an early stage, a swell-

ing or even a hypertrophy of the fat-tissue develops and keeps the eyeball protruded. This would account for the fact that in cases completely cured by surgical interference all the Basedovian symptoms disappear whereas the exophthalmus frequency persists; after Kocher in 45 per cent of the cured cases.

Besides the orbital and lid-phenomena, affections of the optic nerve have been described: atrophy of the nerve, inflammation and choked disc. Experimental researches have proved that this may be due to a direct influence of thyroidin. Birch-Hirschfeld and Inouye[4] have seen optic atrophy in dogs after prolonged ingestion of thyroidin. They were able to demonstrate the atrophy of the nerve and the retina by the ophthalmoscope and by microscopical examinations. A conclusive observation in man is a case of Albertsberg[5]: optic atrophy in a myxœdematous man who had been treated for a long period with thyroidin. As the optic nerve is not affected in myxœdema we are allowed to hold the thyroidin responsible. And Coppez[6] has had five similar observations in perfectly healthy persons who took thyroidin tablets in order to grow thin. They developed after six to eight weeks a retrobulbar neuritis with diminution of vision to 1/10, central scotoma and changes at the disc as in alcohol-amblyopia. Discontinuation of the thyroidin led to a slow but complete recovery.

It may seem strange that the same substance should be capable of producing in some cases inflammation; in other cases atrophy of the optic nerve. There are analogous observations, however, in other diseases. It is beyond any doubt, after recent investigations, that the toxin of the spirochæte pallida produces inflammation of the nerve in the secondary and third stages of lues and an atrophy in the so-called metasyphilitic stage. Multiple sclerosis is mostly accompanied with simple atrophy of the papillo-macular bundle. There are not a few cases on record, however, of papillitis and even of choked disc in multiple sclerosis.

Such experiences suggest the possibility that also in hypophyseal disturbances the products of internal secretion or their antagonistic substances have a direct influence on the optic nerve. Especially the cases with concentric contraction of the form- and colorfields and discoloration of the disc, may be explained on this basis. A direct proof of this statement could be furnished by post-mortem findings demonstrating that in such cases there has been no compression of the optic nerve. This direct proof is unfortunately still missing.

This idea is corroborated by an article by Oppenheim[7] on pseudo-tabes-pituitaria. Oppenheim describes five cases of undoubted tumors of the hypophysis. Enlargement of the sella, temporal hemianopia, absence of lues could be demonstrated, in one case the post-mortem examination was performed. These tumor symptoms were associated with loss of the knee-jerks and with hypotonia and partial hypalgesia of the lower extremities, symptoms which point undoubtedly to the lumbar-spinal cord. Oppenheim assumes that degenerative changes are present in the lumbar-region of the cord and that the same are due to the disturbed hypophyseal secretion. If we admit this a similar influence on the optic fibers is just as likely. I believe the time will come when the hypophyseal etiology will help us to diminish the number of optic atrophies of unknown origin.

It is well known that the antagonism between Graves' disease and myxœdema is evident in nearly all their symptoms. The eye-symptoms are no exception. In Graves' disease we find the wide palpebral fissure and the exophthalmus, in myxœdema the deep-set eyes and the small palpebral fissure. In exophthalmic goitre a variety of optic nerve affections is present; in myxœdema and in the other hypothyroidal diseases such as endemic and sporadic cretinism normal optic nerves are found. The only exception, as far as I have found, is a case of Wagner: right papillo-retinitis, left optic atrophy in a myxœdematous woman of twenty-six years. I believe that we have every reason to be sceptical in regard to such a single case, especially as it was published at the time when the importance of sinusitis for optic nerve affections was not fully appreciated. It may be mentioned here that in athyreosis the hypophysis swells and is capable of assuming a size which may interfere with the chiasm or the optic nerves.

The only positive eye-symptom in myxœdema is the scarcity of hair on the eyebrow. In the temporal half the hair may have fallen out entirely—so-called eyebrow symptom. It is a part of the general disturbance of the hair growth which is especially conspicuous on the head.

The same doubt as in myxœdema holds good for optic atrophy in tetany. Tetany is by no means a rare disease. It has been produced experimentally innumerable times and in different animals. The optic nerve was always found healthy. I am doubtful therefore whether I should accept the case of Hanke as a sufficiently proven instance of optic atrophy in tetany. It is certainly desirable that systematic examinations as to the occurrence of the optic nerve affections are made with an abundant material of tetany cases.

The most prominent symptom of tetany is the tetanic spasm. It occurs on different muscles. The muscles of the eye take part in exceptional cases only: Blepharospasm, diplopia, contraction of the pupil have been observed. These eye-muscle cramps come and go together with the cramps of the other muscles and form a part of the general disease.

When we come to the complications two eye-diseases have to be quoted: conjunctivitis and cataract. Both are based on solid experimental

ground. De Quervin[8] was first to draw our attention to the fact that dogs whose parathyroids have been extirpated frequently suffer from severe conjunctivitis. Falta[9] claims to have seen this nearly regularly in his ectomized dogs and cats. He and Kahn have published an observation of conjunctivitis in a tetanic individual. The conjunctivitis regularly grew worse with an exacerbation of the tetanic condition. The authors do not give any intimation as to the connection between both diseases.

The tetany-cataract is a part of the trophic disturbances. These involve mainly the epithelial organs as hair and nail. The lens also is an wholly epithelial organ. It seems nevertheless that the tetany-cataract is not a primary disease of the lens. It is more likely that it is induced by changes in the epithelium of the ciliary body. As the nutrition of the lens depends upon the ciliary body and as we know that the ciliary epithelium has the greatest qualitative and quantitative influence upon the ciliary secretion, we may assume that any disturbance of the secretion will affect the integrity of the lens-structure. Peters,[10] who first emphasized the connection between tetany and cataract, has abandoned his original idea that cramps of the ciliary muscles were instrumental in producing this cataract. He has found microscopical changes in the ciliary epithelium and makes the same responsible for the cataract-formation. Whether the disturbance of the calcium-metabolism has any connection with this question is doubtful.

The cataract is found in children and adults. It occurs in all forms of tetany; after Zirm and Sperber it is especially frequent in the tetany of pregnancy. In children we have mostly the nuclear or lamellar type. Often a few spokes or vacuoles are present; and it requires a careful examination with the magnifying glass, or plane mirror and full dilatation of the pupil to discover these faint traces. The vision may be normal and the cataract may not develop any further.

In adults the cataract is a cortical cataract and may mature rapidly. Hanke,[11] who could examine the entire eyeball of a nineteen-year-old boy with tetany-cataract, found anatomically a combination of nuclear and cortical cataract and a great difference in the consistency of nucleus and cortex. The nucleus was much harder than one would expect in a boy of nineteen years. Peters also in several extracted lenses has observed this hardening of the nucleus; he claimed that the shrinkage of the central parts was the cause of the cataract-formation.

A very interesting point in Hanke's case is the presence of swelling and hydropic degeneration of the pigment-layer at the posterior surface of the iris. The changes were nearly identical with the changes in diabetic eyes, well known for many years. This reminds us of the fact that diabetes also is a frequent cause of cataract at all ages and furthermore that diabetes has close relations to the glands of internal secretion. Since von Mehring and Minkowski have found that extirpation of the pancreas in animals is followed by severe diabetes, cachexia and death, no doubt was left that the pancreas has an internal secretion besides its long-known external secretion. Diabetes furthermore is a frequent complication of acromegaly and gigantism, in other words of a hyperfunction of the hypophysis. Lighter cases of diabetes and passing glycosurias are found in Graves' diseases. The dependency upon the hypersecretion of the thyroid can be proven by the fact that they grow worse after ingestion of thyroidin and improve when the thyroidal secretion is diminished by X-ray treatment. With our present knowledge it is probable that there are other cases of diabetes, perhaps the milder cases, which have no relation at all to internal secretion. The diagnosis as to the groups to which a case belongs is impossible as yet during life. We cannot state therefore with any degree of certainty whether the diabetic eye-diseases are found oftener in the one or in the other group. The connection between diabetic eye complications and internal secretion is certainly not so close as between tetany and cataract or between optic atrophy and Basedow. The eye is not affected directly by the change in the internal secretion; secondary changes of the metabolism are the cause of the eye affections. It should be borne in mind, however, that either all or a great majority of the diabetic eye diseases are due to a disturbance of the internal secretion. Similar relations may exist between the chlorotic eye complications and internal secretion.

I should like to say one word about Paget's disease, that affection of the bones whose endocrine origin is assumed by the majority of authors. Paget's disease is characterized by rarefication, hypertrophy and deformation of the bones. They are changed into a spongy mass of sometimes enormous thickness; the skull especially is involved at an early stage.

I have been treating for three years a middle-aged lady who is suffering from a stobborn chronic irido-cyclitis and optic neuritis. The etiology always remained doubtful. Lately an X-ray examination revealed the presence of Paget's disease and the question arose whether the optic nerve affection might be due to a narrowing of the bony optic foramina. X-ray pictures taken in sagittal direction showed me that both foramina had a diameter of 7 mm. As the diameter of the optic nerve does not exceed 4 to 4.5 mm. the idea of a compression could be refuted. We should think, however, of this etiology in similar cases as after Pierre Marie the base of the skull in advanced cases always participates in the general hyperostosis.

I cannot conclude without mentioning the endeavors to approach the subject at hand by an

entirely different way, namely the use of the Abderhalden method. Abderhalden has formed the following theory: Every cell has its own specific metabolism. Under normal conditions no substances are excreted by the cell before they have lost the specific character of the cell. Under pathological conditions substances are excreted before the metabolism has decomposed the same so completely that the specific cell-character is entirely lost. When this is the case and when such substances enter the blood-circulation protective ferments are called into action to continue the unfinished decomposition of the substances until they are fitted for the blood. These protective ferments which are specific for each organ can be demonstrated in the serum by adding the same normal organ of another man or animal. The test is complicated and difficult. When several organs are involved the reaction will be positive in all tests with the respective involved organs. Abderhalden and his followers claim that the method is reliable and much finer than any clinical method.

This principle has been used extensively to find out the condition of the ductless glands in eye-diseases. The experiments are still in the initial stage, the results doubtful and owing to the difficulty of the method to a great extent contradictory. I shall follow here the opinions of Hippel[12] whose researches are made to a great extent under the control and with the co-operation of Abderhalden.

After von Hippel, and other authors the keratocomus is the one disease in which the Abderhalden method gives positive results in the vast majority of instances. Such positive results are obtained with thymus and thyroid, frequently with both of them; sometimes the adrenals, the pancreas or the gonadals give a positive reaction. Keratocomus has been claimed as a hypothyroidal disease by Siegrist years ago. Von Hippel's results point in a similar direction. They indicate that the endocrine glands are in a pathological condition. The pathological changes must be slight as none of the well-known endocrine diseases have been observed in these cases.

The clinical examination was either entirely negative or the symptoms were indistinct and doubtful. Perhaps we will come to a special form of syndrome pluriglandulaire. It would be, however, a form entirely different from what French authors call syndrome pluriglandulaire. I want to mention especially that sexual anomalies always have been missing. Specific treatment with glandular extracts has been tried in a few cases, not sufficient, however, to permit of a sure conclusion.

Surprising are von Hippel's frequently positive results in glaucoma. Again thyroid and thymus stand in the first line and the controlling clinician diagnosed a hyperplasia of the thyroid and the presence of an X-ray shadow over the aorta, suggesting an hyperplasia of the thymus. I simply register these findings without drawing any conclusions. Many years and painstaking researches will be necessary before we know whether endocrine glands will bring us a step forward in the much discussed etiology of glaucoma.

Roemer and Gebb[13] claim to have found by the Abderhalden method that the biological relation of the lensalbumen toward bloodserum is different in cataractous and non-cataractous patients. Abderhalden and von Hippel have repeated these experiments and have come to an exactly opposite result; they failed entirely to find these differences. We must state therefore that—at least up to the present—no new light has been thrown on the etiology of cataract.

I am well aware of the fact that we have not been all the time on the solid ground of well-known facts and that I have dealt with hypothesis and presumptions. In these, however, lies the progress of our science. I feel we should not be afraid of making a wrong step as long as we step forward. Further experiences, further researches will teach us where we have been mistaken and will lead us back to the right path. I have not the slightest doubt that valuable results will come for us oculists as well as for the general physician from the study of the anomalies of the internal secretion.

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Discussion.

Dr. Henry H. Tyson, New York City: In discussing Dr. Schirmer's very interesting paper, it is apparent that the relation of the internal secretions to eye diseases, or the ocular manifestations of abnormal functioning of the glands of

internal secretions, is one of interest not only to the ophthalmologist but also to the entire medical profession.

As the subject is very complex it will be only by careful clinical observation, examination and analyses of a great number of cases, that we may hope to be able to solve the question, as to which gland or glands may be functioning abnormally. In 1910 I reported a case of Basedow's disease with optic neuritis followed by optic atrophy. At that time I thought that the hyperthyroidism was the cause of the neuritis and atrophy. I am still of the opinion that it was at least one of the causes; but in the light of more recent knowledge of the pluriglandular involvement which at times co-exists, I think that the possible effect of the pressure of an enlarged hypophysis upon the optic chiasm or nerves must be considered when we are determining the etiology in these cases.

The association of Keratoconus and hypothyroidism is one of considerable interest, as through the influence of the latter upon the nutrition, it would in part account for the condition of the cornea in this class of cases; and if subsequent observations should confirm the fact, cases of incipient Keratoconus may be benefited, or at least their progression be retarded by treatment with suitable glandular extracts. Within the past week I have examined two cases of Keratoconus with the object of finding if possible any disturbance in the functioning of the thyroid. In one case I found some of the ocular and physical signs and symptoms of hyperthyroidism, and in the other, only the Graefe and Boston signs, but no general symptoms. In the first case the blurring of the vision, which was due to the Keratoconus, antedated the manifestations of the perverted functioning of the thyroid by about six months. I mention these cases as they happen to be in direct variance with those mentioned by Siegrist and von Hippel, showing a tendency toward *hyper-* instead of *hypo-*thyroidism.

In cases of corneal dystrophies unless otherwise contraindicated, glandular extracts might be given with advantage for their stimulating nutritional effect, as also in cases of chronic uveitis.

Sometimes an apparently trifling sign will attract our attention and direct us toward a correct diagnosis. For the past thirteen years I have observed a sign which can be elicited early in many cases of hyperthyroidism, which consists of a widening of the palpebral fissure upon forced fixation of an object, held midway between and upon the same plane as the eyes, and close to them. It is due, I think, to the hypertonus of the levator palpebræ superioris, and as a result of the excessive response to innervation sent to the levator during the act of convergence, in those cases with insufficiency of convergence.

In regarding cases of pregnant multiparæ with enlarged hypophyses, we may possibly find here an explanation for the cases of optic atrophy found after pregnancy without nephritis, and in which heretofore the etiology has been obscure. In examining similar cases in the future it might be advantageous to examine with this possibility in mind.

In considering the subject of internal secretions, we realize how difficult it is to differentiate the results from the perverted functioning of one gland, fro msimilar results due to the dysfunctioning of another gland. But if we are to go forward it must be by thorough, persistent and painstaking clinical observation and further animal experimentation.

Dr. Edgar S. Thomson, New York City: Dr. Schirmer's paper is certainly very comprehensive and interesting. I want to speak on only one section of it, however. I was very interested, indeed, in hearing him say that he didn't accept the commonly accepted views of the exophthalmus in Graves' disease. It has always seemed to me that the explanations were utterly inadequate and that we were dealing with a low-grade inflammatory condition of the tissues. I have had a very distinct impression that the cases were more apt to remain permanent when they extend over a long period of time. That is, that there was some tissue change, or some local change, that subsided—if the general disease did not persist too long. Last year I had a case which throws some light, it seems to me, on the subject. He was a man about thirty-seven; went to the hospital and had the usual operation done. He'd had trouble for about a year before that and had a marked exophthalmus. The thyroid operation was done in the winter of 1914—he came to see me two months later, with an exophthalmus which was followed by a gradual edema of the conjunctiva of the eyeball. It was a very marked and striking thing, such as I have never seen before. There was a tremendous fold of edema which protruded so far it was impossible to close the lid. This came on gradually, about two months following the operation; and was followed within a few days by a similar process in the other eye. I first of all, on account of the constriction, did a cantholysis to try to get a little more freedom, and then sutured the lids together. As day after day went on pressure exerted no effect on it at all and the edema gradually organized and became hard; so that I was forced to the conclusion that in order to get his lids closed I would have to amputate the edematous tissue. Of course, all during this time he was seen by internists and had treatment. I may say that his pulse was all right; he had no general symptoms at all; he was apparently entirely over his Graves' disease with the exception of the eye symptoms. Finally I amputated a broad strip

of the tissue and examined it under the microscope. It showed a very extensive connective tissue hyperplasia which had apparently gone on to a very complete organization. At the time I amputated I wasn't able to press any fluid out of it so it wasn't a definite edema. I don't see why that shouldn't be similar to the change which takes place in the posterior part of the orbit. His exophthalmus remained.

Dr. Edmond E. Blaauw, Buffalo: In regard to this case, I want to say that I have seen a girl of seventeen who had absolutely nothing else than this conjunctival swelling with a slight prominence of the lower lid, which had come on for two years, gradually. At that moment it could not be pressed away. I made the diagnosis of lymphangitis chronica. I injected alcohol, and after a couple of injections the swelling had disappeared. I have not seen the patient now for six months. But I have seen the mother and she told me she was well.

. I have had two serious cases of congenital parenchymatous keratitis this winter under observation. I tried for eight weeks pulv. thyroid without the slightest result.

Dr. Thomson: May I speak a moment—One thing I omitted was that at the time of the onset of this conjunctival trouble, there was a slight increase, a secondary increase, in the exophthalmus. That was another reason why I supposed the two processes were similar.

Dr. Schirmer: I just want to thank the gentlemen who were kind enough to take part in the discussion. I am glad that Dr. Thomson agrees with me about the etiology of the exophthalmus in Graves' disease. I have never believed that this feeble muscle in the orbit could keep the eyeball protruded for months and months, and so strongly that we are absolutely unable to repress the eyeball into the orbit. And furthermore, the exophthalmus persists after the death of the patient; why, we hardly could expect that the muscle will continue to work.

As far as the last remark of Dr. Blaauw's goes, I think we hardly could expect an effect of the thyroidin on the condition of the cornea; because I do not know any clinical or pathological or experimental facts which would prove that the interstitial keratitis is due to a disturbance of the thyroidin secretion.

Dr. Percy Fridenberg, New York City: Dr. Schirmer's remarks bear out what we know from the experience with the old couching operation. There the lens when reclined into the vitreous in a great many cases remained without causing any trouble at all. But where we do have a lens which is causing cyclitis or fulminating attack of glaucoma, we have to act immediately. It is like the old story of the pistol that you may not need for a long time, but when you do need it, you need it quick.

MISTAKES IN THE DIAGNOSIS OF ECTOPIC PREGNANCY.*

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In reviewing a considerable portion of the recent literature of ectopic pregnancy, I have been much impressed with the widely opposite views held by prominent members of the profession as to the *difficulty* of making a *correct diagnosis*. One writer states that unruptured tubal pregnancy is still relatively rarely recognized; that in medical societies it is repeatedly said that extra-uterine pregnancy should be recognized before rupture, which he believes to be too sweeping a statement.

Before the New York Obstetrical Society it was remarked that "in spite of the great vigilance exercised in diagnosticating ectopic gestation . . . cases will come under observation where no diagnosis will be made and the abdomen be opened without suspecting the condition." Brickner has denied that the diagnosis is always easy and stated that he knew of *no* diagnosis in the realm of gynecological diseases which is at times *more difficult* to make.

On the other hand there are many writers who have contended that the diagnosis should, and can, be made much more frequently before rupture than is done. According to Polak the signs of ectopic pregnancy are so constant, even before rupture, that an early diagnosis ought to be made in the non-tragic stage. In the opinion of Hunner "there is no serious intra-abdominal condition which has the diagnosis written all over its face any more plainly than has extra-uterine pregnancy, and at the same time no condition which is more frequently overlooked by the internist." Huggins believes that the diagnosis should be made previous to final rupture in at least 80 per cent of the cases, providing the physician is consulted. In his experience, patients have consulted physicians for unusual pelvic symptoms before the stage of collapse in about 70 per cent of the cases. In a study of 130 cases, Harris found that more than 90 per cent of the cases consulted physicians on account of symptoms referable to the pelvis, before the tragic stage was reached. It was said by another author that there is no condition which is more often overlooked by the internist, and a great many others have remarked upon the infrequency of accurate and early diagnosis. Of the 90 per cent who consulted physicians, before the tragic stage in the series studied by Harris, about 20 per cent were subjected to operation of curettement for the cure of metrorrhagia, the real cause not having been suspected; and only about 20 per cent of the physicians consulted in the non-tragic stage arrived at a correct presumptive diagnosis.

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In spite of these divergent opinions about the difficulties encountered in making a diagnosis, the big fact remains that unruptured ectopic pregnancy is recognized so infrequently as to be almost the rule.

It seems to be another burden upon the general practitioner, who sees these cases first, to be on the alert for them, if they are to be diagnosticated at a time when the treatment is without much danger. It is one more instance of where the surgeon expects the general practitioner to give so promptly, for two dollars, an opinion so correct, that the surgeon may have no difficulty in administering the proper treatment for one hundred or more dollars.

It is not by the general practitioner alone, however, that these frequent mistakes are made. In a series of ten cases admitted to one service of a large New York hospital, four of them, or 40 per cent, were incorrectly diagnosticated by the hospital staff. The literature is full of mistakes made in the diagnosis of ectopic pregnancy by experts even. It has been estimated that in at least 50 per cent of the cases, the physician fails to make a correct diagnosis.

Incorrect teaching as to what is the clinical picture of the disease is probably more responsible for the frequent failures than anything else. It is not so long ago that the commonly taught clinical picture of acute appendicitis included a mass at McBurney's point, which was an abscess. It is certainly expected of every physician today to make a correct diagnosis in nearly every case before rupture of the appendix. The reason for that is that the teaching has been accurate and corresponds to the clinical picture of the disease.

In the case of ectopic pregnancy, the written descriptions of the disease, for many years, seemed to describe the disease as it appears after a severe internal hemorrhage has taken place, which is quite a different picture from that which obtains in the pre-tragic stage, before collapse from hemorrhage has occurred.

The importance of a clear understanding of the clinical picture of these cases is emphasized by the low mortality, if treated in the pre-tragic stage and the great dangers attendant upon the tragic stage or stage of severe internal hemorrhage. Then, too, these cases are frequent enough to make them an emergency likely to be met by every physician doing general family practice. Williams refers to the "evolution of a pathologic curiosity into a condition of every day occurrence." Among the cases of pregnancy presenting themselves at the Out-Patient Department of Leland Stanford University, one in 131 cases of pregnancy was ectopic pregnancy. In another large series of cases of pregnancy, there was one case of ectopic pregnancy to sixty-two of uterine pregnancy, and Noble has estimated the condition present in 3 or 4 per cent of all the laparotomies done by him.

Among the most common mistakes in the diagnosis of ectopic pregnancy, have been the diagnosis of uterine abortion, impending or incomplete. Of the 90 per cent who consulted a physician before rupture, in the series of 130 cases reported by Harris, a large proportion were told that an ordinary abortion was threatened, was occurring or had occurred. In another large series of cases, more than 10 per cent had had performed dilatation and curettement for uterine abortion. Many writers have noted the large number of cases of ectopic pregnancy sent to the hospitals with the diagnosis of abortion, threatened or incomplete.

These cases emphasize the importance of being alert to the possibility of ectopic pregnancy, when treating cases of incomplete abortion.

One other common mistake is making a diagnosis of acute appendicitis in these cases. Almost every physician nowadays thinks of acute appendicitis first, when his patient complains of abdominal colic, with vomiting, but one of the purposes of this paper is to emphasize again the importance of thinking also of ectopic pregnancy in all cases of abdominal colic in females in whom pregnancy is possible, especially with a history of catamenia overdue.

The diagnosis in one of my cases was "acute abdomen," requiring operation, with the absolute diagnosis lying between acute appendicitis and ectopic pregnancy. This patient had consulted a physician ten days before, who made a diagnosis of "trouble with the appendix." The symptoms were abdominal pain, vomiting, right rectus rigidity, and a slight rise of temperature. These are typical symptoms of acute appendicitis. She was flowing a few days overdue, but it seemed to her like her usual normal menstruation. About the only symptom, so far, to make one think of something else than appendicitis was the overdue catamenia, but even that is not a safe guide, as women are so frequently irregular, and sometimes have an overdue flow without an obvious cause. These mistakes have been numerous in cases of pregnancy occurring in the right tube.

Besides the very common incorrect diagnosis of uterine abortion, and appendicitis, these cases have been diagnosticated as acute indigestion, gall-bladder disease, ovarian cyst with twisted pedicle, pyosalpinx, hydrosalpinx, catarrhal salpingitis and perforations of ulcers into the peritoneal cavity.

Even the cases of severe internal hemorrhage and hematocele which are found in ruptured cases, are frequently not recognized, even though these cases present the clinical pictures of the ectopics of the text-books. Heinberg concludes from the proportion of cases of ectopic pregnancy sent to the hospitals with the diagnosis of threatened or incomplete abortion, that in spite of all that has been written upon the subject, there appears to be no clear understanding of

the diagnostics of interrupted tubal pregnancy. Less frequently, however, are they missed than the milder cases of tubal abortion and the cases that have neither aborted nor ruptured.

These latter cases are the ones which we should emphasize just as we have been emphasizing the diagnosis of appendicitis before rupture of the appendix.

One of my early cases illustrates the milder type of symptoms. Married four years, age twenty-seven. Never pregnant. Menstruation always painful with pain located in the left lower quadrant a frequent occurrence. Last period was two months before. Patient was taken with pains in the lower abdomen and slight amount of flowing. Went to bed and flowing stopped for two days, but it began again when she got out of bed and moved about the room to get a hot water bag. The flowing ceased after returning to bed. The pain was neither colicky nor severe, as in the case simulating appendicitis, but it was more constant in the region of the bladder and in left lower quadrant. She was tender to pressure over these regions. On the fifth day, the pain though constant was not severe, except for occasional cramps. There had been no real flowing while in bed except a very little brownish discharge at times. Bimanual examination discovered a small soft mass to the left of uterus and this mass was distinctly painful to touch. Diagnosis of ectopic pregnancy was made and was confirmed at operation.

In this case the symptoms were not so severe nor did treatment seem so urgent as in the case confused with appendicitis. The symptoms were much less acute and we had an entirely different clinical picture to interpret.

It is the type of ectopics to which the latter case belongs that we must think about, write about, talk about, and have ever before us, if these mistakes are to be made less often.

It is not so many years ago that the thought of ectopic pregnancy brought to our minds a woman in shock from great loss of blood in the abdomen, a patient who had suffered severe pain, usually coming on suddenly, followed by faintness, restlessness, pallor, weakness, rapid pulse and shallow breathing. It is obvious that we must not wait for the exhibition of these evidences of shock and internal hemorrhage before considering ectopic pregnancy a probability.

If, then, we are not to require these severe symptoms to remind us of ectopic pregnancy, what are the symptoms that should make us suspect the condition?

Uterine hemorrhage is one of the most significant features.

We should be suspicious of flowing that is four or five days to a month overdue. This is usually scanty in amount and is spoken of as spotting. In many cases it is reddish brown and does not clot, while in others, it appears to be like a normal menstruation overdue. One must not be misled, however, by the fact that the catamenia are not overdue. In one series of cases only 50 per cent of them had missed a period. Nevertheless, any irregularity in bleeding should be a subject for close inquiry. The character, amount and duration of any flowing, whether before or after the date on which menstruation is expected, should be most closely observed. Besides the flowing, pain is a most important symptom. It is usually the only important subjective symptom before there has occurred any interruption in the condition of the fetus in the tube. It is present in over 90 per cent of the cases and is usually located over the seat of the disease. Sometimes it is constant and sometimes colicky. It may be absent when the patient is quiet but present when the patient moves about the room. In the unruptured cases it is likely to be mild, as it is also in the cases of tubal abortion, while in the cases of rupture it is often a very severe pain, cutting in character. The discovery of a tender mass on the same side of uterus as the pain, adds to the certainty of diagnosis. Faintness is sometimes experienced, even before rupture, and fever is the rule after blood has leaked into the abdominal cavity. Many are the combinations of conditions and symptoms in different patients. The diversity is so wide that mistakes are bound to occur. "No pelvic condition gives rise to more diagnostic errors," to quote DeLee.

Mistaken diagnoses will be less frequent, however, when our mental picture of ectopic pregnancy is not the classical ruptured ectopic, but when we visualize these cases as they are before rupture, when the symptoms are mild and seem less urgent.

Discussion.

Dr. W. Mortimer Brown, Rochester: I do have a warm feeling in my heart for a man who is not certain, or at least makes errors in diagnosis. These papers are very good. The statement is that you should make a diagnosis in 80 or 90 per cent of your cases. What are you going to do with a case, for instance, such as I came in contact with a few weeks ago? A patient I saw in a dispensary; I never saw a patient with a more typical subjective and clinical history of ectopic pregnancy. Her symptoms, the overdue period, the irregular flowing, the other evidences of pregnancy, then beginning little sharp pains which brought her to the dispensary. My examination showed a perfectly well-defined mass on the left side of the uterus, closely associated with the uterus but still sufficiently outside of the uterus to make it perfectly plain that it was an extra-uterine type of pregnancy. I made an unqualified diagnosis of extra-uterine and tried to get the patient to go to the hospital. She would not go. After about twenty-four hours they telephoned that she was suffering. She called another physician and he said the

same thing. Finally about three o'clock in a subsequent morning a neighbor telephoned that the husband was walking up and down the street crying that his wife was dying with pain and wanted me to come. I sent for the ambulance and took her to the hospital. She was placed in the surgical ward and was examined by the chief and by the associate and the interne. All concurred in the diagnosis and in the middle of the day she was put on the table, the abdomen opened; irritated tube, but empty, a great deal of confusion; unnecessary operation. Twenty-four hours later the woman passed a fetus from the uterus. The diagnosis had been correct. It was extra-uterine with a tubal abortion into the uterus. She was examined and this mass felt three hours before she went on the table, and yet the abdominal operation was not necessary.

DR. LYTLE: I agree that the general practitioner occupies a position just as great as the specialist. What I want to emphasize is that it is up to the practitioner, who sees these cases first, to make the diagnosis, and that it is not only the general practitioner who is making these mistakes, but also the experts are doing it. It is not always so easy to avoid these errors and I think that I have gone over a subject in the medical literature that presented such a divergence of opinion. Men of great prominence are frequently mistaken.

Referring to the differential rise of temperature spoken of in the case of salpingitis. I think it is the rule even in the ectopics after blood has leaked into the abdominal cavity.

I was interested in Dr. Brown's case. He spoke of a tubal abortion in the uterus. I think that is very unusual. The tubal abortion is usually into the abdominal cavity.

THE PROPER AND EFFICIENT DISINFECTION OF A HOUSE.*

By GEORGE W. GOLER, M.D.,
ROCHESTER, N. Y.

THE word "proper" is defined as "being particularly suited to, appropriate to, correct, that which is set apart to special or individual use." The word "efficient" as "producing outward effects of a nature to produce a result, active, causative, able to act with due effect, adequate in performance, capable, competent."

The proper and efficient disinfection of a house must, therefore, be both corrective and active. It must be capable of accomplishing something. And, whatever it does, it must do that which it does so as to be capable of proof of its doing, or it fails in meeting an answerable definition of the proposition laid down in the title of this paper, as it was imposed upon me.

* Read at Meeting of State Sanitary Officers Association, at Saratoga Springs, June 6, 1916.

Now, disinfection to be proper and efficient, must be so in point of time as well as in activity. For, what may once have been proper and efficient, when in the state of our knowledge there appeared to be a capable performance, may now no longer be of a nature to produce the desired effect, because the increasing number of our observations may have taught us that our former facts led to erroneous conclusions. And, therefore, what may have been proper and efficient in the past is not so in the present.

Thus, if we are to do the proper and efficient disinfection of a house, we are to disinfect properly and efficiently, and not improperly and inefficiently. Returning again to definition as a proof of knowledge—not the writer's knowledge, because the writer disclaims any and all knowledge how properly and efficiently to disinfect a house—he begs leave to attempt to show both by definition and present-day practice, that there can be no such thing as "the proper and efficient disinfection of a house" by any so-called practicable means, and that the disinfection of a house is improper and inefficient, a fraud, sham, delusion, snare; that it is a useless, stale, flat and unprofitable procedure, devoid of sense, without justification, reason or excuse, both impracticable and impossible.

Now to return for a moment to the dictionary and definition: A disinfectant is defined as an agent used for destroying the germs of infectious disease. As the preliminary report of the Committee on Disinfectants of the A. P. H. A., of which Surgeon-General George N. Sternberg was chairman, says: "There can be no partial disinfection of such material (*i. e.*, infected material); either infecting material is destroyed or it is not. In the latter case there is a failure to disinfect. Nor can there be any disinfection in the absence of infectious material." Written thirty years ago, these facts are as true today as when they were committed to paper.

It appears to the writer that there are two practical questions before us relating to disinfection; why did we attempt to disinfect, and why do we still attempt to disinfect. Let us, if we can, try to find a reason for these practices from the meager material that has come down to us from the historian. In doing so, and in endeavoring to interpret the curious practices of making smokes and smells to drive away disease, let us try to get the mental attitude of the ancients who believed to some extent in the curious practices of fumigation. They lived in an age of superstition—a period when magic, alchemy and astrology, the mysterious conjugation of planets and various electrical phenomena were believed to combine in the formation of some hidden and noxious vapors to cause disease, for the prevention of which, so-called disinfection and fumigation was designed.

Chiefly among the Jews was the value of cleanliness in the prevention of disease clearly

recognized. In Leviticus there is only one mention of disinfection, but there are many references to bathing and washing the clothes of the infected. "He shall wash his clothes and be clean." "His clothes shall be rent and he shall dwell alone." "He is unclean. He that is to be cleaned shall wash his clothes and shave off all his hair and wash himself in water that he may be clean." In the case of infected persons, that is, those infected with leprosy,—and the word leprosy was used as a generic term for several forms of infection—it is related in the book of Leviticus, that "the plaster and other material be removed from the house and deposited in an unclean place without the camp."

In the Odyssey of Homer, after the slaughter of the suitors, and probably recognizing the need of a general cleansing, Ulysses calls, "Quickly, oh nurse, bring fire that I may burn sulphur, the cure of ills." This practice was, of course, an example of ceremonial fumigation or disinfection, like references which are to be found in Pliny, Ovid and some of the other early classical writers. Similar references are found to early attempts at ceremonial disinfection by the burning of sweet-odored woods, spices and gums, and these ceremonies were practiced for the purpose of covering up the bad smells that were nearly always associated with disease in the olden time.

In the fourteenth century after plague had visited Italy for the sixteenth recorded time, it was ordered in Milan and other cities, that infected houses be ventilated for at least eight or ten days and purified by fire and fumigations of aromatic substances. Bedsteads were to be aired for at least four days, so that the noxious vapors, which were presumed to cause the plague, might be destroyed. In the sixteenth century plague was considered contagious and Haas says, "Isolation and disinfection came into use without any measurable effect against the plague. Horn, gun powder, sulphur, straw were burned in the streets, so that the statement, 'they are burning horn' signifies the plague is there and we can do nothing against it: a condition which we now express euphemistically by the odor of carbolic acid." Orders very similar to these were published by the Lord Mayor and Council in the London plague of 1665. We may even come down to the English cholera epidemic of 1832, when the mud in the gutters of the streets of London were a mixture of filth, refuse and chloride of lime.

From what has been said it appears evident that gaseous or aerial disinfection was, up to recent times, at least, a kind of ceremonial institution or superstitious practice designed either to placate or exorcise the demons of disease. Facts failing, we are, therefore, left to the delightful alternative of speculation, an act not entirely unknown to the practice of medicine of the present day. It is more probable that the early attempts at house disinfecting were due to practices which arose after the cave man or his later descendants saw the effect of sulphur fumes issuing from the rocks upon the insects, beasts, even man himself, when they came in close contact with these things. To the cave man accident or disease was the work of demons and the demons came out of the air. What could be plainer. The cave man was burned by the sun, wet by the rain, and the snow and the hail made him cold. Night and its shadows frightened him. The wind and its noises among the trees and hills made strange sounds, and under the canopy of the stars or in the black of night strange noises and shapes appeared to attack him. Everything that harmed him, even the missiles of his enemies, came out of the air, and what more reasonable than that the demons of disease came out of the air.

As man grew more civilized this conception of the relation of disease to the air seems to have had a kind of origin among all the peoples, especially those about marsh land or along rivers or about the coasts. Did they not know that it was the night air that brought disease to them? What could be plainer than this? If man shut himself up he sometimes escaped disease or he escaped often enough to make that escape a basis for an argument in favor of the danger of night air. At any rate, there was a mysterious something that appeared to man to come out of the air and attack him, and if it didn't come out of the air it was, as he was able later to prove to his own satisfaction, due to miasma that came reeking out of the ground and worked him ill. So the will-o'-the-wisps of the early air-born conception of disease continued from that time of our primitive ancestors, and to some extent still possesses the minds of many of the people and their medical advisers.

But man has usually been a being willing to compromise. In his primitive as well as in his more or less civilized state he has been willing to propitiate gods or demons when he could not exorcise them. What could have been more human than that he should strive to placate the demons of disease by offering to them incense that would please them. Disease came from demons; demons were associated with the devil; the devil was associated with sulphur; sulphur ought to be agreeable or disagreeable to the demons; therefore, they might appease the demons of disease by burning sulphur in their honor. Later, when the germ theory of disease became known, sulphur and like substances were used, not to propitiate but to exorcise the demons of disease. Doubtless the use of sulphur as a disinfectant arose in some such way as this, and when later sulphur was shown to be more or less useless as a disinfectant, other aromatic substances came into use, because more money could be got for them and they were lauded by the makers as useful in preventing the dissemination of disease.

At the present time disinfection and disinfectants would die were they not promoted by manufacturers and advertisers. Is there any other reason why a health officer uses a gaseous disinfectant, than because some manufacturer writes into his advertisement that disinfecting is a desirable thing to do? Certainly there is no evidence on good bacteriological ground that room disinfection ever accomplished anything. Well-known experiments undertaken in rooms occupied by patients with diphtheria where the observers examined swabs from various articles of furniture in the room, including bedding, only revealed diphtheria bacilli present in 3 or 4 per cent of several hundred observations. It is, therefore, the manufacturer of proprietary disinfectants who, for the purposes of selling his disinfectant, strives to tell the physician what to do with the particular disinfectant that he manufactures. And the manufacturer of proprietaries does the same thing with phylacogens, somnos and other like material from the ragbag of quackery. If a man uses a disinfectant, ought he not also to get his hair singed, wear an iron ring for rheumatism and a health belt; suspend a bag of camphor about his neck and revert to the customs of the sixteenth century doctors, by carrying a Pomander box or gold-headed cane with perfume or disinfectant in the hollow head of the cane? He doubtless feels in the same position as the old doctor desired the woman might feel who threw away his medicine. Between the doctor and patient the following dialogue took place:

Doctor—"So you never took my medicine, Mrs. Jones. 'No.' You made a mistake, Mrs. Jones, a very grave mistake; because now you are well, Mrs. Jones, and you will never know what cured you."

To show what has happened in recent years, let me speak of the changes in practice in my home city. Twenty-five years ago it was the custom to disinfect vaults. Now we abolish vaults and screen them. Twenty-five years ago we disinfected school buildings. Not for twenty-five years have we disinfected a school building, but we now pay more attention to the cleanliness of our school buildings.

Five years ago we stopped all routine disinfection, although we occasionally disinfected. Now, for three years we have not disinfected any of the premises in the city after infectious disease and scarlet fever and diphtheria have in the past two years fallen off 30 to 40 per cent. In the Municipal Hospital during the past five years we have had more than 1,600 cases of infectious diseases. Frequently we have had scarlet fever, whooping cough or measles and diphtheria in the same wards, cared for by the same nurses. No disinfectant of any kind has been used in the hospital, not even on the hands of nurses or physicians. We keep the hospital and its belongings clean; the nurses have learned simply to wash their hands in soap and water and wipe them on paper towels. In these five years to there has been less than 2 per cent of cross infection.

From these facts and these results, we know that disinfection is useless and expensive. We have learned much of the uselessness of disinfection from one of the foremost sanitarians in this country, Chapin of Providence. Through his teaching and the teaching of others, we have learned not to waste our money in buying useless disinfectants and our effort in applying them. We have learned, too, that there is no such thing as the "proper and efficient disinfection of a house."

WELFARE WORK OF THE METROPOLITAN LIFE INSURANCE COMPANY FOR ITS EMPLOYEES.*

By LEE K. FRANKEL, Ph.D.,

NEW YORK CITY.

THE size of this meeting precludes the possibility of a formal discussion. If you do not object I will try to present what I have to say in the line of a little familiar talk. The Welfare Work we are trying to do, interests you in so far as it has a medical aspect. It has a variety of manifestations, and I shall only refer in a general way to some of the things that are commonly done today.

We have established facilities for recreation. We have, for instance, an athletic association, an orchestra, a brass band orchestra, and departments of various kinds for instruction. We have classes in shorthand and typewriting, even classes in millinery, which may be attended by such clerks as desire to be taught. I am going to pass over these rapidly and speak to you only of those phases of our work which bear upon the medical aspect.

I do not like the term "Welfare Work," but unfortunately there is no other term to use. While it is not in reality a charitable work, it has of course something of the philanthropic connected with it, but I want you to disabuse your minds on that score, for I do not believe there is any large corporation doing this kind of work with any thought of charity. . . . The fact is, it pays, and while we cannot as yet demonstrate it statistically, it shows from the standpoint of efficiency that it is a good business investment for every corporation to do Welfare Work, because it means a better staff of workers, and because they are more comfortable and contented. We get more permanent employes. . . . Today the need of keeping employees is very greatly worth considering. I was speak-

* Read at the Annual Meeting of the Medical Society of the State of New York at Saratoga Springs, May 17, 1916.

ing the other day in Philadelphia to a man representing a large traction company, who told me that he had managed to reduce their annual overturn of employees from sixty per cent to forty per cent. This is a big saving in costs for accidents and teaching new employees every year. It pays to keep a man in your employ rather than to let him go and have to train another man. So the word "Welfare Work" is a misnomer, as it is done for good business reasons, and for that reason it pays to get efficient working people at the start.

It is not sufficient to employ a man simply because he is willing to work—the mere desire is not enough. The old statement about hell being paved with good intentions is familiar to you all. We have got to know our men and women, and we have got to know their capabilities, physical and mental. To that end we are making two examinations of all applicants for positions. First of all comes the mental examination. This psychological examination covers a period of three hours and a half. Some persons wonder why we have the applicants take such a long examination. . . . The fact is, they have to work seven hours a day and if applicants are not able to stand a three hour examination and do as well at the end of it as at the beginning of the test, we do not figure that they will be able to work for seven hours.

Then we examine them physically. Every applicant is examined as if he were an applicant for ordinary insurance. You know what this means. These examinations are followed up by annual re-examinations. The day may come when we shall examine them semi-annually, or less frequently than annually, according as our experience may prove necessary. The fact remains that we are getting an inventory, precisely as a man in business does in regard to his stock, only we have human stock to deal with. While that is not a nice expression, it is a true one. . . . Of course these examinations were objected to at first by some persons because they got the idea that it was done for the purpose of discharging those who were unfit for service, but they are now beginning to realize that it is not for that reason, but for the purpose of finding out whether they are in condition to go on with their work and to put them in proper shape to enable them to do so.

These examinations have brought out some very interesting facts. While our system is comparatively new, we have a record of having examined some 3,583 employees in the year 1914-1915; 2,356 women and 1,227 men.

Among them there were found as follows:

144 cases albuminuria (71 with casts).
41 cases anæmia.
129 cases high blood pressure.
124 cases bronchitis.
347 cases dysmenorrhœa (this being quite common where there are so many women employees).
203 cases enlarged glands.
65 cases goitre (I had no knowledge that goitre was quite so prevalent. It struck me that it was interesting to know that there was such a large number of women with goitre—61 women, while there were but 4 men).
322 cases impaired hearing.
226 cases nervous disorders.
152 cases overweight.
185 cases history of pneumonia.
644 cases poor teeth.
577 cases underweight.
435 cases impaired vision.
21 cases venereal diseases.

It struck me as very significant that the number of persons having venereal diseases was so small, showing that we have an exceptional group of employees. These examinations are not made when the employee wishes it, but when we desire it.

The largest number of cases are those of impaired teeth, and we felt that we ought to go a step farther. So last year we opened a dental bureau. So far we have simply examined and cleansed teeth and for any regular work that needed to be done have referred our employes to their regular dentists. A chart is made out showing what repairs are needed. . . . At the present time, five dentists are employed in this department. The clerks are given time to attend this clinic at the cost of the company. Each clerk is given about an hour for treatment. We feel that the results already justify our going a step farther and giving the necessary treatment, so far as fillings, etc., are concerned. It is rather unfortunate that we cannot control our employees as to the dentists to whom they go. Most dentists do good work, but there are some who do not. The demand now has come from the employees themselves, asking us to enlarge this department so as to give them this service. We can probably arrange to give it to them at cost. (Dr. Frankel then showed a chart similar to the ones used by the company's dentists who are doing this work). . . . A careful record is kept of every case, and in all suspicious cases where the teeth are in bad condition, the patient is subjected to X-ray examination. We are finding a considerable number of apical abscesses that could not have been discovered by instruments. We are finding a close relation between bad teeth and rundown conditions. Cases of repeated colds, boils, rheumatism, etc., have been remedied by removing bad teeth, or by properly treating them. This makes us think that the mouth is one of the most important sites of infection. . . . I know of one woman who was suffering from neuritis, and could not lift her arm. The medical examination showed a very bad mouth, and four teeth were removed.

That woman today is brushing her own hair. It is very likely that the neuritis had been due to infection of the teeth.

We are finding a considerable percentage of tuberculosis. Our mortality statistics for policy-holders bring out interesting data, which has been classified under occupational lines. The lowest rate of mortality from tuberculosis is among coal miners. We have not been able to formulate a theory why the mortality should be so much lower in persons working as these coal miners do in underground conditions.

The highest rate of mortality is among clerks. We had already taken care of our clerks by sending them to sanatoria, but we felt that we could take much better care of them in a sanatorium of our own. For that reason we purchased a tract of ground at Mt. McGregor, where we now have our own sanatorium. I had hoped that we would be able to have the New York State Society meet there. I wish to extend an invitation to any one of you to come up and see our sanatorium if you would like to see what we have in the way of a model institution. Dr. Howk, the physician in charge, will arrange for your transportation. At the sanatorium we are giving the patients work similar to what they have done at the home office. This keeps them employed and their minds interested, and prepares them for the work they will do when they return.

I have before me a copy of Dr. Howk's latest report:

Number of tuberculosis ex-patients at work is	106
Number who have died since leaving the sanatorium	5
Number not at work because of illness	7
Number who have retired, or are no longer in the company's service	10
Average weekly earnings previous to coming to the sanatorium, of 113 individuals	$23.04
Average present weekly earnings of 93 individuals reporting	$20.02
Aggregate weekly earnings at present time, of 93 individuals reporting	$1,900.00

This report shows that since their return these patients' earnings were but three dollars less than they were before they were taken sick. They are now working under proper supervision at the home office and are watched to see that they get the proper nourishment, and only a few cases have had to return.

We have now gone just one step farther. We felt that it ought to be more than a tuberculous sanatorium and are just completing a rest house which will have eighty beds in it. Here we are going to give treatment to employees, not suffering from tuberculosis, but men and women who are broken down and need a rest. We have had enough of those cases to know that it is worth while, and we have found that by giving them the proper treatment we have been able to bring them back to health. I can see the possibility some day of having the mountain dotted with rest-houses and similar buildings. We shortly shall have accommodations for 250 patients. . . . The sanatorium is a medical laboratory, just as the home office is a social laboratory.

In the home office we are giving our employees each day a light luncheon. This has been criticized by persons who say that we are using the policy-holders' money unwisely. This is not the case. We are paying for it, and it is costing us about $180,000 a year. Our experience is that when the girls go out for luncheon, instead of buying a proper meal, they probably buy pretzels and lemonade, and then go shopping. Now that we give them the luncheon we know that they have had a good meal, and are able to do better work. Both we and they are the gainers. We believe that the results more than pay for the meals we furnish. . . .

We have a staff savings fund, in which the company deposits fifty cents for every dollar deposited by a clerk. We have disability insurance under which employees are entitled to benefits when ill. Under the insurance scheme, an employee draws full benefit for twenty-six weeks, half benefit for four years and one-half, and quarter benefit thereafter until sixty-five years of age. Provision is made for incapacitated employees over sixty-five, through a system of allowances. In this way the employee is provided for during his connection with the company, whatever his age. . . .

Industry-at-large must take up more and more the improvement of conditions of working places. A great many things can be done. Among these are improvements in heating, lighting, ventilation, etc. These problems have been taken up in our home office by experts engaged for the purpose. We have experimented with a simple method of ventilating workrooms. At eleven and three each day the windows are thrown wide open and the clerks are allowed to get up from their work and do what they please for five minutes. Of their own volition they carry on gymnastic exercises, and if you will step into the office at eleven o'clock some morning, you will see some of the girls lined up playing bean-bag. It certainly does not look much like an insurance office. The result is that we are getting better work between eleven and twelve-thirty and between three and half-past four o'clock than we ever did before, just because the girls have fresh air and exercise. Ten minutes a day is an item, but it pays, and it is helping to solve the ventilation problem.

Legislative Notes

The Committee on Legislation herewith presents the lists of members of the Senate and Assembly for the year 1917. Members of the Society can refer to this list at any time that it may seem advisable to write to their Assemblymen or Senators in regard to legislative matters. All are requested to look it over so that if there are any known to them personally they can write them, if requested by the Committee on Legislation to assist or oppose any bills before the Legislature.

SENATE.

1. *George L. Thompson, R., Kings Park, L. I.
2. Peter M. Daly, D., 39 Hallet St., Astoria.

Kings.

3. *Thomas H. Cullen, D., 256 President St.
4. *Charles C. Lockwood, R., 954 Greene Ave.
5. *William J. Heffernan, D., 598 Fourth Ave.
6. Charles F. Murphy, R., 292 Clinton Ave.
7. *Daniel J. Carroll, D., 135 No. 3rd St.
8. Alvah W. Burlingame, Jr., R., 391 Fulton St.
9. *Robert R. Lawson, R., 24 Woodbine St.
10. *Alfred J. Gilchrist, R., 294 Ridgewood Ave.

New York.

11. Bernard Downing, D., 195 Monroe St.
12. Jacob Koenig, D., 220 E. 12th St.
13. *James J. Walker, D., 6 St. Luke's Pl.
14. *James A. Foley, D., 66 Broadway.
15. *John J. Boylan, D., 418 W. 51st St.
16. *Robert F. Wagner, D., 244 E. 86th St.
17. *Ogden L. Mills, R., 340 Park Ave.
18. Albert Ottinger, R., 165 Broadway.
19. Edward J. Dowling, D., 120 Broadway.
20. Salvatore A. Cotillo, D., 235 E. 116th St.
21. *John J. Dunnigan, D., 1861 Holland Ave.
22. John V. Sheridan, D., 3118 Webster Ave.

State.

23. *George Cromwell, R., Dongan Hills, Staten Island.
24. *George A. Slater, R., Portchester.
25. *John D. Stivers, R., Middletown.
26. *James E. Towner, R., Towners.
27. *Charles W. Walton, R., Kingston.
28. *Henry M. Sage, R., Menands.
29. *George B. Wellington, R., 3 Walnut Pl., Troy.
30. *George H. Whitney, R., Mechanicville.
31. James W. Yelverton, R., 217 Union St., Schenectady.
32. Theodore D. Robinson, R., R. F. D. 1, Mohawk.
33. *James A. Emerson, R., Warrensburg.
34. *N. Monroe Marshall, R., Malone.
35. *Elon R. Brown, R., 124 Clinton St., Watertown.
36. *Charles W. Wicks, R., Sauquoit.
37. Adon P. Brown, R., Leonardsville.
38. *J. H. Walters, R., 935 University Blk., Syracuse.
39. *William H. Hill, R., Johnson City.
40. *Charles J. Hewitt, R., Locke.
41. *Morris S. Halliday, R., 510 E. Seneca St., Ithaca.
42. William A. Carson, R., Rushville.
43. *Charles D. Newton, R., Geneseo.
44. John Knight, R., Arcade.
45. *G. F. Argetsinger, R., 683 Averill Ave., Rochester.
46. *J. B. Mullan, R., 9 Elwood Bldg., Rochester.
47. *Geo. F. Thompson, R., Middleport.
48. Ross Graves, R., 683 Manchester Pl., Buffalo.
49. *S. J. Ramsperger, D., 232 Emslie St., Buffalo.
50. Leonard W. H. Gibbs, R., 110 Franklin St., Buffalo.
51. *George E. Spring, R., Franklinville.

* Re-elected.

ASSEMBLY.

Albany.

1. *Clarence F. Welsh, R., 43 S. Allen St., Albany.
2. *John G. Malone, R., 25 Howard St., Albany.
3. *William C. Baxter, R., Watervliet.

Allegany.

*William Duke, Jr., R., Wellsville.

Bronx.

32 N. Y. *William S. Evans, D., 743 Kelly St.
33 N. Y. *Earl H. Miller, D., 601 Eagle Ave.
34 N. Y. *M. Maldwin Fertig, D., 1389 Stebbins Ave.
35 N. Y. *Jos. M. Callahan, D., 1037 Ogden Ave.

Broome.

Edmund B. Jenks, R., Whitney Point.

Cattaraugus.

*De Hart Ames, R., Ellicottville.

Cayuga.

L. Ford Hager, R., Red Creek.

Chautauqua.

1. *Leon L. Fancher, R., Jamestown.
2. *Joseph A. McGinnies, R., Ripley.

Chemung.

Robert B. Rush, D., Horseheads.

Chenango.

*Bert Lord, R., Afton.

Clinton.

Wallace E. Pierce, R., Plattsburgh.

Columbia.

*William W. Chace, R., Hudson.

Cortland.

*George H. Wiltsie, R., Cortland.

Delaware.

James S. Allen, R., East Branch.

Dutchess.

1. *James C. Allen, R., Clinton Corners.
2. *Frank L. Gardner, R., Poughkeepsie.

Erie.

1. *Alexander Taylor, R., 115 Franklin St., Buffalo.
2. John W. Slacer, R., 1203 West Ave., Buffalo.
3. *Nicholas J. Miller, R., 12 Cayuga St., Buffalo.
4. *James M. Mead, D., 350 Gold St., Buffalo.
5. *John A. Lynch, D., 694 So. Division St., Buffalo.
6. Alex. A. Patrzkowski, D., 1119 Broadway, Buffalo.
7. Earl G. Danser, R., 592 Walden Ave., Buffalo.
8. Herbert Zimmerman, R., Brisbane Bldg., Buffalo.
9. *Nelson W. Cheney, R., Eden.

Essex.

*Raymond T. Kenyon, R., Ausable Forks.

Franklin.

*Warren T. Thayer, R., Chateaugay.

Fulton-Hamilton.

*Burt Z. Kasson, R., Gloversville.

Genesee.

*Louis H. Wells, R., Pavilion.

Greene.

Harding Showers, R., Tannersville.

Herkimer.

Edward O. Davies, R., Ilion.

Jefferson.

1. *Henry E. Machold, R., Ellisburg.
2. *Willard S. Augsbury, R., Antwerp.

* Re-elected.

KINGS.

1. Geo. H. Ericson, R., 535 Atlantic Ave.
2. Patrick H. Larney, D., 252 High St.
3. *Frank J. Taylor, D., 50 Van Dyke St.
4. *Peter A. McArdle, D., 151 Hewes St.
5. James H. Caufield, Jr., R., 872 Madison St.
6. *Nathan D. Shapiro, R., 892 Broadway.
7. *Daniel F. Farrell, D., 378 17th St.
8. *John J. McKeon, D., 413 Smith St.
9. *Fred. S. Burr, D., 8723 Ridge Blvd.
10. Fred. M. Ahern, R., 426 Park Pl.
11. *Geo. R. Brennan, R., 1140 Pacific St.
12. *William T. Simpson, R., 523 Sixth St.
13. Morgan T. Donnelly, D., 101 Powers St.
14. *John P. LaFrenz, D., 65 Java St.
15. *Jeremiah F. Twomey, D., 151 Java St.
16. Samuel R. Green, R., 1446 46th St.
17. *Frederick A. Wells, R., 215 Montague St.
18. Wilfred Earl Youker, R., 310 Kenmore Pl.
19. Benj. Klingmann, D., 187 Irving Ave.
20. *Aug. C. Flamman, R., 44 Court St.
21. Joseph A. Whitehorn, S., 235a Vernon Ave.
22. *Chas. H. Duff, R., 1397 Madison St.
23. *Abraham I. Shiplacoff, S., 759 Howard Ave.

LEWIS.

*Henry L. Grant, R., Copenhagen.

LIVINGSTON.

*Geo. F. Wheelock, R., Moscow.

MADISON.

*Morrell E. Tallett, R., De Ruyter.

MONROE.

1. *James A. Harris, R., East Rochester.
2. *Simon L. Adler, R., 813 Welder Bldg., Rochester.
3. Harry B. Crowley, R., 105 Woodward St., Rochester.
4. *Frank Dobson, R., Charlotte Station.
5. *Franklin W. Judson, Lincoln Park.

MONTGOMERY.

*Erastus Corning Davis, R., Fonda.

NASSAU.

*Thomas A. McWhinney, R., Lawrence.

NEW YORK

1. *John J. Ryan, D., 574 Broome St.
2. *Peter J. Hamill, D., 262 William St.
3. *Caesar B. F. Barra, D., 53 Park Row.
4. *Henry S. Schimmel, D., 302 Broadway.
5. *Maurice McDonald, D., 344 W. 14th St.
6. *Nathan D. Perlman, R., 314 E. 4th St.
7. *Peter P. McElligott, D., 360 W. 21st St.
8. *Abraham Goodman, D., 299 Broadway.
9. *Charles D. Donohue, D., 408 W. 42nd St.
10. Abner Greenberg, D., 156 2nd Ave.
11. *James F. Mahony, D., 682 10th Ave.
12. *Joseph D. Kelly, D., 51 Chambers St.,
13. Fredolin F. Straub, D., 118 W. 63rd St.
14. *Robert L. Tudor, D., 159 Lexington Ave.
15. *Abram Ellenbogen, R., 233 Broadway
16. *Martin G. McCue, D., 734 3rd Ave.
17. Martin Bourke, R., 4 W. 92nd St.
18. *Mark Goldberg, D., 222 E. 72nd St.
19. *Perry M. Armstrong, D., 548 Riverside Drive
20. *Frank Aranow, D., 161 E. 79th St.
21. Harold C. Mitchell, R., 165 Broadway.
22. *Maurice Bloch, D., 407 E. 88th St.
23. Earl A. Smith, D., 555 W. 173rd St.
24. *Owen M. Kiernan, D., 163 E. 89th St.
25. *Robert McC. Marsh, R., 45 W. 11th St.
26. *Meyer Levy, D., 115 Broadway.
27. Schuyler M. Meyer, R., 27 Cedar St.
28. Charles Novello, R., 179 E. 107th St.
29. *Alfred D. Bell, R., 1 E. 60th St.
30. *Timothy F. Gould, D., 158 E. 127th St.
31. *Jacob Goldstein, D., 44 W. 114th St.

NIAGARA.

1. *William Bewley, R., Lockport.
2. *Alan V. Parker, R., Niagara Falls.

ONEIDA.

1. Albert H. Geiersbach, D., 904 Cornelia St., Utica.
2. *Louis M. Martin, R., Clinton.
3. *George T. Davis, R., Rome.

ONONDAGA.

1. Manuel J. Soule, R., Euclid.
2. Harley J. Crane, R., Landon Ave., Syracuse.
3. *G. R. Fearon, R., 614 Gurney Bldg., Syracuse.

ONTARIO.

*Heber E. Wheeler, R., Holcomb.

ORANGE.

1. William F. Brush, R., Newburgh.
2. *Charles L. Mead, R., Middletown.

ORLEANS.

Frank H. Lattin, R., Albion.

OSWEGO.

*Thaddeus C. Sweet, R., Phœnix.

OTSEGO.

*Allen J. Bloomfield, R., Richfield Springs.

PUTNAM.

John P. Donohoe, R., Garrison.

QUEENS.

1. Peter A. Leininger, D., Long Island City.
2. *Peter J. McGarry, D., Long Island City.
3. *William H. O'Hare, D., Glendale.
4. Frank E. Hopkins, R., 32 Willett St., Jamaica.

RENSSELAER.

1. *John F. Shannon, D., 361 Congress St., Troy.
2. *Arthur Cowee, R., Berlin.

RICHMOND.

Henry A. Seesselberg, D., Stapleton.

ROCKLAND.

*William A. Serven, R., Pearl River.

ST. LAWRENCE.

1. *Frank L. Seaker, R., Gouverneur.
2. *Edward A. Everett, R., Potsdam.

SARATOGA.

*Gilbert T. Seelye, R., Burnt Hills.

SCHENECTADY.

*Walter S. McNab, R., 514 State St., Schenectady.

SCHOHARIE.

Geo. A. Parsons, D., Sharon Springs.

SCHUYLER.

*Henry J. Mitchell, R., Odessa.

SENECA.

Lewis W. Johnson, R., Seneca Falls.

STEUBEN.

1. Samuel E. Quackenbush, R., Corning.
2. *Richard M. Prangen, R., Hornell.

SUFFOLK.

1. *DeWitt C. Talmage, R., East Hampton.
2. *Henry A. Murphy, R., Huntington.

SULLIVAN.

Seymour Merritt, D., Liberty.

TIOGA.

*Daniel P. Witter, R., Berkshire.

TOMPKINS.

*Casper Fenner, R., Heddens.

ULSTER.

1. Joel Brink, R., Katrine.
2. *Abram P. LeFevre, R., New Paltz.

WARREN.

*Henry E. H. Brereton, R., Lake George.

WASHINGTON.

*Charles O. Pratt, R., Cambridge.

WAYNE.

Frank D. Gaylord, R., Sodus.

WESTCHESTER.

1. *George Blakely, R., Yonkers.
2. *William S. Coffey, R., Mt. Vernon.
3. *Walter W. Law, Jr., R., Briarcliff Manor.
4. *Floy D. Hopkins, R., White Plains.

WYOMING.

Bert P. Gage, R., Warsaw.

YATES.

*Howard S. Fullagar, R., Penn Yan.

* Re-elected.

The Proposed Medical Practice Act

The accompanying draft of a new medical practice law will be introduced during the present session of the Legislature. This is a joint bill, drawn by the State Board of Medical Examiners and a Committee from the State Medical Society. It has the approval of the Board of Regents and the Council of the State Society.

The essential changes in the law are the provision for annual registration and for the prosecution of illegal practitioners by the Attorney-General of the State, instead of by the local district attorney, which is the present method of legal procedure.

Annual re-registration has been enforced among dentists and veterinarians and has proven of immense value in locating illegal practitioners.

It was practically impossible under previous systems of registration to reach the illegal practitioner, to know who he was.

The annual registration has enabled the Board of Regents to identify the illegal practitioner.

The result is that dentistry and veterinary medicine are rapidly being purged of illegal practitioners, to the immense advantage of the properly qualified and licensed members of those professions.

The fee of two dollars which the annual registration carries with it is charged for the purpose of creating a fund for the prosecution of illegal practitioners of medicine or of those members of the profession guilty of offenses named in the medical practice law.

The fund thus created cannot be used for any other purpose and is, therefore, an immediate protection to both the public and the profession against offenders under this act.

It is the judgment of those who have studied these matters most carefully that lengthening the period between registrations, which has been suggested as more expedient than annual re-registration, materially weakens the effect of the act by allowing longer periods in which illegal practitioners and other offenders may operate without danger of detection. It also increases the difficulties of maintaining the registry lists, compelling the employment of a larger clerical force and a greater number of inspectors; thus increasing the expenses of administration, and, in all probability, making it necessary to increase the individual physician's assessment beyond the proposed two dollars per year.

The advantages of prosecution by the Attorney-General rather than by local district attorneys are too obvious to need comment.

AN ACT

To amend the public health law, in relation to the practice of medicine.

Section 1. Sections one hundred and sixty-four, one hundred and sixty-eight, one hundred and seventy and one hundred and seventy-four of chapter forty-nine of the laws of nineteen hundred and nine, entitled, "An act in relation to the public health, constituting chapter forty-five of the consolidated laws," are hereby amended to read, respectively, as follows:

164. Expenses. (The) *All* fees, *fines, penalties and moneys derived* from the operation of this article shall be paid into the state treasury, and the legislature shall annually appropriate therefrom for the education department an amount sufficient to pay all proper expenses incurred pursuant to this article.

168. Examinations and reports. Examinations for license shall be given in at least four convenient places in this state and at least (four) *two* times annually, in accordance with the Regents' rules and shall be (exclusively) in writing and in English, *but the Regents may adopt a rule uniformly supplementing all such written examinations by oral, laboratory, and clinical bedside examinations.* Each examination shall be conducted by a Regent's examiner who shall not be one of the medical examiners. At the close of each examination the Regent's examiner in charge shall deliver the questions and answer papers to the board or its duly authorized committee, who, without unnecessary delay, shall examine and mark the answers and transmit to the Regents an official report, signed by its president and secretary, stating the standing of each candidate in each branch, *and in each supplemental oral, laboratory, and bedside examination, if any,* his general average and whether the board recommends that a license be granted. Such report shall include the written questions and answers together with the specifications of the supplemental examinations, if any, and shall be filed in the public records of the University. If a candidate fails on first examination, he may (after not less than six months further study), have a second examination without fee. (If the failure is from illness or other cause satisfactory to the Regents they may waive the required six months study).

170. Registry. Revocation of license; *suspension of license;* annulment of registry. Every license to practice medicine shall, before the licensee begins practice thereunder, be registered in a book kept in the clerk's office of the county where such practice is carried on, with name, residence, place and date of birth, and source, number and date of his license to practice. Before registering, each licensee shall file, to be kept in a bound volume in a county clerk's office, an affidavit of the above facts, and also that he is the person named in such license, and had before receiving the same, complied with all requirement as to attendance, terms and amount of study and examinations required by the law and the rules of the university as preliminary to the conferment thereof; that no money was paid for such license, except the regular fees paid by all applicants therefor; that no fraud, misrepresentation or mistake in any material regard was employed by anyone or occurred in order that such license should be conferred. Every license or, if lost, a copy thereof legally certified, so as to be admissible as evidence, or a duly attested transcript of the record of its conferment, shall, before registering, be exhibited to the county clerk, who, only in case it was issued or indorsed, as a license under seal by the regents, shall indorse or stamp on it the date and his name preceded by the words "registered as authority to practice medicine in the clerk's office of ..... county." The clerk shall thereupon give to every physician so registered a transcript of the entry in the register with a certificate, under seal, that he has filed the prescribed affidavit. The licensee shall pay to the county clerk a total fee of one dollar for registration, affidavit and certificate.

A county clerk having properly issued a certificate of registration to a licensed physician shall forward a duly attested copy of the affidavit and evidence upon which said certificate was issued to the secretary of the board within thirty days of such initial registration of a duly licensed physician. On or before the first day of May each year, the secretary of the board shall mail to each physician registered in the State of New York a blank application for renewal of registration which shall contain a request for such renewal of registration and an affidavit setting forth that such physician has been regularly licensed to practice medicine in the State of New York, giving the date and number of the license by virtue of which he claims such privilege, that he is the person named in such license giving the county or counties in which he has been registered; that his license has never been revoked, annulled, or suspended, or if so the date and number of his new license, if any shall have been granted; together with such other facts tending to prove his licensure to practice medicine pursuant to this article, as the regent may deem necessary. Such application and affidavit shall be executed and sworn to by such physician, before an officer duly authorized by the law of this State to take proof and acknowledgment of deeds and other instrument required to

EXPLANATION—Matter in *italics* is new; matter in brackets is old law to be omitted.

be recorded, after which he shall transmit the same to the secretary of the board together with a fee of two dollars. Upon receipt of such application and fee, and having verified the accuracy of the same, the secretary of the board shall issue a certificate of registration which shall render the holder thereof a legal practitioner of medicine for the ensuing year. A physician who has been heretofore duly licensed and registered to practice in this state whose license shall not have been revoked, annulled, or suspended, or if revoked, annulled or suspended, shall have been renewed and who either before or after renewal of registration as required by this section as hereby amended, shall have temporarily abandoned the practice of medicine or removed from the state, shall, if he desires to re-enter upon such practice comply with the provisions of this section for renewal of registration. These certificates of registration shall all bear date of October 1st, of the year of issue and shall expire on the 30th day of September in the year following. Applications for renewal of registration shall be made on or before the first day in September of each year, and if not so made an additional fee of one dollar for each thirty days of delay beyond the first day of September and up to the first day of January, shall be added to the regular fee. On the first day of January of each year, or within ten days thereafter, the secretary of the board shall publish and mail to every registered physician in the State of New York a printed copy of the Public Health Law relating to the practice of medicine and a printed list of the legally registered physicians within the state. If any physician continues after the first day of January of any year to practice medicine without renewal of registration as herein provided his license may be suspended or revoked by the regents, in accordance with the provisions of this section. All practitioners of medicine already registered in this state at the time of the amendment of this section shall be mailed a copy of this act together with a blank application for renewal of registration as herein provided, upon receipt of which he shall, in the manner already described, make application for renewal of registration, forwarding to the secretary of the board, the form for renewal of registration, properly executed and accompanied by a fee of two dollars. Said application and fee must reach the secretary on or before the first day of September following the adoption of this amendment; failing which the license of the delinquent may be revoked or suspended by the regents as provided in this section. The Regents shall have power at any and all times to inquire into the identity of any person claiming to be a licensed or registered physician and after due service of notice in writing, require him to make a reasonable proof, satisfactory to them that he is the person licensed to practice medicine under the license by virtue of which he claims the privilege of this article. When the Regents find that a person claiming to be a physician licensed under this article is not in fact the person to whom the license was issued, they shall reduce their findings to writing and file them in the office of the clerk of the county in which the said person resides or practices medicine. Said certificate shall be prima facie evidence that the person mentioned therein is falsely impersonating a practitioner or a former practitioner of a like or different name.

Section 174. Penalties and their collections. Any person who, not being then lawfully authorized to practice medicine within this state and so registered according to law shall practice medicine within this state without lawful registration, or in violation of any provision of this article; and any person who shall buy, sell or fraudulently obtain any medical diploma, license, record or registration, illegally obtained or signed, or issued unlawfully or under fraudulent representations, or mistake of fact in a material regard, or who, after conviction of a felony, shall attempt to practice medicine or shall so practice, and any person who shall in connection with his name use any designation tending to imply or designate him as a practitioner of medicine within the meaning of this article without having registered in accordance therewith, or any person not a registered physician who shall advertise to practice medicine, shall be guilty of a misdemeanor. Any person who shall practice medicine under a false or assumed name, or who shall falsely personate another practitioner or former practitioncr of a like or different name shall be guilty of a felony.

The regents may revoke the license of a practitioner of medicine or annul his registration, or do both, *or suspend a practitioner of medicine from the practice of his profession for any length of time,* in any of the following cases:

(a) A practitioner of medicine who is guilty of a crime or misdemeanor, or who is guilty of any fraud or deceit by which he was admitted to practice; or

(b) Is an habitual drunkard or habitually addicted to the use of morphine, opium, cocaine, or other drugs having a similar effect; or

(c) Who undertakes or engages in any manner or by any ways or means whatsoever, to procure or perform any criminal abortion as the same is defined by section eighty of the penal law; or

(d) *When a practitioner of medicine shall fail to renew his registration in time for the appearance of his name in the published list of registered physicians, in accordance with the provisions of this section, the Regents shall notify said delinquent, to appear before them, or as hereinafter provided, at an appointed time and place, and if he shall be otherwise duly qualified and his explanation of his failure to have renewed his registration shall be reasonable, he shall be reinstated by the Regents and his name shall be added to the registry, upon payment of full fees and penalty. If otherwise, the Regents may suspend such person from the practice of medicine for a time not to exceed the balance of such registration year, or may revoke such person's license.*

Proceedings for *suspension from practice* or revocation of a license (or) *and* annulment of registration shall be begun by filing a written charge or charges against the accused. These charges may be preferred by any person or corporation, or the regents may, on their own motion, direct the executive officer of the board of regents to prefer such charges, which shall be filed with the executive officer of the Board of Regents, and a copy thereof filed with the Secretary of the Board of Medical Examiners. The Board of Medical Examiners, when charges are preferred, shall designate three of their number as a committee to hear and determine said charges. A timc and place for the hearing of such charges shall be fixed by said committee *or person or persons designated in conformity with the provisions of this article* as soon as convenient, and a copy of the charges, together with a notice of the time when and place where they will be heard and determined, shall be served upon the accused or his counsel, at least ten days before the date actually fixed for such hearing. Where personal service, or service upon counsel cannot bc effected, and such fact is certified on oath by any person duly authorized to make legal service, the regents shall cause to be published for at least seven times (for) *during* at least twenty days prior to the hearing, in two daily papers of the county in which the physician was last known to practice, a notice to the effect that, at a definite time and place, a hearing will be had for the purpose of hearing charges against the physician upon an application to revoke *or suspend his license. Service upon persons confined in penal institutions shall be made in the same manner as service of process in civil proccedings is required to be made.* At such hearing the accused shall have the right to produce witnesses in his defense, to cross examine the witnesses against him, and to appear personally or by counsel. The said committee *or person or persons designated in conformity with the provi-*

sions of this article may issue subpoenas and compel the attendance of witnesses in the manner provided by law in a case of officers authorized to take and hear testimony. Such subpoenas may be served in the same manner as subpoenas issued out of the supreme court. A person who refuses to obey a subpoena or to testify when subpoenaed and when directed so to do by the supreme court, shall be punished by fine or imprisonment, or both, as provided in other cases where the attendance and testimony of witnesses may be compelled. The attorney general may designate a deputy to act as counsel for the regents in conducting such examination.

The said committee *or person or persons designated in conformity with the provisions of this article* shall make a written report of its findings and recommendations, together with the testimony taken at the hearing and the same shall be forthwith transmitted to the executive officer of the board of regents. If the said committee *or person or persons designated in conformity with the provisions of this article,* shall (unanimously) find that such charges, or any of them are sustained, and shall recommend that the license of the accused be revoked (or) *and* his registration be annulled, or *that the accused physician be suspended from practice for a certain length of time,* the regents may thereupon (in their discretion) *without further hearing,* revoke said license (or annul said registration) *and cause said registration to be annulled, or may temporarily suspend such practitioner of medicine from the practice of medicine.* If the regents shall annul such *registration or revoke such license, or suspend such practitioner,* they shall forthwith transmit to the clerk of the county, or counties, in which said accused is registered as a physician, a certificate under their seal, certifying that such registration has been annulled *or that such license has been revoked, or that such practitioner has been suspended from practice,* and said clerk shall upon receipt of said certificate, file the same, and forthwith mark the registration of such license "annulled" or "suspended from practice," as the case may be. Any person who shall practice medicine after his registration has been marked "annulled" or "suspended from practice," shall be deemed to have practiced medicine without (registration) *a license.*

Where the license of any person has been revoked, or, his registration has been annulled, *or he has been suspended from practice, as herein provided,* the regents may, after the expiration of one year entertain an application for a new license, *or for reinstatement* in like manner as original applications for licenses are entertained; and upon such new application they may in their discretion exempt the applicant from the necessity of undergoing any examination.

All courts of special sessions and police justices sitting as courts of special sessions shall have jurisdiction in the first instance to hear and determine all charges of misdemeanors mentioned in this article committed within their local jurisdiction, and to impose all the penalties provided for such misdemeanors; a judgment that the defendant pay a fine shall also direct that he be imprisoned until the fine be paid, specifying the extent of the imprisonment, which cannot exceed one day for every dollar of the fine imposed; provided, however, that the power of said courts and justices to hear and determine such charges shall be divested, if before the commencement of a trial before such court or justice, a grand jury shall present an indictment against the accused person for the same offense, or if a justice of the supreme court or a county judge of the county shall grant a certificate in the manner provided by law in cases of misdemeanor, that it is reasonable that such charge be prosecuted by indictment. Any misdemeanor mentioned in this article for which a punishment is not specifically imposed shall be punished by a fine of not less than fifty dollars nor more than five hundred dollars or by imprisonment for not more than one year, or by both fine and imprisonment. All prosecutions under this article shall be by the attorney general in the name of the people of the state and all fines may be paid to the board or sued for and recovered in the name of the people of the state in an action brought therefor by the attorney general.

The Board of Regents of the University may in its discretion, upon the verified application of any person, corporation or association, designate a competent person or persons, to take and hear testimony as to charges of alleged violation of any of the provisions of this article against any person (.), in the same manner and with the same procedure as herein before specified for the manner and procedure of the hearing of charges by the committee of the State Board of Medical Examiners.

If, in the judgment of the Regents, a penal offense has been committed, the report of the proceedings, including all papers and documents presented before the Regents, shall be submitted by them to the attorney general, and it shall thereupon become his duty to institute criminal proceedings against such person in the manner provided by law.

The Regents may appoint such inspectors as are necessary to be paid from the funds received under this article at such salaries as they may determine for the purpose of investigation of such violations.

Federal and State Regulation of Child Labor

With the passage of the federal child labor bill the question arises how far we have really progressed toward the abolition of child labor and the nature of the task that remains to be done.

There are certain very definite limitations to the federal law because there are definite limitations to the power of the national government to regulate interstate commerce. The law can apply only to children employed in industries which ship goods in interstate commerce and regulates their employment only by establishing an age limit below which they may not be employed and hours beyond which they may not work. A child may not be employed without a "certificate of age" but under this law the federal government has no power to say that a child who is of legal age for employment must also be physically fit for the work he intends to do, nor that the work must be of such a character that he may be employed without danger.

Safeguarding the health of the working child is in the hands of the States—nearly half the States have yet to make the first move in that direction. There are twenty-six States which do not require examination by a physician before a permit to work may be secured. Twenty-two States permit children under sixteen to work around machinery or engage in dangerous processes regardless of the fact that immature children are more liable to accident and more susceptible to occupational disease than adults. The United States Census for 1909 gives the death rate for accidents among children between ten and fourteen as 42 per cent. Among adults between twenty-five and thirty-five only 18 per cent of the deaths are caused by accident.

In a recent study of the effects of occupation on young children made by the United States Public Health Service, it is recommended that the authority to issue work permits be vested in a central state agency which should have knowledge of the conditions of work in all the occupations in the State. Local officers who are charged with the issuance of work permits, the report argues, have no means of knowing whether a child may safely be permitted to enter an occupation or not.

Although such centralization of authority is possibly the ideal toward which we should work, there are many intermediate steps which many States have not taken, including the elimination of children under sixteen from employment in occupations where a study by specialists is not required to disclose the hazardous nature of the work. The age and hour standards established by federal law should be extended by the States to all industries and should be supplemented by State legislation requiring every child to be physically fit for the job and the job for the child.

American Medical Association

NEW YORK COMMITTEE ON ARRANGEMENTS

Wendell C. Phillips, Chairman; Alexander Lambert, Treasurer; Floyd M. Crandall, Secretary.

Advisory Committee—A. Jacobi, John A. Wyeth, A. Vander Veer, Walter B. James, Martin B. Tinker, Hermann M. Biggs, Haven Emerson, John C. MacEvitt, John W. Brannan, Frederic E. Sondern, Samuel W. Lambert, William M. Polk, Samuel A. Brown, William P. Healy, James F. McKernon, Elias H. Bartley, J. Bentley Squier, Albert M. Judd, John J. Kindred, Max Krueger, J. Lewis Amster.

Committee on Finance—Alexander Lambert, Chairman; Robert T. Morris, Nathan E. Brill.

Committee on Registration—Parker Syms, Chairman.

Committee on Entertainment—John S. Thacher, Chairman.

Committee on Hotels—Reginald H. Sayre, Chairman.

Committee on Sections—Willy Meyer, Chairman.

Committee on Scientific Exhibit—Harlow Brooks, Chairman.

Committee on Commercial Exhibit—Henry S. Stearns, Chairman.

Committee on Press and Publicity—George D. Stewart, Chairman.

Committee on Golf—Charlton Wallace, Chairman.

CLINICAL CONGRESS

(June 4th and 5th).

REPRESENTING:

General Medicine—Samuel W. Lambert.
Pharmacology and Therapeutics—Frank S. Meara.
Pathology and Physiology—a. Clinical and Medico-Legal, Otto H. Schultze; b. Laboratory (Diagnostic), Frederic E. Sondern; c. Cancer Research, Francis C. Wood.
Preventive Medicine and Public Health—Hermann M. Biggs; a. State, Linsly R. Williams; b. Municipal, Haven Emerson.
Pediatrics—Rowland G. Freeman.
Dermatology—Howard Fox.
Neurology—Edward D. Fisher.
Mental Diseases—William Mabon.
General Surgery—Charles N. Dowd.
Orthopedic Surgery—Virgil P. Gibney.
Gynecology—George G. Ward, Jr.
Obstetrics—Edwin B. Cragin.
Urology—Edward L. Keyes, Jr.
Rectum and Colon—Jerome M. Lynch.
Ophthalmology—John E. Weeks.
Otology—Edward B. Dench.
Rhinology and Laryngology—Lewis A. Coffin.
Stomatology—William B. Dunning.
Rœntgenology—Lewis G. Cole.
Anæsthetics—James T. Gwathmey.
Women Physicians—Mathilda K. Wallin.

Brooklyn Representatives—John C. MacEvitt, William F. Campbell, Joshua M. Van Cott, Albert M. Judd.

ALLIED TOPICS

Trained Nursing and Training Schools—Adelaide Nutting.
District Nursing System—Lillian D. Wald.
Hospital Social Service—James K. Paulding.
Planning and Financing of Municipal and Non-Municipal Hospitals—Sigismund S. Goldwater.
Hospital Superintendents and Executives—Robert J. Wilson.
Military Surgery and Red Cross—Samuel Lloyd.
Secretary of Clinical Congress—Samuel Gant.

Medical Society of the State of New York

Prize Essays

The following subjects are suggested for the essays submitted for the Merritt H. Cash and the Lucien Howe Prizes, although the author may choose his own subject if he desires.

THE MERRITT H. CASH PRIZE

Discuss the subject of Cerebral Hemiplegia, its relations to Arterio-Sclerosis and the attending complications of diseases of the heart and kidneys.

The Significance and Practicability of the Phenosulphopthalein Test in General Surgery.

The Investigation and Care of Industrial Diseases.

Discuss the Etiology and Treatment of Pulmonary Thrombosis.

THE LUCIEN HOWE PRIZE.

Description of diseases of the eye (especially optic nerve lesions), found in syphilis of the nervous system, stating the forms occurring in cerebro-spinal syphilis and para-syphilis.

How far should the state go in providing examinations and treatment of eye diseases seen in children in public, parochial and private schools?

Experimental or clinical study of the extent to which the vitrous may be manipulated or transplanted.

All essays must be in the hands of the Committee not later than March 24, 1917, and should be sent to the Chairman, Albert Vander Veer, 28 Eagle Street, Albany.

MEETING OF THE COUNCIL.

A meeting of the Council of the Medical Society of the State of New York was held at 17 W. 43d Street, New York City, on Saturday, December 9, 1916, at 10 A. M. Dr. Martin B. Tinker, President, in the Chair. Dr. Floyd M. Crandall, Secretary.

The meeting was called to order by the President and on roll call the following answered to their names: Drs. W. Stanton Gleason, Martin B. Tinker, Henry Lyle Winter, J. Richard Kevin, Montgomery E. Leary, Floyd M. Crandall, Alexander Lambert, Thomas H. Farrell, Samuel Lloyd, Joshua M. Van Cott, Frank Van Fleet, Samuel J. Kopetzky, James S. Sadlier, James S. Cooley, Arthur W. Booth, Wm. Mortimer Brown, Albert T. Lytle. Mr. James Taylor Lewis, Counsel of the Society, was also present.

A quorum being present Dr. Tinker announced the meeting open for business.

The minutes of the last meeting were approved as printed in the *New York State Journal of Medicine*.*

Moved, seconded, and carried, that it is the desire of the Council that Dr. John Cowell MacEvitt continue as Editor of the *New York State Journal of Medicine*. It desires to express to him its regrets and sympathy for his long illness, and appreciation of his excellent work in the difficult position of Editor.

After a statement by the Secretary as to desirable changes to be made in the order of conducting the meetings of the Society, the following general rules were adopted by the Council:

I. The general meeting shall be held on Tuesday evening of the meeting week instead of Tuesday morning, as heretofore.

II. Registration of members shall be conducted by the Secretary, who shall be in charge of all cards and records. Necessary desks and tables shall be provided by the local Committee on Arrangements.

III. Sessions of the House of Delegates shall be opened to the members of the Society who may wish to be present and listen to the proceedings. To avoid confusion and interference with the proceedings, an ample portion of the assembly room shall be separated

* See Volume 16, No. 7.

from the remaining portion by a rope, railing, or simple barrier. This portion of the room shall be known as the "Floor of the House of Delegates."

Admittance to the floor of the House of Delegates shall be limited to the Delegates, Alternates acting as Delegates, ex-officio members, and such guests as may be invited by the President or the House of Delegates.

All members and ex-officio members shall wear the official badge while upon the floor of the House of Delegates.

IV. The Registration of the House of Delegates shall be on cards and shall be under the supervision of the Secretary, who may appoint a Committee on Registration of Delegates to act under his supervision at each meeting of the House of Delegates. The roll call at the first session shall be disposed with, but there shall be a roll call preceding the election of officers.

At each session of the House of Delegates, after the first, each member and ex-officio member shall record his name on a card to be supplied by the Secretary, before passing onto the floor of the House.

V. No member shall take part in the proceedings of the Society or any of the sections until he has registered his name and address in the registration office.

Moved, seconded, and carried, that every County Treasurer shall send his report together with a check, on the first day of each month, after June first, for all members who have paid their dues since the last report. Otherwise members who should be placed on the list of members in good standing, are deprived of their Journals and Directory and the question of malpractice defense may be seriously complicated. Every applicant for defense must be certified by the Secretary to the Counsel as eligible for defense, as a member in good standing. The inability of the Secretary to give this certificate promptly may cause delay which will imperil the defense of the applicant.

The status of ex-officio members of the House of Delegates was presented by the Secretary. His decision, based upon the Constitution and Robert's Rules of Order, and sustained by the opinion of the Counsel of the Society, that ex-officio members have all the rights and privileges of other members, was reported for the information of the Council.

The Secretary reported that a vacancy had occurred in the Committee on Prize Essays, owing to the death of Dr. Whitbeck of Rochester. Upon the suggestion of Dr. Vander Veer, Chairman of the Committee, Dr. Charles G. Stockton was elected to fill the vacancy.

It was moved, seconded, and carried, that the Committee on Prize Essays be empowered to offer two prizes, one under the Merritt H. Cash Prize and one under the Lucien Howe Prize, each for $100, the deficiency in each case to be made up from the Treasury of the State Society.

The Treasurer reported that the balance in the bank on December 9, 1916, was $16,142.16, from which bills for printing and mailing the Directory of 1916, amounting to $5,367.22, were to be deducted, leaving a balance of $10,774.94.

The Treasurer presented a communication from Dr. Albert Warren Ferris, Chairman of the Committee on Arrangements of the meeting of 1916, setting forth the final accounts for that meeting.

Dr. Samuel Lloyd, Chairman of the Committee on Scientific Work, presented a report and preliminary program for the next meeting of the State Society to be held at Utica, which was adopted by vote of the Council. The complete preliminary program as presented will be found on another page of this issue.

The report of the Committee on Public Health and Medical Education was presented by the Chairman, Dr. J. M. Van Cott of Brooklyn, and was accepted by vote of the Council. The following were named as members of the Committee: Drs. Allan A. Jones, Charles Stover, Thurston H. Dexter, Joseph L. Moore, Linsly R. Williams, John M. Swan, Luzerne Coville, Henry E. Clarke.

The report of the Committee on Arrangements was presented by Dr. Thomas H. Farrell of Utica and accepted by the Council. He reported that meeting places had been selected and the arrangements were as far advanced as they can be at this time.

The Chairman of the Committee on Medical Research, Dr. Frank Van Fleet of New York, presented the following as members of his Committee which were approved by the Council:

First District: Drs. S. A. Brown, F. M. Crandall, T. H. Curtin, B. F. Curtis, A. H. Doty, W. M. Dunning, H. Emerson, J. Ewing, S. Flexner, W. P. Healy, A. F. Hess, S. W. Lambert, W. H. Park, W. M. Polk, J. E. Sadlier, H. E. Schmid, J. S. Thacher, S. W. S. Toms, H. L. Winter.

Second District: E. H. Bartley, W. F. Campbell, J. R. Kevin, J. C. MacEvitt, F. Overton, J. M. Van Cott.

Third District: J. D. Craig, A. Vander Veer, A. G. Root.

Fourth District: G. F. Comstock, G. C. Madill, C. Stover.

Fifth District: T. Wood Clarke, C. B. Forsyth, H. G. Locke, A. W. Suiter.

Sixth District: L. Coville, R. P. Higgins, B. W. Stearns.

Seventh District: J. P. Creveling, W. T. Mulligan, E. A. Nevin, G. K. Collier.

Eighth District: J. L. Butsch, G. W. Cottis, V. M. Rice, N. G. Richmond, B. F. Schreiner, H. U. Williams.

Dr. Samuel J. Kopetzky of New York, Chairman of the Committee on Medical Economics, presented the following preamble and resolutions:

To the Council of the Medical Society of the State of New York:

Whereas, At the next session of the Legislature of the State of New York, a bill will be introduced providing for Compulsory Health Insurance, and

Whereas, The proponents of this measure, under date of November, 1916, have submitted a tentative draft of the Medical Provisions of the proposed act, and

Whereas, The Committee on Medical Economics, having studied the said draft, finds therein the following:

1. That the medical profession is represented upon the Health Insurance Commission.

2. That the medical profession is also adequately represented upon the various subdivisions of the administrative departments of the Health Insurance act.

3. That all legally qualified physicians are eligible to work under the act, under the so-called "panel" system, with exceptional provision for salaried physicians under exceptional circumstances, or a combination of both systems where conditions demand it (all after approval of the Physicians' Local Committee).

4. That there is placed a limitation upon the number of persons whom a given physician shall be called to treat, viz.: 1,000 individuals, or 500 families.

5. That there is provided a reasonable free choice of physicians by the sick.

6. That the Department of Health of the State, the City and other geographical subdivisions are represented on the various administrative boards, in an advisory capacity so as to correlate the two departments, and better safeguard the public health.

7. That there is provided complete separation of the two sets of medical services rendered under the act, the one which treats the sick, and the other which looks after the interests of the carriers, the funds and the associations.

8. That supervision over the treatment given the sick coming under the provisions of the act, the detection of malingering, the issuance of certificates entitling the recipient to cash benefits are left to salaried physicians employed by the carriers of the insurance.

9. That the salaried medical officers shall be legally qualified physicians who shall have such qualifications

as the State Medical Advisory Board may prescribe, and who must in addition be approved by the Local Medical Committee, which represents the panel physicians.

10. That provision is made that contracts be arranged for by the carriers, with the panels as a group, rather than with individual physicians, and that all such contracts, as do all other matters, must receive the approval of the Local Medical Committee before being put into effect.

11. That the local panels, the hospitals, the staffs of specialists elect a local medical committee, to whom all matters relating to the panels, their government, their remuneration, and all matters of dispute between physician and physician, between physician and carrier, and between physician and patient, be referred.

12. That provision is made for a representative arbitration committee upon which the medical profession is represented.

13. That the Medical Society of the State of New York elects the majority of the members of the Medical Advisory Board, and all matters affecting the interests of the medical profession under the act, are submitted to the board for approval, recommendation and action before going into effect.

Therefore, Be It Resolved, That the Council of the Medical Society of the State of New York, considering that these essentials safeguard the public interest, the public health, and the welfare of the medical profession, hereby endorses and approves the Medical Provisions of the tentative draft of the Compulsory Health Insurance Act, and instructs its Committee on Medical Economics in conjunction with its Committee on Legislation to act in accordance with these resolutions.

A letter was received from Dr. James F. Rooney, Chairman of the Committee on Legislation, who was unable to be present at the meeting. As this letter was devoted largely to the subject of Compulsory Health Insurance it was read in full as a part of the discussion of the report of the Committee.

After extended discussion by the Council the report of the Committee on Economics was adopted as read.

A letter was received from Dr. Julius B. Ransom, President of the Fourth District Branch, regretting his inability to be present and asking that resolutions adopted by the Fourth District Branch at its last annual meeting be presented to the Council by the Secretary. The request was duly compiled with. As the resolutions covered questions which have already been referred to the House of Delegates it was voted by the Council to refer them to the next meeting of that body.

Dr. William Mortimer Brown of Rochester, Chairman of the Special Committee appointed under resolution of the Council of May 18th, presented the following report:

To the Council of the Medical Society of the State of New York:

In accord with the instructions contained in the resolution which created it, your special Committee on Counsel has inaugurated a survey of the general subject of malpractice defense and the connection of our counsel with the Society and a report of our labors to the present time is herewith submitted.

In undertaking this work we were confronted with two fundamental facts which the Society will have to consider and overcome. In the first place it was quite evident that we could not hope to continue to furnish our members with malpractice defense in the same manner as in the past for longer than the present year. In the second place it was equally evident that any radical change in the conduct of this very important function of our Society could not be undertaken with our present revenues.

After thoughtful consideration your committee has deemed it wise to place the matter frankly before the members at the meetings of the various county societies where they might have ample opportunity for discussion and expression of opinion. As yet this plan has been carried out in only a limited portion of the state, but the result at the present time has been so gratifying that we feel confident that we shall continue to receive endorsement of our plan, which is to present to the House of Delegates at it next session a resolution of amendment to the constitution which will permit the levy of increased annual dues which will provide sufficient funds to pay our counsel a salary which will keep him with us and to employ additional counsel and assistants to place this work on an efficient basis and to provide for the future. Your committee has put this plan fairly before several County Societies as we were able to attend their meetings and there has been no adverse note in any discussion, but on the contrary there has been a most earnest unanimity of approval. Many of the societies have passed resolutions similar in character to the following which was passed at a meeting of the Seventh District Branch held on September 28th, and attended by upwards of a thousand physicians, *Resolved,* That the Seventh District Branch of the Medical Society of the State of New York believes that additional revenue should be provided for the State Society for the purpose of paying our attorney a reasonable increase of salary and for the employment of additional counsel and the payment of their expenses so that the efficiency of legal protection may be maintained and increased.

This report is intended as "ad interim" and it is the intention of your committee, with your permission, to solicit the aid of the other members of the Council in placing this subject before the other County Societies throughout the state for it is manifestly too great a task for any one person or committee to attend a meeting of each County Society and we feel that the demand for this should come from the constituent elements of the society rather than from the officers and for that reason we feel that each County Society should have an opportunity to pass on the question before the next meeting of the House of Delegates.

The foregoing report is respectfully submitted by Special Committee on Counsel.

William M. Brown, *Chairman,*
Henry Lyle Winter,
Arthur W. Booth.

After extended discussion it was moved, seconded, and carried, that the report be received and referred back to the Committee with instructions to present a further report, presenting a recommendation for improving our malpractice defense together with a plan for increasing the revenue of the Society to meet any increase of expenditures entailed thereby, and that the Committee report to the next meeting of the House of Delegates in full.

It was moved, seconded, and carried, that the Secretary be instructed to send to the proper officer in each County Society, such legislative bills as, in the judgment of the officers together with the Legislative Committee, should require executive attention.

Dr. Henry Lyle Winter, Chairman of the Intermediary Committee, reported a draft of a Medical Practice Act.*

After discussion it was moved, seconded, and carried, that this bill be approved.

It was moved, seconded, and carried, that the officers of each County Society shall be requested to arrange a meeting during the year upon the subject of "Health Insurance."

* For the draft as presented, see page 43.

It was moved, seconded, and carried, that it is the sense of the Council that each County Secretary should annually secure from the Clerk of his County, and keep in his records, the authentic registration lists of the practitioners of the County.

FLOYD M. CRANDALL, *Secretary.*

County Societies

MEDICAL SOCIETY OF THE COUNTY OF ALBANY.

REGULAR MEETING, ALBANY, N. Y.

Thursday, December 21, 1916.

Owing to the illness of the President, the meeting was called to order by the Vice-President, Dr. Hinman.

The Secretary read the minutes of November meeting, which were corrected and approved.

A list of members who have not paid the State and County dues and of members who have been dropped for non-payment, was read.

The Treasurer stated that in regard to the special assessment for The Clinical Film Corporation Motion Pictures that eighty-six men were still in arrears.

On motion of Dr. Rooney, it was voted that the Treasurer enclose a special notice to those in arrears in their film assessment with the annual dues notice.

Board of Censors Report read by Dr. J. A. Lanahan was accepted.

Report of the Legislation Committee read by Dr. Hannock: Progress.

Report of the Health Committee read by Dr. C. W. L. Hacker: Progress.

Drs. Padula, Keeling, Van Auken and Scott were elected.

The Board of Censors recommended that Dr. Thornton K. Perry and Dr. Samuel R. Morrow be elected to Life Membership and referred this nomination to the Comitia Minora.

Dr. Rooney stated that Life Membership could only be obtained through the House of Delegates of the State Society upon recommendation of the County Society.

Upon motion of Dr. Rooney, it was voted that the Board of Censors' recommendation relative to making Drs. Perry and Morrow Life Members be referred to the next Annual Meeting of the House of Delegates.

The Board of Censors recommended that a committee be appointed to investigate the financial status of the medical profession in Albany County and to report to the Society for such action as seems necessary.

On motion of Dr. Rooney, it was voted that the recommendation be adopted and referred to the Committee on Legislation.

SCIENTIFIC PROGRAM.

"Reproduction in Its Relation to Defectives and the Feeble-Minded," Frederick C. Conway, M.D., Albany.

"Foreign Bodies in the Eye and Their Removal," Arthur J. Bedell, M.D., Albany.

Discussed by Drs. Giffin, Worth, Herrick and Moore.

"Anomalies of Growth Dependent Upon Pituitary Disturbance," James F. Rooney, M.D., Albany.

Discussed by Drs. Hannock, Stapleton and Lomax.

The attention of the members was called towards the impending legislation on Health Insurance. It was alleged that the proponents of health insurance bills contend that it would increase the physician's income. If the computation of compensation is to be based on that in use in other countries, it would probably be about $1.50 per capita and limited to 1,000 patients per annum. In Germany before the Health Insurance Bill the average income of physicians was 6,400 marks, now it is about 2,000. The purchasing power of the mark has decreased 50 per cent, so that the present income is actually one-sixth of that heretofore.

MEDICAL SOCIETY OF THE COUNTY OF ERIE.

ANNUAL MEETING, BUFFALO, N. Y.

Monday, December 18, 1916.

The meeting was called to order in the Buffalo Medical College at 8.15 P. M.

The following were elected members: Drs. Pisani, Shaver, Park, Barone, Israel, Alice Bennett, Trotter, Trudnowski, Trippe, Burton, Reimann, Hanavan.

The resignation of Dr. David E. Wheeler who had removed to Fredricton, N. B., was accepted.

The minutes of the last regular meeting and of the several Council Meetings were approved.

This approval carried with it the adoption of the substitute motion to take the place of the motion introduced by Dr. Wende at the regular October meeting, relative to increasing the dues to the State Society $1.00 per annum, making it $4.00 instead of $3.00.

Whereas, Two of the purposes of the Medical Society of the State of New York as defined in the constitution, Article 1, are "to federate and to bring into one compact organization the medical profession of the State of New York," and, "to guard and foster the material interests of its members;" and

Whereas, These two purposes are best promoted by the protection offered by qualified liability insurance as conducted by the Society and known as the "Alleged Malpractice Defense;" and

Whereas, The counsel of the Society is inadequately remunerated in view of the marked increase in the demand for "Alleged Malpractice Defense," and the counsel should have an assistant under salary by the Society, and

Whereas, The annual income of the Society is amply sufficient to meet the increased demands for "Alleged Malpractice Defense;" therefore in consideration of these whereases, be it

Resolved, That the Medical Society of the County of Erie condemns as unnecessary and impolitic any increase in the "annual per capita assessment on each County Society at a uniform per capita rate throughout the State" as defined in Article VIII of the Constitution and that it directs its officers and delegates to oppose any attempt to secure any such increase; and

Resolved, That the Medical Society of the County of Erie unanimously promote and support any effort not inconsistent with these resolutions to increase the annual allotment of funds of the Medical Society of the State of New York for the use of the counsel of the Society in the prosecution of "Alleged Malpractice Defense," and that it directs its officers and delegates to so act as to secure such increase.

Annual reports were presented by Dr. J. D. Bonnar, Chairman, Board of Censors; Dr. Harvey R. Gaylord, Chairman, Committee on Legislation; Dr. Nelson G. Russell, Chairman, Committee on Public Health; Dr. John V. Woodruff, Chairman, Committee on Economics; Dr. Clayton Green, Secretary Milk Commission, and Dr. Albert T. Lytle, Treasurer.

Dr. Gaylord advocated the appointment of a paid representative at Albany to look after legislation affecting the medical profession. On motion of Dr. Wende the resolution offered by Dr. Cruickshank of Brooklyn, at the last meeting of the State Society, relative to the State Committee on Legislation, was approved.

At Dr. Woodruff's request a motion was adopted empowering the Committee on Economics to increase its membership from three to seven, and to add an associate committee to assist it in its work.

Dr. George F. Cott, a member of the State Committee on Economics, presented an outline of the proposed legislation relative to Compulsory Health Insurance.

On motion of Dr. Woodruff the Society decided to invite Dr. S. Kopetzky, Chairman of the State Committee on Economics, to address the Erie County So-

ciety on the subject of Compulsory Health Insurance at a special meeting to be held in January.

The following officers were elected for the ensuing year: President, Irving W. Potter; First Vice-President, George F. Cott; Second Vice-President, James E. King; Secretary, Franklin C. Gram; Treasurer, Albert T. Lytle; Censors, J. D. Bonnar, F. E. Fronczak, A. G. Bennett, A. D. Carpenter, F. A. Valente; Delegates to the Medical Society of the State of New York, G. W. Wende, H. R. Trick, A. W. Hurd, I. W. Potter, C. G. Stockton; Committee Chairmen: Legislation, Harvey R. Gaylord; Public Health, Nelson G. Russell; Membership, W. F. Jacobs; Economics, J. V. Woodruff.

MEDICAL SOCIETY OF THE COUNTY OF WYOMING.

ANNUAL MEETING, OCTOBER 10, 1916.

The following officers were elected for the ensuing year: President, Lester H. Humphrey, Silver Springs; Vice-President, Lon. E. Stage, Bliss; Secretary-Treasurer, James F. Crawford, Warsaw. Delegate to State Society, William R. Thomson, Warsaw; Alternate, Philip S. Goodwin, Perry; Censors, M. J. Wilson, G. S. Skiff, M. T. Greene.

SCIENTIFIC PROGRAM.

Causes of Limping, Howard L. Prince, M.D., Rochester.

Infant Feeding, Simple, but not Simplified, Carl G. Leo-Wolf, Buffalo.

A general discussion followed the reading of the papers.

MEDICAL SOCIETY OF THE COUNTY OF FRANKLIN.

ANNUAL MEETING, MALONE, N. Y.
Tuesday, December 12, 1916.

The Seventieth Annual Meeting was called to order by the President, Dr. A. L. Rust, at 11.30 A. M., in the Assembly Hall of the Elks Club.

The minutes of the last meeting were read and approved.

Report of the Comirie Minora was read and approved.

The Secretary and Treasurer read his respective reports, which were approved as read

Dr. John W. Blackett of Fort Covington and Dr. Edward R. Pfarre of Saranac Lake, were elected to membership.

SCIENTIFIC PROGRAM.

"Infantile Paralysis," Clifford R. Hervey, M.D., Sanitary Supervisor, Oswego.

"The Trudeau School of Tuberculosis," Francis B. Trudeau, M.D., Saranac Lake, N. Y.

Adjournment at 1 P. M. for luncheon after which the Scientific Program was continued as follows:

Edward W. Archibald, M.D., of Montreal, gave a very interesting address on his experiences at the war front.

"Clinical Significance of Irregularities of the Heart," William D. Alsever, M.D., Syracuse.

"The Mental Clinic," Paul G. Taddiken, M.D., Ogdensburg.

"Nasal Obstructions," Melvin J. Stearns, M.D., Ogdensburg.

"Causes of Pelvic Diseases Peculiar to Women," George M. Sabin, M.D., Burlington, Vt.

"Disease of the Thyroid Gland," Cassius D. Silver, M.D., Plattsburg.

MEDICAL SOCIETY OF THE COUNTY OF MONROE.

ANNUAL MEETING, ROCHESTER, N. Y.
Tuesday, December 19, 1916.

The following officers were elected for the ensuing year: President, Myron B. Palmer, Rochester; Vice-President, Charles W. Hennington, Rochester; Secretary, John Aikman, Rochester; Treasurer, Charles C. Sutter, Rochester; Censors, E. H. Howard, O. E. Jones, A. C. Snell, W. T. Mulligan, J. P. Brady; Delegates, J. M. Flynn, M. B. Palmer, O. E. Jones; Members of Milk Commission, for two years, J. W. Magill, E. G. Nugent; to fill unexpired term of the late Dr. Richard Moore, N. G. Orchard.

Twenty new members were elected.

THE ONONDAGA MEDICAL SOCIETY.

ANNUAL MEETING, SYRACUSE.
Tuesday, December 12, 1916.

The meeting was called to order at 8.30 P. M. in the First Baptist Church.

The following new members were elected: Drs. J. Raymond Burns, Clements W. Blodgett, Brewster C. Doust, R. Smith Cooper, L. S. Cave, Leonard S. Nolan, Wilbur S. Newell, Charles L. Schlosser.

The following officers were elected for 1917: President, Henry B. Doust, Syracuse; Vice-President, Milton E. Gregg, Elbridge; Secretary, Earl V. Sweet, Syracuse; Treasurer, Raymond J. Stoup, Syracuse; Delegate, Frederick H. Flaherty; Censors, H. B. Pritchard, C. D. Post.

SCIENTIFIC PROGRAM.

"Symptomatology and Treatment of Epilepsy," William T. Shahanan, M.D., Superintendent of Craig Colony for Epileptics, Sonyea.

Moving Pictures Demonstrating Some Symptoms of Epilepsy, Arthur L. Shaw, M.D., Sonyea.

President's Address, George M. Price, M.D., Syracuse.

MEDICAL SOCIETY OF THE COUNTY OF OSWEGO.

ANNUAL MEETING, OSWEGO, NEW YORK.
Tuesday, November 21, 1916.

The meeting was called to order at the Hotel Pontiac, and the following officers were elected for 1917: President, Sylvester D. Keller, Fulton; Vice-President, Frank E. Fox, Fulton; Secretary, William C. Todt; Treasurer, Frederick L. Sin Clair, Oswego; Censors, LeR. F. Hollis, E. J. Drury, P. M. Dowd, A. W. Irwin, J. T. Dwyer.

The following resolution was unanimously adopted:

WHEREAS, The present tendency is to leave Medical Legislation more and more in the hands of laymen, and subject to the aggressive methods of various cults, be it therefore.

Resolved, That the State Society be requested to take the necessary steps toward appointing a paid legislative agent to look after the interests of the medical profession, who shall be at Albany during sessions of the Legislature, and further that this resolution be sent to the secretaries of the County Societies as well as to the officers of the State Society.

Dr. S. S. Ingalls of Parish and C. L. Fessenden of Fulton were elected to membership.

SCIENTIFIC PROGRAM.

President's Address.

Trend of Medical Legislation, Clifford R. Hervey, M.D., Oswego.

Typhoid Fever, Edward M. Anderson, M.D., Fulton.

Rural Hygiene, LeR. F. Hollis, M.D., Lacona.

Some Aspects of Mental Therapeutics, Walter H. Kidder, M.D., Oswego.

Cardiac Irregularities, William D. Alsever, M.D., Syracuse.

Deaths

JULIUS A. BECKER, M.D., New York City, died December 25, 1916.

JOHN B. KNAPP, M.D., New York City, died December 18, 1916.

EMERSON B. LAMBERT, M.D., Port Jervis, died December 9, 1916.

THOMAS A. O'HARE, M.D., Rochester, died November 21, 1916.

PAUL M. PILCHER, M.D., Brooklyn, died January 4, 1917.

JAMES K. YOUNG, M.D., Johnstown, died November 26, 1916.

NEW YORK STATE JOURNAL OF MEDICINE

A Journal Devoted to the Interests of the Medical Society of the State of New York

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ORIGINAL ARTICLES

THE EARLY DIAGNOSIS OF POTTS' DISEASE.*

By STEPHEN L. TAYLOR, M.D.,
KENWOOD, N. Y.
and
BYRON C. DARLING, M.D.,
NEW YORK CITY.

WITH the advance made in the treatment of tuberculosis disease of the vertebrae and the improvement in the methods of diagnosis, it still happens that the appearance of a fluctuating mass in the groin or elsewhere is the first suspicion the physician has had of the real nature of the trouble he has been attempting to treat. If it is possible to make a diagnosis before the bodies of one or more vertebrae are destroyed and before an abscess has found its way to the surface, it is obvious that much has been done to prevent the two most serious results of the disease, severe deformity and general tuberculous infection.

The early diagnosis of this disease, as in many other conditions, is a very important part of its successful treatment, and the opportunity for this achievement rests with the family physician and the pediatrist, for it is to them that the child is brought when the symptoms are seemingly trivial and the disease is still in its beginning. To the physician whose routine examination of children is thorough, even in the presence of apparently unimportant symptoms, is certain to come the reward of discovering in its incipiency disease toward which the presenting symptoms would not have aroused suspicion. To the physician whose habit it is to look at the tongue and give his medicine, who seldom removes the clothing for careful inspection of the body, for measurements and other means of accurate diagnosis, are certain to come many humiliations and among them quite probably a deformed spine which might have been avoided had the clothing been removed and muscular rigidity—the most constant early symptom—been looked for.

This explains many of the errors in the diagnosis of this disease. A certain number are very difficult of diagnosis and even with the most careful tests will remain in doubt for a time.

Tuberculous disease of the vertebrae may occur at any age from one to eighty. It is essentially a disease of childhood for 90 per cent of the cases occur before fifteen years of age.

There are many instances of error in diagnosis recorded and they seem to be more frequent in adults than in children.

Cabot[1] has reported among 3,000 autopsies seventeen cases of Potts' disease, four of which were correctly diagnosed. The diagnoses made in the unrecognized cases were "Septicaemia from pelvic abscess"; "Meningitis"; "Acute Uraemia"; "Septic Scrotum"; "Otitis Media with Pyaemia"; "Pneumonia"; "Septic Hand with General Sepsis." Two cases had slight kyphosis which should have been noticed as they had been present many years. In one case there was a gradual even curve of the spine diagnosed by a skillful orthopaedic consultant as spondylitis deformans. All these cases were adults. Average age of recognized cases thirty-two—average age of unrecognized cases fifty.

Elsberg[2] has noted two cases of Potts' disease which were incorrectly diagnosed as acute appendicitis.

* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 18, 1916.

Albee[3] has recently reported a case which was treated for cervical Potts, a brace with chin support having been worn for several months. X-ray examinations led to the diagnosis of an abscess of the antrum with infectious arthritis involving the spinal articulations. He also mentions several cases of arthritis which had been incorrectly diagnosed as Potts' disease and one case of Sacro-iliac disease.

The following history is reported by Dr. C. C. Wholey[4]:

A man, age thirty-six, had had persistent attacks of lumbar pain relieved by morphine. When first seen by the author a diagnosis of ureteral or renal calculus was made. Two weeks later another attack. Operation was then done, kidney and ureter explored—no stone found. Ten weeks later another attack, twelve weeks later another. Then followed two months' treatment for rheumatism, syphilis and finally neurasthenia. One month later pain centered in the right hypochondriac region and fluctuation appeared later. Aspiration showed tuberculosis abscess. There was then no spinal deformity and no tenderness.

The disease develops more rapidly in children than in adults and abscess and deformity may appear in a few months while in adults it is often two or three years. Owing to a greater flexibility of the spine in children, the detection of muscular rigidity is much easier than in the adult. We think of the disease as belonging to youth and are not expecting to find it in adults. The location of the pain is deceptive in both children and adults and one is more likely to give heed to the adult's description and then more likely to be led astray.

The Early Cases.

Before the appearance of a kyphosis or the development of an abscess the symptoms shown by the child are very indefinite and unpronounced and are often overlooked. It occasionally happens that the parents notice nothing unusual until the appearance of a swelling which proves to be an abscess. Usually, however, the mother who is very keen to observe anything unnatural in the child's behavior will call our attention to one or more of these early symptoms, the general debility, the pallor and failure to gain, the lack of interest in play—the child will not jump or run—the tendency to lie down frequently, the unnatural attitude, the change in gait, the night cries, or paroxysmal abdomen pain, or persistent attacks of pain in the chest or stomach or grunting respiration. If the child is seen at this time, it will be found that it has the appearance of a delicate child, slightly anaemic, poorly nourished, facial expression anxious, moves about cautiously, leans on table or chair at every opportunity, tendency to walk on toes. These symptoms should arouse our suspicion and the child should be examined with clothing removed. It will then be noticed on inspecting the spine that the head may be held to one side or the chin thrown back, or there is tendency to support the chin with the hands when sitting, when the disease is cervical.

If the lesion is in the dorsal region, the most usual location in children and the most difficult for early diagnosis, the one or both shoulders may be elevated—the spine is held rigid in walking or the child places the hands on the thighs to relieve the spine when sitting. There may be a slight lateral curve.

If the disease is lumbar, there is an exaggeration of the normal lumbar curves throwing the abdomen forward. In asking the child to stoop to the floor to pick up something there is the characteristic squat instead of stooping.

If the hand is held over the spinous processes when the disease is dorsal or lumbar, it may be possible to discover that when the spine bends several of the vertebrae move together, or in carefully inspecting the spine when the child is leaning forward the curve of the normal flexible spine is interrupted at some point. The degree of extension of the spine and the amount of lateral motion may be tested with the child lying prone with face downward. The presence or absence of psoas contraction may be ascertained in this position also.

From the series reported by Elgood[5] is the following case which shows well the indefiniteness of the early symptoms:

A girl, age seven, had had pain and stiffness of the neck for six weeks. She was anaemic and wasted. No deformity of neck. Stiffness in lateral movements. Pain with extreme lateral movement. The mother had noticed the habit of holding the chin in the hand when tired. There was very slight bulging of the pharynx on the right side. All signs were too slight for a diagnosis. The determination of the opsonic index was an aid to diagnosis in this case and the subsequent history found the diagnosis correct.

In an analysis of 1,000 cases reported by J. Hilton Waterman and Chas. H. Yager[6] it was found that 709 were located in the dorsal region, 225 lumbar, sixty-six cervical. Of the sixty-six cervical none occurred after fifteen. Cervical Potts in older children and adults is very unusual. Six hundred and eleven of the 1,000 cases were in children under ten and located in the dorsal region. In the older children and adults the location is usually lower dorsal and lumbar. An effort was made in this series to ascertain the earliest symptoms. In the young children the most frequent early sign was the unnatural attitude, next in frequency the pain. In sixty-three cases the kyphosis the first symptom. In 126 cases the first symptoms were the night cries, the gastralgia and progressive weakness. Six hundred of the 1,000 cases were in children under five. Of this number there was no evidence of deformity in 157. From five to ten pain in the

back the most frequent symptom. From ten to fifteen and fifteen to twenty pain the most marked symptom. From twenty to thirty pain in the back the most constant first symptom. For older patients pain and progressive weakness.

The pain of Potts' disease is due to sensitive articular surfaces and to irritation of the nerve roots. The former accounts for the muscular rigidity and the effort of the child to protect the motion of the spine in every way. The latter accounts for the location of the pain in so many parts of the body, it being referred to the periphery of the irritated nerve. This accounts for the pain of Potts' disease resembling so many other painful conditions, as appendicitis, nephritis and renal colic, vesical calculus, pelvic pains as shown in a series of cases reported by Sayre.

Elsberg[2] has shown that a certain number of cases presenting symptoms of pain in the chest, abdomen or extremities, if given careful neurological tests, will be found to have disturbances of the cutaneous nerve and can thus be traced to the nerve roots or to the cord itself.

The following conditions may closely resemble *Potts' disease in its early stages—Rickets:*

In the series of cases reported by Elgood[5] is the following: A child two years of age had attended the hospital for two months with a rickety kyphotic spine and other symptoms of rickets. The mother stated one day that the child screamed at night. The spine was then examined and showed rigidity in the lower dorsal region, also an angular prominence. Treatment for spinal caries was then begun.

Suppurating Glands of Neck.

The same author in this series reports the case of a child, age three, who had suppurating cervical glands and rigidity of the neck. The rigidity was thought to be due to the diseased glands. Positive symptoms of cervical caries did not develop for one year.

Lateral Curvature.

Ridlow reports the case of a girl, age five, who presented all the signs of a true scoliosis. Right shoulder higher than the left. Right scapula tilted forward, lower angle prominent and further from the spine than the left. Mid-dorsal curve to the right and bulging of ribs. No pain. No tenderness. No antero-posterior curve. No kyphosis. Slight rigidity to passive manipulation in dorsal region. The patient was treated for lateral curvature with daily exercises. Dorsal rigidity increased. Lateral curve disappeared and angular kyphos appeared. The treatment for lateral curvature was discontinued after seven weeks.

The Weak, Atonic Child.

Fisher[7] has called attention to the similarity of the spinal symptoms with the weak atonic child and with Potts' disease and cites the following case:

A child, 6 years of age, living in the city, poorly nourished, flabby tissues, displacement of lower dorsal vertebrae, the spinous processes being pushed backward, vertebral caries was diagnosed and spinal support applied. The patient did not improve and recumbency was ordered. Further aggravation of the symptoms followed. Later the family changed physicians. Mechanical treatment was stopped. The child was sent to the country and with careful diet, outdoor life and gradually increasing exercises the symptoms in a few weeks disappeared.

Abdominal Pain.

The same author reports the case of a youth who had suffered for two years with paroxysms of abdominal pain with extreme pain in region of the left ureter. Diagnosis was in doubt for some time but spine finally suspected. Lower dorsal vertebrae were found to be lacking in mobility with apparent flattening of the usual lumbar curve. He was then treated for Potts' disease and spasm of pain returned only once. He made a good recovery, the psoas abscess later appeared.

Infantile Scorbutus.

Dr. H. L. Taylor[8] reported the case of a child eleven and one-half months old who had been normal up to six months, but then showed weakness in sitting, bent attitude, inability to sit up, swelling in right thigh which later disappeared, loss of flesh and strength, poor sleep, temperature 102.5, skin dark, papular eruption, cried when handled, condition serious, facial expression anxious, gums swollen, breath foetid, reflexes normal, passive motions normal, spine rigid and bent, projections of first and second lumbar, condition in doubt, but under diet of pasteurized milk, orange and beef juice, condition improved and spine straightened in three weeks.

Sarcoma of the Vertebrae.

The difficulty or impossibility of early diagnosis is well shown in the following case reports by Dr. Percy W. Roberts[9]:

A girl of fifteen had complained for some weeks of stiffness of the back with occasional pains which radiated down the right leg. Examination showed flattening and rigidity of the lumbar region. A plaster jacket was applied in slight hyper-extension but at the end of three weeks the patient still complained of discomfort. The jacket was removed and she was kept in bed under observation to decide the question of hysteria. At the same time a course of mixed treatment was initiated without result and two weeks later she was transferred to the Post-Graduate Hospital. Medical examination failed to reveal any cause for her pain except the con-

dition of the spine. The X-ray plate showed what appeared to be the usual picture of tuberculous ostitis and after consultation the writer did an Albee operation. There was no unusual condition of the tissues discovered. In five weeks a protusion appeared in the lumbar region which simulated an abscess. On aspiration this was found to be a dense growth containing no fluid and a diagnosis of sarcoma was made which was confirmed by an X-ray. A little later paraplegia developed with vesical and rectal incontinence. The patient died ten months after the beginning of this treatment.

Dr. Roberts also reports a case from the service of Dr. Caille, of a child five years of age who had the typical symptoms of lumbar Potts' with moderate kyphosis. The X-ray examination showed evidence of an early Potts' disease of the second lumbar vertebrae. The child was fitted to a Taylor brace. About this time a nodule on the head began to develop rapidly. Examination of a portion which showed it to be a malignant nerve growth morphologically resembling a neuro-blastoma lesion probably a metastatic growth. Later a radiograph showed absorption of one vertebra. She died of general sarcomatosis. These cases are unusual.

Dr. Dillon Brown[10] has reported from the literature three cases of sarcoma of vertebrae all of which were mistaken for Potts' disease—one in a child of four years, one in a girl of seven and another in a young woman of twenty-two.

The points in differential diagnosis are the greater severity of the pain; the more rapid development of symptoms; the failure of immobilization to relieve pain; the local tenderness; the early development of cachexia and paralysis.

As is shown in the first case reported, repeated X-ray examinations are necessary.

W. W. Ord has reported a case of cretinism in a child of nine and one-half years and a deformity of spine and was in doubt for some time.

In torticollis which might be mistaken for cervical Potts' the face is turned away from the contracted muscles. Passive motion is restricted in one direction only—in Potts' in all directions. There is no pain in the neck. Pain usual in cervical Potts'.

Hip Joint Disease may simulate Potts' disease and may exist with it. In one of the series referred to in this paper it was present in four of twenty-eight cases. The pain of Potts' disease may be referred to the hip, or thigh or knee and there may be flexion. In a case seen by the author the pain persisted for nearly a year behind the great trochanter and was thought to be due to a return of the old hip trouble which had been healed for several years. The subsequent history proved this pain to be due to a lumbar Potts'. In Potts' disease there is not the pain on bearing the weight on the affected limb. In hip disease passive motion is restricted in all directions. In Potts' rotation is not restricted and other motions are normal when flexion is increased.

Socro-iliac Disease is rare. It would show tenderness over the diseased joints and the spinal rigidity would not be as marked.

An *arthritis* affecting the spinal joints is unusual in children and would show involvement of other joints.

In spondylo-listhesis the discomfort and pain and the exaggeration of the normal lumbar curve may cause it to be mistaken for lumbar caries. The X-ray should aid in the diagnosis. The increased lordosis which is present with pseudo-hypertrophic paralysis may resemble the deformity of Potts' disease in the lumbar region. The absence of pain and muscular rigidity, the shuffling gait, and the hypertrophy should make the diagnosis easy. Other conditions which are unusual in children but which it may be necessary to exclude are *typhoid* or *neurasthenic* spine syphilis affecting the spinal articulations, *aneurism*, acute osteo-myelitis of the spine and injury of the spine.

This enumeration of errors impresses one with the necessity of making the examinations of the spine a part of the routine examination of all sick children. Observation for a period and repeated examinations will be found necessary to arrive at a diagnosis in many instances. A number of these conditions referred to could be excluded by the discovery of muscular rigidity. In doubtful conditions the X-ray will help though if negative in the early stages is not conclusive. Pictures should be taken in the antero-posterior positions as well as in the lateral. Repeated X-ray examinations are often necessary.

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TOBACCO SMOKING AND BLOOD PRESSURE.*

By W. GILMAN THOMPSON, M.D.,

and

WILLIAM H. SHELDON, M.D.,

NEW YORK CITY.

THERE are many habitual smokers in middle or advanced life among whom the question arises whether continuance of the habit may prove harmful, and if so to what degree it may be injurious. Does the use of tobacco in such cases give rise to lasting effects and are such effects uniform in the individual or in any group of individuals? The experiments described were undertaken to throw more definite light upon these questions than has heretofore been established and to serve as a guide for directing the treatment of arteriosclerosis. There are many habitual smokers to whom the use of tobacco gives much solace. When they acquire persistent high blood pressure it becomes essential to restrict their habits of life in many ways. Unnecessary restrictions may involve considerable hardship, and whatever restrictions are imposed should be accompanied by definite statement as to the reason for them, and although the smoking habit cannot be defended as essential for anyone, vague statements as to its injuriousness possess little influence and are often neutralized by the patient who quotes the experience of others much more advanced in life than he. We have gathered records of a large number of centenarians who were habitual smokers, without any evidence of the ill effects of the use of tobacco in themselves, and its use is far too general to expect its abandonment in the individual case without very strong evidence that it is harmful.

The experiments herein reported were conducted by Dr. Sheldon among the dispensary patients of the Cornell University Medical College Clinic upon a group of fifty-eight persons of middle or advanced life, all of whom presented arteriosclerosis with high blood pressure as the essential lesion of their circulation, cases with serious cardiac lesions being excluded. In seventeen patients more than one observation was recorded at intervals of from one to three years, and in all 109 experiments were made. The patients were seated, several at a time, in a small closed room in the Clinic measuring only 7½ x 12 feet with a ceiling 14 feet high. Thus the air soon became densely charged with tobacco fumes, as is often the case in ill ventilated smoking rooms, smoking cars, etc. Strong cigars of various grades were used which the patients were urged to smoke energetically and their blood pressures were recorded before beginning to smoke, at the conclusion of the experiment and in many cases at intervals of respectively ten, thirty and sixty minutes. In almost all cases in which decided changes in blood pressure were observed, their occurrence was immediate, and sustained throughout the experiment.

In the total series of experiments the systolic blood pressure rose in 35 per cent, fell in 45 per cent and remained unaltered in 20 per cent. This emphasizes the importance of regarding each case individually, rather than to rely upon the sweeping generalization, as many clinicians do, that all smoking is injurious in arteriosclerosis. For example, a writer in the *Annals of Surgery* (March, 1916) asserts "it is a well known fact that the excessive use of tobacco favors the development of arteriosclerosis." It will further be shown that the effects of smoking were by no means uniform in the same patient who in successive experiments sometimes exhibited a rise and sometimes a fall in blood pressure. It is of interest also, that in the entire series of experiments the average rise and average fall were practically equal, being in round numbers, sixteen and seventeen millimeters respectively.

In eighty-two of the experiments more complete observations were made to include the pulse pressure, which was found to rise in 34 per cent and fall in 41.4 per cent, the degree of rise and fall being equal, or averaging 11 mm. In the remaining cases the pulse pressure remained uninfluenced.

In those cases in which observations were repeated at intervals of from one to three years, there was sometimes remarkable uniformity in results, and in those in whom variations were recorded, they may have been due to changes in the patient's general condition, for there was no uniformity in either rise or fall in such cases. For example, one patient upon whom seven experiments were made at long intervals, showed no change in one instance, a rise of both systolic and pulse pressure four times, and a fall was observed twice. The details of this case were recorded as follows:

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7
Before Smoking.							
Systolic	265	250	220	236	240	250	270
Diastolic	160	180	140	150	156	150	170
Pulse Pressure	105	70	80	86	84	100	100
After Smoking.							
Systolic	274	260	240	250	220	250	256
Diastolic	174	180	150	160	140	150	160
Pulse Pressure	100	80	90	90	80	100	96

In this patient by comparing the seven experiments made over long intervals of time, the maximum variations in pressure before smoking are thus shown to be: systolic, 50 mm.; diastolic, 40 mm.; pulse pressure, 35 mm., whereas after smoking the maximum variations in the different experiments were: systolic, 54 mm.; diastolic, 34; pulse pressure, 20 mm. In other words, the net result of a series of experiments showed that other factors in the patient's condition may produce even greater variations in blood pressure

* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 18, 1916.

than those caused by smoking. Moreover, the maximum increase in systolic pressure in this patient produced in any one experiment by smoking was 20 mm., but he showed a maximum variation of 50 mm. before smoking, on the occasion of different visits to the dispensary. Nevertheless, while having at all times a very high pressure, it was usually, although not invariably, increased for the time being by smoking, and hence, for this patient, smoking at any time was liable to prove highly injurious.

In another case in which five observations were recorded, there was a rise in pressure three times and a fall twice, as follows:

	No. 1	No. 2	No. 3	No. 4	No. 5
Before Smoking.					
Systolic	190	200	200	186	194
Diastolic	140	150	120	120	130
Pulse Pressure	50	50	80	66	64
After Smoking.					
Systolic	210	190	210	220	190
Diastolic	140	150	130	140	126
Pulse Pressure	70	40	80	80	64

This patient, compared with the preceding case, showed a somewhat lower initial pressure; thus his maximum variations on different visits as recorded before smoking were: systolic, 14 mm.; diastolic, 30 mm.; pulse pressure, 30 mm. But after smoking they were: systolic, 30 mm.; diastolic, 24 mm.; pulse pressure, 40 mm. And the maximum effect of tobacco on any single day was to cause a systolic rise of 20 mm. Comparing his record again with that of the preceding case, although he had at all times a very much lower pressure, and showed less variation without smoking, he was nevertheless capable of being affected by smoking in exactly the same degree, namely, 20 mm. of systolic pressure.

It is noticeable further that in both these cases the pulse pressure did not invariably rise with the systolic pressure, but occasionally fell or remained unaltered. In a number of other cases in which the pulse pressure was recorded similar results were manifest.

A third patient, tested in three successive years, showed during the first two experiments an increase in systolic pressure of 20 mm. each time produced by smoking, but the first time there was a fall in pulse pressure of 14 mm., the second time a rise of 10 mm., and the third time no effect at all was observed in either systolic or diastolic pressure. A fourth patient also tested on three successive years showed a uniform increase each time both in systolic and pulse pressure of from 12 to 20 mm. This man, although he had at no period a higher systolic pressure than 178 mm., was affected at once by tobacco to the extent of 20 mm., and hence smoking was for him decidedly undesirable.

A sixth patient having an identical blood pressure record of 170 mm. was entirely unaffected by tobacco.

The comparison of these and many other cases of the series points clearly to the desirability of studying the individual case with the sphigmomanometer rather than to lay down arbitrary rules based upon exact figures of blood pressure, for a patient with comparatively little hypertension may be very injuriously influenced by smoking, whereas one with excessive hypertension may be much less affected by it, although any increase in the blood pressure in the latter must be regarded as hazardous. Between these two extremes are many persons who are so little disturbed by smoking that to allow it under proper restriction may be permissible where its deprivation may seem a hardship. It should be noted again that the experiments recorded were purposely performed under the most disadvantageous conditions possible, *i. e.*, with rapid smoking in a confined space where others also were smoking, so that the atmosphere was densely saturated with tobacco fumes. Outdoor smoking, although by some persons found less enjoyable, is well known to be less injurious in its general effects.

There is another important matter to bear in mind in imposing restrictions upon smoking for those with hypertension. This is that the use of tobacco at frequent intervals during the day, although in small degree at a time, may prove more injurious than more energetic smoking at longer intervals, as only after dinner, for example. In the former case the nervous and circulatory systems are kept constantly slightly over-stimulated, whereas in the latter, the effects wear off at most in an hour or two, and there are long periods of recuperation from any over-stimulation. This applies specifically to the habit of cigarette smoking, and it is quite possible that the same quantity of tobacco consumed in one or two cigars may be less injurious for hypertension than when made into cigarettes and smoked at frequent intervals, thereby permitting no rest from overstimulation. In a few additional cases cigarettes were experimented with instead of cigars, but under the same conditions. Somewhat to the surprise of the observers the results were as varied as with cigars. In several cases there was an average rise of systolic pressure of 20 mm.; in others a fall of an average of 11 mm. was noted, and in one case of hypertension no effect followed vigorous smoking of the cigarettes. In one case the blood pressure returned to the patient's normal half an hour after smoking, but in others it still remained elevated after that interval. Although the number of cases studied in cigarette smokers was too small to deduce very accurate conclusions, the impression gained was that their use is capable often of producing a decided influence upon blood pressure.

As our primary interest was to observe the effect on blood pressure in smokers with arterio-

sclerosis, the pulse rate was recorded in only twenty-five cases of the series, which, however, seems a sufficient number on which to base conclusions. In these cases the average pulse rate before smoking was high, being over 87 per minute, and after smoking the average was 100, *i. e.,* there was an average increase of thirteen beats per minute. When such increase in rate occurs, together with increase in blood pressure, the work of the heart is necessarily greatly augmented. Irregularities in rhythm were rarely noted, but when present were of the nature of extra-systoles.

The other symptoms produced by smoking under the conditions described, were fairly uniform. Nearly all the patients confessed more or less vertigo, and a few complained of palpitation. In many there was marked tremor of the hands after active smoking and occasionally of the head. The psychic effect was interesting, for most of the patients developed a geniality quite foreign to their usual behavior in the Clinic, and not a few friendships arose between patients who for months before had attended the Clinic without becoming even casually acquainted. This may have been in part due to the sense of peace and equanimity which habitual smokers often experience from exercising the habit and in part to the interest which they developed in what to them was a novel experiment—all which might form an excuse for persistence in the habit with patients whose blood pressures are safely below 170 or 180 mm., but may easily prove a danger to those with pressures habitually much above such limit.

It was not the special object of the present research to study the modus operandi of nicotine poisoning upon the circulation in general—ground which recently has been well covered by the researches of Lee, Hooker, Bruce, Miller, Fraenkl-Hochwat and others—but only to make clinical observations upon a selected group of cases of arteriosclerosis with high blood pressure. It has been shown by Lee that in young non-smokers the first effect of cigar smoking is to increase the work of the heart with vaso-constriction and consequent elevation of systolic pressure of from 10 to 20 mm.

When nausea and vomiting set in, this is succeeded by a fall of perhaps as much as 50 mm. which, as Hirschfelder suggests, is possibly due to dilatation of the abdominal vessels. George Bond, experimenting with dogs, found that inhaling tobacco smoke augments the blood flow through the coronary veins, and hence its effects would appear manifest through the cardiac nerves rather than by producing ischemia of the myocardium. In cases of coronary sclerosis it is difficult to determine whether the resulting changes in blood pressure are primarily due to any vaso-motor effect, or temporary irritation of the cardiac nerves. In cases of advanced arteriosclerosis in habitual smokers, the widespread vaso-motor changes observed in the acute poisoning of the young non-smoker are not to be expected, yet the former may exhibit from time to time similar palpitation and tachycardia referable to over-stimulation of the cervical ganglion cells.

Both habitual smokers and non-smokers were tested, and no great differences were observed between them except when the latter experienced nausea. In one example of this a patient who, before smoking, had a systolic pressure of 190, after smoking showed a prompt rise to 210. A few minutes later he became nauseated and vomited after which the systolic pressure fell to 160, a fall of 50 mm. An hour later the pressure returned to the original 190 mm. This was the most extreme variation recorded in any of our cases. The next most marked total variation was in an habitual smoker and amounted to 40 mm.

As to the duration of the effects of smoking upon blood pressure, they were found to remain constant for at least half an hour and in a few cases, tested an hour after smoking, return to the patient's normal was still delayed.

As to the accuracy of the observations, it was originally intended to obtain records from a larger number of patients, but such wide variations were often found in the same patient at different times that it was regarded of greater interest to record a larger number of observations upon the individual patient. These observations were filed as recorded and not referred to again until the entire series was completed, so that the mind of the observer need not be prejudiced by any earlier records. The graphic method of Erlanger was used in some cases, but in most the Faught instrument with the Fedolic attachment was employed, and in many cases the observations were checked by using both methods.

From the observations here recorded it would appear that the main influence of smoking is exerted through the accelerator nerves of the heart upon the cardiac muscle. Inasmuch as the experiments were made solely upon patients with arteriosclerosis it would be unfair to conclude, however, that the vaso-motor system may not be more affected in normal persons. In fact other observers, experimenting with normal persons, have described definite vaso-motor phenomena. But it is well known that in arteriosclerosis it is difficult to alter materially the caliber of the arterioles and effect either marked vaso-constriction or dilatation. The decided increase in pulse rate in smokers with arteriosclerosis justifies the belief in the stimulation of the accelerator nerves of the heart.

As might be expected in the patients experimented upon, much appeared to depend upon temperament and habit. In general, in neurotic patients, there was some elevation of blood pressure after smoking, whereas in phlegmatic workmen, often habituated to pipe smoking, a fall in blood pressure was sometimes observed to follow the soothing influence of a cigar.

Harlow Brooks, writing in the *New York Medical Journal* (April 24, 1916) on the "Tobacco Heart," states that whereas evidence is lacking that coronary sclerosis may be caused by tobacco, it is nevertheless probable that when this condition already exists, the symptoms are accentuated by smoking.

In order to test the degree of variation in blood pressure which may be produced by other agencies than smoking in patients with high initial systolic pressures, tests were made in a series of cases by causing a quart of water to be drunk into an empty stomach. It was expected that prompt absorption of considerable fluid into the vascular system would cause sudden elevation of blood pressure. In the nine patients thus experimented upon the maximum elevation in systolic pressure observed was 20 mm. which usually took place within ten minutes after drinking the water. In others there was a rise of only 10 mm. In one case only was there no rise of pressure, but a fall of 16 mm. was recorded below the initial pressure and an hour after ingestion of the fluid. Similar experiments with coffee and alcohol are proposed, but are not yet completed. In general the experiments with water drinking produced less change than those with smoking and a fall in blood pressure was much less often observed.

The conclusions which may be deduced from the experiments upon fifty-eight patients in middle or advanced life with high blood pressure and arteriosclerosis, may be summarized briefly as follows:

(1) The maximum effect of cigar smoking was included in different cases within the limits of a rise of systolic pressure of 35 mm. and of pulse pressure of 22 mm. on the one hand and a fall of 30 mm. in systolic pressure and 34 mm. of pulse pressure on the other, the effects diminishing usually after about an hour.

(2) In fifty-eight patients there was a rise of systolic pressure in 35 per cent and a fall in 45 per cent, the remaining 20 per cent being unaffected.

(3) The results were not always uniform in the same patient when recorded at long intervals, the same patient sometimes exhibiting a rise and less often a fall in systolic pressure.

(4) The results were not uniformly proportional to the degree of initial blood pressure in the individual patient. That is, patients with an initial systolic pressure of 160 to 170 mm. showed as much variation after smoking as those with an initial pressure of 250 mm. or more.

(5) In seventeen patients more than one observation was made, with a total of eighty-two experiments, to include the pulse pressure. In these cases the average rise was found to equal the average fall, being 11 mm.

(6) The pulse pressure did not invariably rise with the systolic pressure but occasionally fell or remained unaltered.

(7) The effects of cigarette smoking corresponded in general to those of cigar smoking and were fully as variable.

(8) The average increase in pulse rate was thirteen beats per minute.

(9) Owing to the great variation in the effects of smoking produced in different patients, it is desirable that each case be separately studied before giving rules for controlling the habit. But it may be stated definitely that whereas the risk from any elevation in blood pressure increases greatly the higher the initial pressure in the patient, it is undesirable for anyone having a constant systolic pressure much above 200 to smoke, and secondly, smoking is equally undesirable for anyone having a constant initial pressure above 160 mm. when the use of tobacco is found uniformly to produce a considerable rise in blood pressure.

DECAPSULATION FOR CHRONIC BRIGHT'S DISEASE.*

By SAMUEL LLOYD, M.D.,

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IN the *Therapeutic Gazette* of November 15, 1907, Tyson of Philadelphia, in the course of an article on the treatment of nephritis, says: "I believe the operation (renal decapsulation) has a place in the treatment, but I would not call it curative. Like so many treatments, it has disappointed expectations, and probably in consequence is too much ignored. I have thought the better class of surgeons have not given this operation enough consideration, probably, too, because the conditions supposed to indicate it are so purely in the province of the physician. It is an operation whose suggestion must come wholly from the physician, and he is sometimes not as ready to suggest operation as he ought to be. I have seen life saved and prolonged by it, and I am sure this may happen again and again. The cases in which it should be done are generally those of parenchymatous nephritis with extensive anasarca, which refuse to yield to other treatment.

"In interstitial nephritis the operation is less hopeful, as there remains less of the parenchyma of the organ to resume its function. There can scarcely be a doubt that the relief comes from

* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 18, 1916.

diminished tension, illustrated by a case of my own, a typical case of chronic parenchymatous nephritis, in which the patient complained especially of a dull pain in the region of the left kidney, along with a sense of aching fullness or distention in the same vicinity—in the patient's language 'a feeling as though there was an abscess there.' In the fall of 1906 the kidney was exposed, its capsule stripped, and the organ replaced. In twelve days the patient was taken from the hospital, and a journey of one hundred and forty miles was made with very little help on or off the train. Previous to this there was large albuminurica, dark granular and oil casts. Succeeding the operation he gradually improved, and with the approach of spring began to take advantage of the fair weather to get out of doors, then gradually to resume business, until recently he wrote that he feels in as good health as he ever did, and outside of not being as strong as he would like to be he has no complaint."

Thus clearly and succinctly does the distinguished Professor of the Theory and Practice of Medicine in the University of Pennsylvania present the case of decapsulation for chronic Bright's disease; and so closely do his conclusions coincide with my own, as the result of some years' experience that I was almost tempted to say, when I read his article a few days ago: "It is enough; there is no further use of writing a paper upon this subject for the State Society."

Some points, however, should be emphasized. Edebohls, who first suggested the operation in 1901, stated in his final paper of 1908 that practically the only contra-indication to operation was retinitis albuminurica, because it is one of the late manifestations of chronic Bright's disease. Its occurrence signifies that the general changes produced throughout the body by the disease are so far advanced that they will cause death, even though the function and health of the kidneys can be restored by operation. It also indicates such widespread disease of the vascular system that the danger of rupture of blood vessels in any part of the body is always imminent. Among his first seventy-two patients, nine had retinitis albuminurica at the time of operation. The unfavorable outcome in these cases led him for the three years before his death to decline to operate on patients who had well-marked retinitis albuminurica. Had I followed this rule of Edebohls', the following case would have died:

S. W. P., referred to me by Dr. A. F. Chace, at the New York Post-Graduate Hospital with the following history: Age, forty-six; white; general anasarca; ascites; dyspnoea; mother died of kidney disease at seventy-two; personal history, negative: Last year during a storm, contracted a slight cold, and soon afterward noticed puffiness under the eyelids in the morning, which disappeared during the day. This continued until finally it became general all over the body; breath became short, and cough troublesome; urine at first normal, then decreased in amount.

His history and tests were most carefully worked out by Professor Chace and his assistants. At the time I saw him, he was generally anasarcus and was almost totally blind from retinitis albuminurica. His phenolsulphonephthalein test showed: first hour, 1.7 per cent.; second hour, 5.5 per cent. Total, 7.2 per cent.

Five days later, September 5, 1911, I decapsulated both kidneys under gas-ether anaesthesia. The organs were much enlarged, blue, and perinephritic adhesions were numerous. The right was larger than the left. The capsules were very adherent.

September 3d, he passed 414 cc. of urine. September 6—the day after the operation—the quantity was 920 cc. On the 9th, it reached 1920 cc. He remained in the hospital and under treatment until May, 1912. He is now actively engaged in his usual work, although he still has some albumin and casts.

It seems to me, therefore, that this case, which was about as unfavorable as it could be for any operative treatment, disposes of the idea advanced by Edebohls that retinitis albuminurica is the only contra-indication to the operation.

One who has had any experience with this operation, and who has kept himself at all abreast of the recent scientific advances in the management and study of nephritis, must recognize the fact that certain contra-indications may now be outlined which were impossible before.

Edebohls says that age is not a factor to be considered. When, however, the nephritis is due to a general arterial change, whether that change be due to age or disease, it is distinctly a contra-indication, because these patients have a chronic interstitial nephritis—contracted kidneys—and the connective tissue changes are so considerable that there is not sufficient secreting surface left to functionate. One cannot expect tissue of this kind to improve.

I must, therefore, agree with Tyson that chronic interstitial nephritis, especially in its later stages, offers little hope from operative treatment, unless it be a short prolongation of life.

This is illustrated by the following two cases:

J. A. H., age twenty-five; patient of Dr. Alexander Strong. Severe case of scarlet fever at eight; infected finger twelve years ago; boils on neck a year ago. Always constipated. About January 1, 1907, became chilled through while skating; following this, noticed swelling of ankles, which gradually extended upward. By June he had a general anasarca. On September 6, 1907, the operation of double renal decapsulation under ether anaesthesia was performed. Great deal of perinephritis; both kidneys very soft, œdematous, markedly enlarged, and congested; capsules very adherent.

This patient had been having convulsions for some time before his operation, and these continued for some time after the operation. The œdema began to disappear on the second day, and his last convulsion was on November 8th. He was discharged from the hospital on January 22, 1908; returned to his home, and shortly after that took up the business of a clerk, and taught night school.

The urine examinations which were made from time to time during the next four years, always contained albumin and casts. He returned to the hospital on the 13th of April, 1911, with a recurrence of his general œdema and threatening convulsions. He had just been taking an active part in a local political campaign. On May 4, 1911, he was decapsulated for the second time. The kidneys were found contracted, small, yellow, and granular. While his œdema disappeared following this operation, his condition was not improved, and he died in convulsions twenty-four days after the operation.

This patient undoubtedly had a prolongation of life for three and one-half years.

T. I., age, twenty-four; white, a patient of Dr. A. F. Chace. Family history, irrelevant. Had measles when nine years of age, chickenpox at six, mild attack of scarlet fever at three; apparently perfect recovery until six years of age, when she had kidney disease and was in bed for several months; she was incapacitated from the normal life of childhood for a year, and was in the care of a physician and on diet for a year or more. She had tonsillitis several times, but no complications, and made a good recovery each time. For several winters in succession she had severe coryza and bronchitis, but had recently inured herself to cold by exposing neck, etc., and had had no recurrence of these attacks.

Her present illness began five months before admission to the hospital, with burning sensation in the legs, accompanied with severe pains in the eyes after a few hours. The reading glasses which she had been wearing for five or six years were changed, but to no effect. During the summer she felt better; took a "rest cure" for past four months, with suitable diet, packs and irrigations; was in bed three weeks and then in a chair until her return home two weeks ago. She felt greatly improved, but her physician said she was no better. She had Bell's paralysis in May, from which she made a good recovery. Never had headaches until three weeks ago, when basilar and temporal headaches developed. Has basilar headache at present, and pain in eyes.

October 18, 1913, double decapsulation; gas-ether anaesthesia. Kidneys small, hard, red, and granulated. The pathological examination of a section of the kidney removed at operation confirmed the diagnosis of a diffuse nephritis, with a greater involvement of the connective tissue than of the parenchyma.

The patient was discharged from the hospital on November 6, 1913—improved. She lived a little more than a year, when she had a recurrence of the œdema and died. Dr. Chace and I discussed the question of the advisability of a second decapsulation, but in view of Edebohls' and my own experience, it did not seem to me to offer any possibility of a further prolongation of her life.

Those who are familiar with Edebohls' papers will realize that my experience in this series of cases does not bear out the conclusions reached by him in regard to interstitial nephritis. In his series of 102 cases, he reported thirty-one of interstitial nephritis operated upon, of whom thirteen were cured; while out of the twenty-five cases of my own upon which this paper is based, I find that I have had fifteen chronic parenchymatous nephritis, with only two deaths, and thirteen still living; while, on the other hand, in the chronic interstitial variety, I have had seven cases, and all are dead. One showed an improvement for three and one-half years, and another a little more than one year. It is evident from this marked difference in results of the operation in the cases of interstitial nephritis that some explanation is necessary.

From my knowledge of Dr. Edebohls' cases, I am able to affirm that the vast majority of his cases of interstitial nephritis were operated upon in a comparatively early stage of the disease, before the parenchyma had been destroyed by the contracting fibrous tissue beyond the point of sufficient functionating power to sustain life; while in all of my cases the kidney was far advanced in degeneration, and was already contracted and cirrhotic.

From these experiences, we may draw the conclusion, therefore, that in the earlier stages of an interstitial nephritis we may hope for a definite improvement, if not a complete disappearance of all symptoms of the disease; while in the advanced cases, no benefit can be expected from the operation.

So, too, in the chronic diffuse variety, we may look for more or less improvement, depending upon whether the parenchyma or the interstitial tissues are the more involved. Tyson's statement that parenchymatous nephritis offers the best results is borne out by my experience—fifteen cases, thirteen living, two dead.

The following case illustrates this type:

J. B. G., aged twenty-four, referred to me July 23, 1908, by Dr. J. F. McKernon. Had asthma from the time he was six years old; nose operated on by Dr. McKernon, with some relief; typhoid five years ago; malaria, two years ago; tonsillitis several times; gonorrhoea six or seven years ago; no rheumatism; pustule on neck about middle of May. This was incised several times, and finally he developed erysipelas. Constipated. Incisions made in the hospital for erysipelas did

not heal. He finally went back to Dr. McKernon, and was sent to me for treatment.

The ulcers were exceedingly sluggish, and did not respond to treatment for a long time. An examination of his urine at this time revealed albumin and numerous casts of all types. Headache was getting more troublesome. He was referred to Dr. A. A. Smith, who treated him until about the first of November, when Dr. Smith reported to me that he was steadily growing worse, and that he did not believe that he would live more than six weeks or two months, and advised that I try decapsulation.

The operation was done at the Sanitarium on November 8, 1908, under gas-ether anaesthesia, and he was discharged on December 4th from the Sanitarium with his wounds healed. The urine examination made from time to time since the operation showed gradual improvement until finally all evidences of kidney involvement disappeared.

On November 30, 1914, he came into the office complaining of being very sick and fearing a recurrence of his kidney trouble. On examination I found a broncho-pneumonia, and sent him into the Post-Graduate Hospital on the Medical Side. After he had recovered from his pneumonia, I asked the medical men to investigate carefully the condition of his urine and blood, in order to establish the question of whether or not his Bright's was still cured. Phenolsulphonephthalein test was normal; his chemical blood examination was also normal; and his urine examination was negative for albumin and casts. This patient is still perfectly well.

In all our work we have depended upon the phenolsulphonephthalein test to determine the functional activity of the kidney. It will not do, however, to deny the patient the advantages of operation because the elimination of the drug is insufficient; for in several instances where the result of the test has been very unfavorable before operation, it has soon become normal after it.

The following case illustrates this fact conclusively:

L. M., female, age thirty. Began to complain of symptoms of kidney disease a few months before the birth of a child. Operation April 4, 1913, by Dr. H. D. Furniss and myself. The kidneys were large and red.

Before the operation an intravenous injection of phenolsulphonephthalein gave 7.5 per cent after one hour. A similar test one week after the operation, gave 70 per cent. This patient is now practically well.

More important than any other tests in determining the functional activity of the kidneys, at the present time, is the chemical examination of the blood. Since Folin and others have suggested simple methods of blood analyses, the examination of the blood in these cases has received considerable attention. The work of Myers and Fine in the Laboratory of Pathological Chemistry at the New York Post-Graduate Hospital has made these results so clear that we are depending upon them for a determination of the possible utility of operation in cases of nephritis.

In a recent paper by Myers and Lough, the following statement is made: "The amount of the phenolsulphonephthalein excretion shows the renal function at the moment; whereas the non-protein and urea-nitrogen are rather a measure between the amount of waste nitrogen produced in metabolism and that eliminated by the kidneys. In the early stages of nephritis, the phenolsulphonephthalein test probably yields the more valuable information; but after a decided retention has taken place, the non-protein and urea-nitrogen of the blood furnish a much more accurate index of the condition of the patient. * * * The marked retention of creatinin in the blood in uræmia was noted independently and almost simultaneously by Neubauer, Folin, and Denis, and Myers and Fine. It has long been known that in severe nephritis, creatinin was generally excreted in decreased amounts, and it was quite logical to conclude from this that the permeability of the kidney to creatinin had been decreased. That such is the case is the evidence of the data at present at hand."

As a result of their study of these cases, the indication seems to be that retention of the uric acid first becomes evident, the retention of urea follows, and lastly, that of creatinin, so that they add: "It seems reasonable to conclude that when a noticeable retention of creatinin has occurred the functional condition of the kidney has been greatly impaired. In our experience, creatinin values from 2.5 to 3 mg. per 100 cc. should be viewed with suspicion, and figures of from 3.0 to 5.0 mg. regarded as decidedly unfavorable; while figures over 5 mg. probably indicate an early fatal termination."

The accuracy of this statement has been borne out by several of our cases, as in the case of M. K., whose blood examination showed creatinin 14.7, urea 170, and uric acid 14 mg. to 100 cc.

M. O., creatinin 13, urea 90, uric acid 11.1.

P. J., creatinin 20, urea-nitrogen 162, uric acid 12.5.

All three of these cases died, in spite of decapsulation. One, M. O., a child of eight, who had general anasarca and was comatose at the time of the operation, improved for a time. Her œdema disappeared and she was able to play around the ward, but there was no improvement in her creatinin test, and she finally had a recurrence of the œdema and died seven weeks after the operation.

On the other hand, H. K. showed creatinin 0.9, urea-nitrogen 15, uric acid 2.6. He made a very satisfactory recovery.

It will be remembered that Edebohls said that in none of his cases was any attention paid to diet or to the usual nephritic precautions after the operation. At the time when he was working, this method of treatment could not be criticized, and it served to emphasize the advantages of the operation per se; but at the present time, when the management of nephritis has become so much more scientific, for a surgeon not to avail himself of the advantages of a physician who is expert in the treatment of nephritis would be exceedingly foolish.

At the time Edebohls wrote his last paper, he tabulated all his cases up to September, 1907, which was 102. Between that time and the time of his death, he operated upon six more, making a total of Edebohls' cases of 108. Up to the time of the publication of my first paper, in 1911, I had operated upon twelve, and in my paper of 1912 I reported one more case. Since that time, I have had twenty-five cases, making a grand total of 146 cases. The mortality remains about the same, 10 per cent, and the other statistics are also the same—33 per cent are cured and remain well; the later mortality is also 10 per cent; while the remaining 47 per cent are improved.

Discussion.

DR. HENRY D. FURNISS, New York City: There is one point that I think should be brought up, and that is that the elimination in parenchymatous nephritis of phenalphthalein is apt to be large and does not bear a real index to the amount of kidney damage. The only case where I have slipped upon the phenophthalein where the elimination was good and the function poor was in just such a case. The large amount of albumin in the urine should safeguard one against such an error.

I think that those cases are best checked up by the examination of the blood to show the retention of uria, uric acid creatin and non-protein nitrogen.

In the case that Dr. Lloyd mentioned where I was associated with him the improvement was really remarkable. Those three or four tests that were made there were not over a period of just a week or two but over a period of several months. The woman had to have an abortion on account of the kidney condition. When she had her first child she had forty convulsions following that labor. In addition to the improvement as shown by laboratory tests afterward, headaches that she had had for nearly two years were cleared up within three days after the operation.

DR. EDWARD L. KEYES, JR., New York City: My experience with decapsulation has not been sufficient for me to comment to any purpose on the main subject of the paper. I must nevertheless state that I find great difficulty in the interpretation of functional renal tests. It seems as if many of these tests may be disregarded.

I am not convinced that even the blood tests are absolutely accurate. We have in our ward at Bellevue Hospital today a patient who was operated on for anuria due to a chronic suppuration in both kidneys with doubtless some obstruction to the ureters. The X-ray failed to show stone. We did not know what the obstruction was. At any rate the patient had not passed any urine for two or three days and before the operation the blood area was 200 and the creatinin reached the extraordinary figure of 20; an absolutely fatal figure of creatinin Dr. Lloyd would say as our laboratory recorded. Well, the patient was only operated on last Saturday so the early demise is still perfectly possible, but nevertheless he is apparently getting well from his operation.* So that in certain acute surgical conditions it is obviously possible that there may be an acute apparently incurable retention which the operation can relieve.

DR. EDWIN BEER, New York City: I found Dr. Lloyd's paper very stimulating and very interesting and suggestive, and although I have seen quite a number of these cases do favorably after operations, I have seen many more do very poorly after decapsulation.

During the last year and a half in one patient who had a solitary kidney with stone and pyeo nephritis I had to operate upon three times, doing decapsulation each time, and I was impressed with the fact that at each subsequent operation that capsule had enormously thickened and compressed the kidney so that at the third operation the kidney was perhaps two-thirds the size that it had been. It would be very remarkable if decapsulation in nephritis would be of any lasting benefit to the kidney if such contraction and reformation regularly takes place. I would like to ask Dr. Lloyd what he noticed, in the second decapsulation in the one case that he referred to.

Whether the decapsulation per se or the incision does good in some of these cases was also brought to my attention by a case within the last six months. I was called in to decapsulate a child suffering with exudative nephritis, passing two to six ounces of albuminous urine which contained casts and blood cells and I determined to delay. While we delayed the child developed empyema. We operated for the empyema, and strange to say within twenty-four hours the urinary output jumped to ten ounces. In the next day or two the child's urinary condition cleared up almost completely.

Now had the child's kidneys been operated on, decapsulated, and we had seen the same results, we would naturally have concluded that it was due to the decapsulation. Whether it was in any way connected with the change in the circulation induced by the incision over the

* The patient died at the end of three weeks of kidney insufficiency, the creatinin having fallen to almost normal some days before death.

thorax, or whether it was just a natural change in the course of the parenchymatous nephritis, I do not know. I think there is a lot of work to be done in this line before we can decide what cases should be operated on by decapsulation, what cases promise result and what cases promise no result.

Dr. Lloyd: I am very glad that Dr. Keyes reported his case because one of the questions that I have in mind with regard to the blood examination was, what effect decapsulation might have in overcoming the retention. The cases that I have operated upon with a very high creatinine retention have all promptly died with the exception of the one little girl that I spoke of. One of them died in six hours, another one died on the way from the ether room into the operating room. They were hopeless cases. And what we were after then and are after now is to determine whether a decapsulation does allow of the decrease in the retention percentage of the nonprotein nitrogen and of the creatinine and supposedly put the patient in a position to recover. That would seem so from Dr. Keyes' report of this case. Possibly the kidney is now eliminating and the future blood examinations may give an entirely different picture.

I am hoping that we may be able to prove this, but these are bad cases, as a rule they only have a few hours to live, and unless they pull through the immediate operative procedure we cannot get the secondary blood examinations which will ultimately settle the question.

Dr. Beer's question in regard to the re-decapsulation is one that has been thoroughly outlined before. I did not bring it up in this paper because there was nothing really to add to what has already been said on this subject. A new capsule does form in all the cases that we have seen. In cases that we have been able to autopsy at some time after the decapsulation we have found the new capsule and it is usually more fibrous than the original one, thicker and harder. In two of the cases it was a fact that the new capsule was shown to have small blood vessels traversing it and that led Edebohls to believe that the benefit in the nutrition was due to the circulation going through the parenchyma. This is a condition that I have never been able to agree to as I do not think there is a sufficient amount of circulation getting through that thick capsule to be of any account at all. Now the question of compression of the capsule of the kidney by a new capsule is one that I have not found. There seems just as in most cases of primary decapsulation not to be a tight capsule, and in a great many cases the kidney is comparatively small. I should suspect in a case that was contracted in that way that we were dealing with an interstitial nephritis and that we were having a change from that condition rather than from a simple contraction of the capsule itself.

THE TREATMENT OF MAXILLARY SINUS DISEASE.*

By CLEMENT F. THEISEN, M.D.,
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ONLY suppurative conditions of the antrum will be discussed in this paper. Benign and malignant growths, retention cysts and other diseases will not be considered.

For convenience in considering the treatment we may divide cases of maxillary sinusitis according to their etiology into three classes, acute, sub-acute and chronic.

Cases of acute antral infection that are so common during influenza epidemics, and with ordinary acute rhinitis, may perhaps be properly placed in a class by themselves. Very many cases of this kind, perhaps the majority, will clear up, if a policy of not too much interference is followed. I am speaking now of a class of cases occurring largely in young adults, in whom a careful nasal examination does not show any marked pathological conditions, such as hypertrophies of the inferior and middle turbinates, polypi in the middle meatus, or an involvement of the frontal sinus, anterior group of ethmoid cells, or diseased teeth, at the time the acute process in the antrum develops.

Considering cases then in which the maxillary sinus is not simply a reservoir for the collection of pus, from chronic infections in the sinuses just mentioned, we have a class of cases that yield very readily to a very conservative plan of treatment. Our patients, in such cases, usually apply to us for the relief of the more or less severe pain and tension in the region of the affected antrum. We find, when we examine the nose, after it has been carefully washed out, and dried out, and after the patient has kept his head well down between his knees for a few moments, a thin muco-purulent discharge exudating under the middle turbinate. This is true in the majority of the cases, although in some, during the first day or two, we may not see any pus.

In the experience of the writer, a good many of the cases of this kind will clear up, if a cotton tampon soaked with equal parts of a weak cocain and adrenalin solution, is placed under the anterior end of the middle turbinate, with another between it and the septum. These should be left in place each time they are applied, for ten or fifteen minutes. This serves to contract the membrane in the nose, which is always much congested in the acute cases, and will favor better drainage.

The patient is given a spray solution (any mild alkaline solution will serve), to which is added some adrenalin, and is warned to blow his nose carefully and properly, when it is used, so as to lessen the danger of ear complications. Either

* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

heat or cold may be applied to the affected side of the face during this stage, and if the pain is very severe, any of the usual drugs may be given internally, but only if the pain cannot be readily borne. I am not in favor of employing any narcotic drugs in these cases on account of the danger of masking symptoms.

If such a conservative plan of treatment does not give decided relief in forty-eight hours, and transillumination gives the usual picture, the antrum should be washed out.

Personally, the writer favors Coakley's modification of the old Myles trocar, the bayonet grip for the attachment of the canula after the antrum has been punctured, being more convenient in the Coakley instrument. In this connection, the writer would most emphatically add his protest against the use of strong irrigating solutions for the acute cases. A sterile normal salt solution, or sterile water to which is added a small amount of alcohol, or a very weak bi-chloride solution, is all that is necessary.

In many cases a single irrigation of the antrum will suffice. In some, if the pain and tension symptoms are not much relieved, the irrigations will have to be repeated. This depends largely on the nature of the infection responsible for the antral condition, and on the character of the pus washed out.

There is a sub-acute form of antral sinusitis following numerous attacks of acute inflammation, in which the antral mucous membrane perhaps never entirely get back to a normal condition.

If patients have a number of attacks of acute maxillary sinusitis, and many, after the first attack have a reinfection the next time they have "grip," steps should be taken to make them less susceptible to attacks of acute rhinitis, which precedes the sinusitis.

In some cases it will be sufficient to remove the anterior end of the inferior turbinate, if there is a marked hyperplasia of the erectile tissue, in others, the removal of the anterior end of the middle turbinate, if it is much hypertrophied, particularly in a narrow nostril, will have a tendency to make them less susceptible to other attacks.

Many acute attacks have a tendency to cause a marked thickening, and in some cases a degeneration, of the antral mucous membrane, and increase the chances for reinfections. It is in this sub-acute form of maxillary sinusitis, that the semi-radical operations are of the greatest service. In this class of cases there is more or less discharge from the antrum every time the patient takes cold. An opening through the wall in the inferior meatus, after the removal of the anterior end of the inferior turbinate, or above the inferior turbinate, large enough to remain open for some time, is the ideal operation in this class of cases, and will permit as many irrigations as may be necessary.

A majority of the cases of this type of maxillary sinusitis will be cured by this comparatively simple operation. The opening should be as large as possible, as the formation of granulations closes it very quickly. The large Halle trochar is a good instrument, making a good-sized opening which can be easily enlarged.

In considering the treatment of chronic antral suppuration, I will take up first the cases in which the antrum is simply the reservoir for pus from chronically diseased frontal sinuses and ethmoid cells, both of which are frequently involved at the same time.

In these cases *no* method of treatment of operation on the antrum *alone,* without at the same time operating on the other diseased sinuses, will be of permanent benefit. We have all had the experience many times, that antra which we considered chronically diseased and which had been pouring out pus for a long time, have cleared up, with a complete cessation of the discharge, after the proper operative procedures for better drainage from the frontal sinus and for the ethmoiditis, have been performed.

Such results I have observed without doing anything more for the antral suppuration than establishing an opening through the naso-antral wall in the inferior meatus, after the removal of the anterior end of the inferior turbinate, with of course frequent irrigations. If this opening is made large enough, the antrum may be examined very readily with the Holmes naso-pharyngoscope. The examination with this instrument will give us some idea as to whether the simple opening through the naso-antral wall will be sufficient, or whether later on we may have to do a Caldwell-Luc or a Denker.

There is another class of chronic antral cases in which diseased teeth are directly responsible for the antral suppuration. This is true in a much larger percentage of cases than a study of the literature shows.

A study of sections of skulls shows how easily antral disease may follow caries at the apices of tooth roots, particularly when the molars or pre-molars are involved. The ends of the tooth roots are frequently very close to the floor of the antrum. A patient may have a diseased tooth without special symptoms calling attention to it for a long time, and a periostitis of the alveolar process gradually develops with a softening of the bone, and an extension of the diseased process to the antrum.

The bone between tooth socket and antral floor, and sometimes on either side of the diseased root, becomes necrotic in a larger per-

centage of cases than we think. When the tooth is drawn, it leaves an opening leading directly into the antrum, so that a probe can be passed directly up. These cases sometimes clear up after the extraction of the tooth, provided there is no necrosis of the alveolar process. This can sometimes be detected with a probe, or by the foul character of the discharge.

In performing the radical Caldwell-Luc or Denker operation in such cases, it is important to remove all the carious bone in the alveolar process.

Of the radical operations for chronic suppuration the Caldwell-Luc or Denker give the best results.

Chronic maxillary sinusitis in children presents greater operative problems than in adults.

In children the surrounding bony structures are softer, with a greater danger of orbital and eye complications, or even meningitis, particularly when ethmoid disease exists at the same time.

In young people, with very narrow nostrils, it is better to perform some form of radical operation at once without trying intra-nasal operations, which in this class of cases are difficult and uncertain.

A modified Denker operation, in the experience of the writer, is followed by the best and quickest results.

In children, particularly, ethmoiditis following measles, scarlet fever, diphtheria and influenza, is a common cause for antral disease, and the ethmoid condition should be promptly dealt with as a preliminary measure.

The ethmoid cells in children are easily broken down with a small, strong curette introduced under the middle turbinate. The curette and a small punch forceps are all the instruments necessary for this operation. It is only necessary, in a small percentage of cases, to remove any part of the middle turbinate, in such operations on young children.

Chronic sinusitis, particularly antral suppuration, in the writer's experience, is common after diphtheria, scarlet fever or measles, and often goes untreated for a long time. It is very important in such cases, and in fact, in all cases where the antral disease is complicated by infection of other sinuses, to get a good radiograph as soon as possible.

In adults, in the chronic cases, the antrum will often be filled with polypi or polypoid granulations, and this condition, with the greatly thickened degenerated mucous membrane, is the reason why irrigations after puncture through the naso-antral wall or after a larger opening is made, do no good.

In the sub-acute cases particularly, if transillumination, after repeated irrigations, still shows a fairly dense shadow, conservative treatment by irrigations if still persisted in, is a waste of time.

The writer is, however, strongly in favor of trying irrigations for a considerable time, through a good sized opening in the inferior meatus, in cases in which there is *no* disease of the frontal sinus or ethmoid cells, or carious teeth. A large percentage of such cases will clear up under this conservative method. A solution of 1-5000 formalin has been found of great value for washing out.

The internal administration of urotropin, for which so much has been claimed in general and local infections, in my experience at least, is of very negative value. The large quantity of water and other fluids, given the patients at the same time, probably does more than the urotropin. The same may be said for the use of vaccines.

The consensus of opinion seems to be that vaccines, which are at times so valuable in other infections, have not been very successful in sinus suppurations. The successful method of treatment may be summed up in two words, *proper drainage,* with of course the removal, in the chronic cases, of all other existing sinus suppurations, and all pathological conditions in the middle meatus, particularly polypi.

Tertiary syphilitic lesions, particularly necrosis of the bony walls of the ethmoid cells with a suppurative ethmoiditis and secondary antral infection, must always be thought of in cases that do not readily yield to treatment.

It is surprising in some of these cases how quickly the ethmoid and antral suppuration clears up, when a vigorous course of antisyphilitic treatment is given.

The writer has had a number of cases of this kind in which syphilis had not been suspected, which did not clear up after radical operations, and long continued irrigation, but got well promptly after a course of treatment with iodide and mercury.

The different methods of treatment for maxillary sinusitis have of course merely been touched upon in this paper, and no attempt has been made to mention every operation.

In connection with antral infections in young children, Pearce's investigations are of special interest, because they show the frequency of sinus disease with diphtheria and scarlet fever.

Pearce examined the accessory sinuses, particularly the antra, of fifty patients who had died of diphtheria or scarlet fever, in the Boston City Hospital. The heads were so sectioned that easy access to the accessory sinuses could be obtained. Thirty-nine cases of diphtheria were examined, and in twenty-five inflammatory changes in the accessory sinuses

were found, *i. e.*, both antra and sixteen, both antra, sphenoidal and ethmoidal sinuses in two, one antrum only in five, and the sphenoidal sinus only in two. Of the eighteen double antrum cases, the exudate on both sides, in three, was a thick yellow pus, in three, a purulent fluid with membrane, and in one a cloudy serous fluid with membrane. Five cases of diphtheria with scarlet fever were examined, and in two, changes in the antra were found. Of these two, one was unilateral and contained a thick yellow pus. Two cases of diphtheria with measles were examined, and both antra in each case contained a seropurulent fluid. Four cases of scarlet fever were examined; one antrum was normal, in one case there was a double empyema, and in another, both antra and the sphenoidal sinus contained greenish pus. The fact that cultures from the sinuses showed the presence of the diphtheria bacillus, which in some of the cases on record persisted for months, and even several years, is of great interest. Another interesting point in connection with our subject is this, that Pearce's investigations prove that very young children, in whom the sinuses are but slightly developed, as was the case in many of the cases reported by him, may have a sinus empyema following certain acute infectious diseases which is often overlooked for a long time.

Discussion.

DR. SIDNEY YANKAUER, New York City: I think we are indebted to Dr. Theisen for covering this subject in a comprehensive manner. One fact, which seems to me stands out more than anything else in my own experience with sinus disease is that the reputation which the antrum of Highmore has for so long enjoyed, of being the most frequently diseased of all the accessory sinuses, is probably not true, and that the ethmoid cells probably should have this distinction. The ethmoid cells are very frequently drained directly into the antrum, and the passage is so direct that the ethmoid cells may be considered as a sort of an upper story of the antrum, pouring their secretions directly into the antrum. For this reason it is not so easy to find the pus in the ethmoid cells, and even with the radiograph the ethmoid cells may look clear. Nevertheless, the swell of the middle turbinate and the edematous condition of the mucous membrane under the middle terminate, in the middle meatus, betrays the true origin and the true localization of the infection. My own experience has been that acute antrums, if the ethmoid cells are treated at the same time, practically all get well from irrigations. But when I speak of irrigations I don't mean the use of two or three or four ounces of water. I irrigate the antrum with at least a quart of water, and repeat these irrigations as often as is necessary. This is not at all a difficult thing to do, if you have the pressure bottle which I use for this purpose. If you have to irrigate an antrum with a hand syringe that holds about four ounces, and have to use eight syringes full for each case, it gets pretty tiresome after you have washed out half a dozen antrums. But with the fluid propelled through the antrum by air-pressure, it is comparatively easy to do. I have also noticed, in irrigating the antrum, that you can often wash through a pint of fluid, and the last of the fluid has been coming out perfectly clear, then if you change the position of the patient's head you get a few more flakes of pus. It is these few flakes of pus remaining in the antrum when the washing is insufficient that keeps up the disease. Further, I found that in acute antrum suppuration, if the first puncture is made in the first few days of the disease, the suppuration will be kept up much longer than if you wait until the third or fourth day before making the first puncture. Unless the condition is so severe as to demand the evacuation of the antrum, I prefer to wait. By the third or fourth day the infection has lost a good deal of its virulence, and the puncture wound does not become infected. If the antrum is punctured on the first day the bone in the puncture wound becomes infected and keeps up the suppuration for a much longer time. In the chronic conditions of the antrum itself, my plan always is first to investigate the other sinuses before doing anything to the antrum. Because the antrum is so often a cesspool for the pus from the other sinuses. If, however, the antrum must be opened, I found that it is sufficient to make a large and permanent opening in the naso-anthral wall, to permit the patient to irrigate the antrum himself with a large quantity of saline solution. And in this way I have been able to cure practically every case of antrum suppuration that has come to me; and I have not had to do an external operation except in those cases where the antrum originated from a decayed tooth. The opening must be made very large and if the opening is to remain permanent it must be made not only in the lower meatus but extended up into the middle meatus and back far enough to include the natural orifice, and the accessory orifice of the antrum of Highmore. Because the ciliated epithelium which lines the mucous membrane of the antrum draws the pus up through the natural orifice and carries it away from the artificial opening so that the artificial opening has a tendency to dry up and contract. But if the natural orifices are included in the artificial opening this difficulty is overcome, and the opening then remains permanent.

I have not found any advantage in the use of any antiseptics in the treatment of these cases. I find normal saline solution to accomplish everything that any antiseptic solution could possibly accomplish.

DR. JAMES F. MCCAW, Watertown: I think we all thoroughly agree with Dr. Theisen's paper

and what Dr. Yankauer said regarding the treatment of the sub and sub-acute cases. I don't think there is any difference of opinion regarding those cases. But I am rather surprised to hear Dr. Yankauer's remarks that he had never found it necessary to use any antiseptics in his chronic cases. That has not been my experience, I am sorry to say; I have used in some cases very strong antiseptics, and not until I had used very strong antiseptics was I able to get any permanent result. Perhaps my experience with the nasal antrum operation is not especially large; perhaps that might account for my not getting the success which he attributes to his line of treatment. I think I fully agree with the paper and what Dr. Yankauer has said regarding the treatment of these chronic cases. I think it all hinges largely upon our accuracy in our diagnosis regarding the cause.

Dr. Theisen spoke about curetting the ethmoids in young children. I must admit that I'd be rather afraid to attempt that sort of work in young children—at least, I have never yet found it necessary.

After all is said on treatment of maxillary sinus trouble, I think that Dr. Theisen has summed the whole matter up in the few words —"Relief of obstruction in the nasal chambers and thorough drainage of the sinus."

Dr. Sargent F. Snow, Syracuse: I like Dr. Theisen's paper all through, and I believe that we are getting down to very practical treatment, and very practical ways of handling these antral cases. For myself, I feel that I am becoming less and less in favor of early openings of the antrum. So many of my cases have responded to the treatment directed above, that the past ten years has shown a decided falling off in the number of cases in which the antrum had to be opened. In fact, I remember several cases where I felt that I was cheated out of a big operation, because I removed the anterior tip of the middle turbinate and curetted some of the ethmoids. In those cases the opening in the antrum was sufficient to allow enough drainage, as soon as I cut off the source of supply from above. In some of my more chronic cases I have been fortunate in finding that the bone around the normal opening was so soft that by a bent curette with a rather stiff shank I could enlarge this normal opening a great deal and get sufficient drainage into the nose. The use of different antiseptics has in my hands become less and less. I find that a free irrigation through the normal opening is often possible, and suffices in quite a number of the sub-acute cases. In all chronic cases I would suggest that we go to the upper sources first, before we should open the antrum, we should clear out the ethmoids, get the middle terminate trimmed off as nearly every case demands, and we will then avoid many of our antral operations.

Dr. Harry M. Weed, Buffalo: It seems to me we lose sight of one very great possibility, at least, in the treatment of our maxillary sinus diseases, and that is the irrigation through the normal opening. It seems to be generally regarded as very formidable, but it can be done with rather surprising ease and frequency; and when it can be done it has a very great advantage over the puncture or over the making of an artificial opening either in the lower or the upper part of the antro-nasal wall.

The normal ostium can be probed and irrigated in, I believe, quite a high percentage of cases. It can be certainly, unless I have happened to be unusually fortunate in finding that class of cases, and in doing this. Of course, the anterior tip of the middle turbinate has to be removed; but antrum disease is so often in direct relation to ethmoid sinus infection, that the removal of the middle turbinate, at least, is a procedure of primary importance, and after healing it leaves the nose in much better condition. I believe if you will try it more often you will find that the normal opening is surprisingly accessible.

RADIOGRAPHY OF THE EYE AND ORBIT.*

By GEORGE SLOAN DIXON, M.D.,

NEW YORK CITY.

THE subject may be divided into examinations for foreign bodies in the eye and orbit, tumors of the orbit, and fractures.

The importance of radiography of this region in cases of accidents of various kinds cannot be overestimated. Unfortunately, the greater number of such accidents as foreign bodies in the eye occur among those who can least afford to lose any part of their earning capacity. Hence, such an accident happening to a mechanic means that unless the eye can be saved with at least fair vision one step has been taken toward his becoming, in the broader sense, a charge against the State instead of continuing as an asset. When an eye has been injured, of course, the first thing is to determine the degree of injury, and, second, what can be done toward repairing the damage. If there is the slightest evidence of the possibility of a foreign body being in the globe or orbit an X-ray examination should be made. The careful surgeon will have every accident case so examined if he has the means at hand. It would astonish those not in the habit of employing this method of examination as routine to learn of the frequency with which foreign bodies are found by this means where nearly every other diagnostic point is against it.

* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

Some of the main causes of these accidents may be profitably referred to, such as cutting and chipping of metals with hammer and cold chisel—which probably results in more foreign bodies in the eye than any other duty falling to the lot of the workman; dressing and breaking of stone; cutting concrete; opening boxes and barrels with a hammer and hatchet; premature blasts and explosions the result of a laborer striking an unexploded blasting charge or a dynamite cap with his pick; combination of a child of an inquiring turn of mind and a "dynamite cap" (adults not infrequently exhibit the same desire to investigate), the cap is either exploded by an attempt to open it, or by intentional concussion, or by throwing it into the fire to see what will happen. These caps or detonators are occasionally left in coal (let us hope accidentally) and are exploded in the house furnace and kitchen range. Other causes are explosions of syphons containing artificial mineral waters (as vichy or seltzer), particularly if the victim happens to be wearing glasses; cutting old lumber containing nails or other forms of metal; cutting wire and nails with nippers; cracking hammers together to find out how much noise can be made; turning and drilling metals, especially steel, when some part of the machine or the tool breaks; the use of emery or carborundum wheels used for polishing and abrading metals; the breaking of needles in power driven sewing machines; the air gun and small rifle so dear to the heart of every child and so recklessly put into his hands by the fond parent. And we must not forget the playful boy with his slingshot who uses as ammunition anything from peas to double-pointed tacks; nor the hunter who shoots at anything that moves whether he sees the object itself or not; nor the cheerful idiot who points at his friend an unloaded gun which promptly explodes and fills him with lead.

The smallest particles of iron or steel, lead, copper or brass, in fact all metals except small pieces of aluminum, can easily be shown, and there is no excuse whatever for missing them. Stone and glass are also easily shown in the eye, but small or even moderately large pieces of wood cannot be detected by means of the X-ray unless they should happen to be painted or heavily varnished. It might be mentioned that calcareous degeneration of the crystalline lens, and bone deposits in the choroid are clearly shown.

It makes little difference what particular method is used for the localization of foreign bodies in the eye if the operator is thoroughly familiar with it and recognizes the importance of paying the strictest attention to the smallest details. All the methods of real value are based on the same principle, *i. e.*, triangulation as first employed for this purpose by Sweet in this country and by Mackenzie-Davidson in England. There have been many modifications and some improvements in the method. Of course the author believes his apparatus to be the best or he would not use it.

As detailed descriptions of what is known as Dixon's apparatus and Hulen's method of plotting have been published a number of times, suffice it to say that 4 x 5 plates are used, the patient is placed on his back, and the vision fixed by having him look at a ball in proper position over his head. Two exposures are made, one 3 cm. above the level of the cross-wires in the plate holder, and the other 3 cm. below that center, preferably on separate plates. It is obvious that if the tube is moved between exposures everything between the anode and the plate will be in different positions on the two plates except the cross-wires which were in close contact with the plate. If we know the distance of the anode from the plate, the distance of an indicator or marker from the center of the cornea, and the distance that the tube has been moved between exposures, it is a comparatively simple matter to reconstruct the lines of the ray on paper and plot the foreign body on a chart prepared to scale for the purpose. We have employed this method at the New York Eye and Ear Infirmary for the past eleven years, and have found the results entirely satisfactory. The last published detailed description of the method will be found in "Diseases of the Eye," by Dr. John E. Weeks, p. 873.

The ordinary case is so common that it has ceased to be interesting. However, we have a sufficient number of odd or unusual accident cases to vary the monotony a little.

Case 1.—Male, in the service of Dr. Marple, was stoking a dwelling house furnace. There was a loud explosion, one of sufficient force to throw over some ash cans and alarm the household. One eye was injured, and when skiagraphed was found to contain a minute foreign body. The shadow was dense enough to suggest metal, and as the magnet would not dislodge it, we were of the opinion that it was probably copper. As the eye has remained fairly quiet no drastic efforts have been made to remove the foreign body.

Case 2.—Male, age twenty-eight, in the service of Dr. Callan, was hunting for something in a dark room and struck his left eye against a gas fixture. The injury was at the inner margin of the orbit. The wound was treated by his physician, and when Dr. Callan first saw him it was entirely healed. The globe, however, was directed outward and somewhat downward, and Dr. Callan concluded that there was probably something in the orbit which prevented the globe from resuming its proper location. X-ray examination showed the presence of a so-called lava gas tip or burner between the os planum and the globe. This was removed and the globe returned to nearly normal.

Case 3.—Male, age thirty-eight, in the service of Dr. Weeks. The patient was a fruit dealer, and was standing near his stand or cart when he was struck in the left eye with what he thought was a stone. It proved on X-ray examination to be a large double-pointed tack. Dr. Weeks removed it with the magnet through a scleral incision. The globe was retained.

Case 4.—Male, age sixteen. July, 1915, was hammering a piece of hot iron and injured the left eye. Between then and April, 1916, seven exposures were made, and all were reported negative. The eighth exposure was made at about this time by another operator and was reported positive. The ninth was then made, and a slide of that exposure will be presented today. There is no good reason why a foreign body of this size should not be detected at the first examination.

Case 5.—Male, sixty-two years. February 21, 1916, was putting scrap from a munitions plant into a pot for the purpose of melting. A cap exploded and entered the right eye, where it was localized the same day. On the 24th, the globe was enucleated. After the operation careful search was made for the foreign body both inside and outside the globe, but it could not be found. A few days later the patient was re-exposed, when we located the cap in the orbit in an entirely different position. It transpired that the globe ruptured during the operation; there was profuse hemorrhage, and vigorous sponging was employed to arrest it. There could be no doubt as to the presence of the foreign body in the globe before the operation, so it must have been forced out of the globe and back into the orbit by the sponging, for its location and presenting surface are entirely different in the two exposures.

Case 6.—A young man was hunting, a pheasant rose behind him, and a man at a distance of twenty-five yards in front of him fired. The victim lost both eyes. Forty shot were counted on the 4 x 5 plates used for localization.

A single plate should never be wholly relied upon. A case illustrating this point occurred at the Infirmary a few years ago. A boy had his left eye injured, and when it was skiagraphed the perfect outline of a bent carpet tack was seen in the plate. The boy was skiagraphed repeatedly, but this was the only plate in which this shadow occurred, and was due to the peculiar arrangement of the septa of the ethmoidal cells at this particular angle. An additional reason is that a defect in a plate may be mistaken for a minute foreign body, but it is exceedingly rare for such a defect to occur in the same plane on two plates. This has occurred in our experience but once, and was promptly eliminated by exposing another set of plates, when the foreign body disappeared.

It is well to remember that a prolapsed iris does not always mean that the foreign body has been large, and as it went spinning through the air one end struck the eye, and the momentum of the other pulled it out and with it the iris. Foreign bodies are frequently found in the presence of prolapsed iris.

The statement of the patient is often of little value except as to the manner in which the accident occurred, and even this is frequently unreliable, not that he means to deceive, but he does not know. Nevertheless, it is always important for the radiographer to obtain as good a history of the accident as possible in order to obtain some idea of the probable nature of the foreign body. Lead and iron will always yield strong shadows no matter how small, but glass throws a weak one and consequently the tube used for glass should be much lower than one used for iron. The only good thing one can say about glass in the eye is that as a rule it does not travel very far into the globe, and generally presents its edge to the source of the ray, making localization much easier than if the opposite were the rule.

Failure to find a wound of entrance is no proof that the globe does not harbor a foreign body.

Siderosis is pretty good evidence that a particle of iron is the cause, and strange as it may appear this is occasionally overlooked.

Cataract in a young person is generally due to an injury of some sort and frequently a foreign body is found though the patient may strenuously disclaim the occurrence of an accident of any kind.

If a skiagraph is not made in a given case, a second foreign body may be left in the eye. Multiple foreign bodies from chipping metal are not common but they do occur. Failure to secure the foreign body does not mean that it is not present. The shadow cast may be of fair intensity and good form, but be the shadow of iron rust only. Dr. Schirmer, of New York, had a case where complete oxidation had occurred. Further, the foreign body may be lost either outside or inside the orbit, as in the case above referred to. Or it may be non-magnetic or so slightly magnetic that the surrounding medium forms more resistance to its extraction than the magnet has power to overcome.

The attention of the general radiographer is called to the fact that he does not always recognize the necessity of fixing the vision during exposure, and for this reason he sometimes misses a small foreign body completely.

We have not been able to show intraocular tumors by means of the Xray. It is, however, possible to show orbital tumors and obtain a very fair idea of their size and location,

provided the tumors are not too diffuse. The position of the head and direction of the ray must be such as to throw out the opposite orbit and as many of the ethmoidal cells as possible when exposing for the lateral view. The position for the antero-posterior view is the same as for the frontal sinus. If a neighboring sinus is occluded and invasion of the orbit incomplete we can be pretty sure it is primary in the sinus. If the reverse obtains, then it is fair to assume that it is primary in the orbit, provided there is no evidence of empyæma in either case. Tumors of the lachrymal gland will occasionally excavate the frontal, but of course the diagnosis of such a tumor can usually be made without skiagraphing it. It is simply an interesting fact.

CASE 7.—Female, about thirty, with a tumor of the lachrymal gland was referred by Dr. Alger. When she was skiagraphed for the purpose of determining whether the frontal sinus was involved, a depression was noted in the frontal bone in the region of the gland, which proved on operation to have been caused by the tumor. There was no sinus involvement.

CASE 8.—Female, age thirty-nine, a case of Dr. Wheeler's, to whom I am indebted for the following abstract: July 9, 1915. A small red spot developed in the right eye following an operation for hæmorrhoids about ten years ago. The eye gradually became prominent. V. O. D. 6-200, V. O. S. 10-200. X-ray shows a growth distinctly in the right orbit.

July 22d Dr. Wheeler did a Kronlein operation at the New York Eye and Ear Infirmary. After the incision a soft tumor was presented in the wound. Introduction of the finger into the orbit caused this mass to well over the orbital margin—the consistency was not much firmer than jelly. The mass was adherent to the lachrymal gland and entirely outside the cone of muscles. There was a deficiency in the malar and frontal bones of the outer wall. The tumor broke up into many small pieces, it was red and was compared by a spectator to placental tissue. Healing was uneventful and there has been no recurrence to date.

The skiagraph taken showed a mass in the right orbit which was fairly well outlined in the antero-posterior plate, but somewhat better in the stereoscopic lateral view, and the operation was undertaken on these plates in connection with the clinical appearance and history.

Fractures about the orbit unless they be in the outer margins are most difficult—further back it is next to impossible to show the line unless the fracture be so extensive that its presence would be self-evident and a skiagraph unnecessary.

In summing up it has been proven beyond a doubt that localization of foreign bodies is not only useful in the majority of cases, but imperative if the surgeon would obtain the best results from his efforts, and that valuable information may be obtained as to the presence of orbital tumors. Possibly with better technique we may soon be able to obtain information concerning fractures in the walls of the orbit involving the optic foramina, which now is largely conjectural.

Discussion.

DR. JOHN KEPKE, Brooklyn: I should like to pass two plates around the room. I should like to have some roentgenologist explain why these plates don't show anything. They were made by a very good man, and I take them as typical of my experience. I have had a great many patients with nasal sinus disease radiographed, and generally with unsatisfactory results. When I want to perform some radical operation on the sinuses, the patient frequently asks me whether had he better not be radiographed. I tell him yes. And as a rule the report comes back from the roentgenologist that there is nothing in the sinuses. Sometimes it is otherwise. I had three cases of suppurating cyst of the maxillary antrum occur in my practice within about two weeks. I had two of them radiographed. In one I got the verbal report that there was nothing in the antrum. They were unruptured cysts, and consequently the antrums were as full as they could be—as full as an egg is of meat. The diagnosis was made in both cases before I sent them to the X-ray man. The diagnosis was made on the pain, the tenderness, the fever, and the fact that when I punctured the sinus the patient, in all three instances, sprang from his chair with an expression of pain. I could get no fluid through the sinus.

The most striking case is this one, in a young man with all these symptoms. He had had a very severe pain in his face for some time, on the left side, and tenderness, as I said before. The findings of the X-ray man, who was as good as anyone that I know of—stands very well in Brooklyn, at any rate—are these: "The lateral view of the head presents no abnormalities except that the shadow of the maxillary region seems to be slightly more extensive than usually seen. This is not from an accumulation within the sinus, but appears to be rather long in structure. On postero-anterior view the structure of the head appears distinctly. Frontal sinuses are clear but smaller than usual, the right being very small. The nasal septum is somewhat large. . . ." I am just reading this to you. There is no equivocation there. (Continues reading of written report.) Now, what is the use of such a diagnosis to the clinician? I had had so many experiences of the kind, I knew when I sent him that that man's

sinus was full of pus. I sent him as a sort of—well, to put up a job on the radiographer—on the roentgenologist. And I am very glad to be able to present this; because there is no question of the clearness of the plates; there is no question as to the clearness of the diagnosis. Now, I would like to know what good is an X-ray examination to the clinician when we get reports of this kind.

Dr. Yankauer: Did you get the pus out of the sinus afterwards?

Dr. Kepke: Yes, in all three cases the sinus was absolutely full of pus, so you couldn't get another drop in it—positively; there was no question about the sinus being absolutely as full of pus as an egg is of meat.

Dr. Yankauer: You hadn't entered the sinus before the X-ray was taken?

Dr. Kepke: No. At the time of the operation, in all three cases, I did a Caldwell-Luc operation, and a number of surgeons in Brooklyn will testify to the sinuses being absolutely full.

Dr. Percy Fridenberg, New York City: Is there any further discussion? Before calling on the readers of the papers to close the discussion, the Chair would like to say just a word about the practical value of these examinations for use in our operative work. Aside from the fact that it gives us—and is supposed to give us—a diagnostic indication, I think it is very valuable as giving us an anatomical chart. And besides the security of the examination, I think one factor should not be left out of mind, and that is the increased speed with which we are able to operate. There is the difference between feeling our way and following a guide-post. We know when we tackle a sinus case that a certain number of sinuses are involved; we can lay our plans accordingly, and go ahead rapidly. And the same way in the mastoid: If we know beforehand that there is an extension to the zygoma cells, or excision is necessary, preparation from the very beginning is made for that purpose, and from the start of the operation we are prepared for a certain variation of that operation, and know that a certain number of phases have to be undertaken—instead of feeling our way, looking here and there for an extension of pus in the bone.

Dr. Eugene W. Caldwell, New York City: The chairman has answered, in part at least, the remarks of Dr. Kepke. The X-ray examination of the accessory sinuses would be worth while if it showed us only anatomical details.

I should like to say also, that it is rather unsafe to draw sweeping general conclusions from three cases.

This kind of work has been done for more than ten years and a great many men who have had more than three cases examined, have had happier results than Dr. Kepke has reported.

Nothing in medicine is absolutely infallible. I have heard of more than three mistakes with ordinary clinical methods of diagnosis, but this does not convince me that the clinical methods are useless.

Dr. George C. Johnston, Pittsburgh, Pa.: I was greatly interested in the various papers and the discussion. Dr. Dixon made a statement which I wish to subscribe to, and that is that there is no necessity for missing a metallic foreign body in the eye if it is large enough for you to see when placed upon cotton in a vial. If you can see it against the white cotton in a vial, you can show it on an X-ray plate. I have some rather interesting cases to report, with unusual histories, which will interest you, I know. Each of these patients were teamsters; each of them used a long braided whip-lash. The whip makers made the wonderful discovery that by using a very fine thread wire—I think it was No. 30 copper—braided in the whip-lash you get a very much nicer crack to the lash. Each one of these patients had cracked this long lash, and at the instant of cracking the lash something struck him in the eye. Each of them had a blind eye. Each of the two had in the eye a tiny fragment of copper wire. The first one treated showed in the radiogram a piece of No. 30 copper wire end on. In the radiogram it is very small. Looking at it with a magnifying glass, however, we found that it wasn't an artefact. We repeated the examination, located the wire. The eye went bad; there was an enucleation and the eye was given to me. I made a number of radiograms showing the wire in the enucleated eye; and then the eye was sectioned and the wire localized. Those are rather unusual accidents. Three of them occurred within a month of each other, two in the service of Dr. Heckel, one in the service of Dr. Blair.

We see a great many of these shot cases. The most interesting one to me was a man who was struck in the orbit by a single grain of No. 4 shot, which did not strike the eyeball but which perforated the orbital plate, caused a meningitis, and killed him. That man was killed by the smallest projectile that I ever knew to kill a man.

Dr. William H. Stewart, New York City: My discussion will be limited to traumatic injuries of the frontal sinuses which produce serious brain lesions. We are all familiar with the bony structure of the skull which makes up these important air spaces, and know that the cranium is necessarily weakened at this point by the spreading upward of these air cells between the tables of the bone. The protrusion of these points makes them peculiarly susceptible to injuries, prominent among which is fracture.

The ordinary fall, striking on the forehead, produces a fracture of the vertical plate of the frontal bone which frequently involves the outer layer of the skull over the frontal sinuses with no more serious result than a partial obliteration of the sinuses from depression or a filling

of the air spaces with a blood-clot. When the blow is sharp enough, or when the fracture is produced by a flying implement striking directly over the sinuses, we have a fracture of the inner as well as the outer table. The dura and frontal lobes of the brain being in close apposition to the bone, we are very liable to have, in addition, an injury to the soft parts. This may be only a simple tear in the dura or a severe laceration of the brain structure. In the first instance we may have an entrance of air through the fracture and under the dura producing an intracranial aerocele, as in the case reported by Skinner of Kansas City in the *Journal of the American Medical Association,* issue of March 25, 1916, or we may have air work its way from the sinus through the lacerated frontal lobe directly into the lateral ventricles. This event may not occur immediately after the injury, as in two cases to be reported. The blood-clot and swelling of the soft parts are sufficient to plug the fracture and prevent the entrance of air into the brain cavities. In about two or three weeks, after the clot has softened and some degeneration of the brain substance has occurred, the air from the sinuses will force itself through the fracture and brain structure into the ventricles; especially does this occur when the patient sneezes violently or blows his nose too vigorously.

The general clinical picture is as follows: A patient is brought into the hospital with a history of an injury to the head, usually in the neighborhood of the frontal sinuses. The roentgenographic examination reveals a fracture involving one or both frontals. He gradually improves, and in about two weeks is discharged with release. He remains home about a week, when his friends notice that he is becoming dull and apathetic, complains of headaches and dizziness; this may occur after blowing his nose violently or after a severe sneezing attack. The patient is brought back to the hospital with all the signs and symptoms of brain pressure. A roentgenographic re-examination reveals the same fracture and in addition shadows characteristic of the brain ventricles distended with air.

Such a complication does not necessarily mean death, as in the three cases reported we have one recovery; the patients do not die from distension of the ventricles with air, but from infection with its resultants such as meningitis, cerebitis, etc.

The treatment if any is purely surgical. It is problematic, however, whether decompression with drawing off of the air from the ventricles is indicated; the difficulty is to decide when the traumatic entrance is permanently closed so that the distension will not reoccur after the air tap.

I am frank to say that I believe if no infection occurs the patient will recover. The one lesson we do learn, however, is that every precaution possible must be taken to prevent infection in all cases of fracture of the skull, especially if they involve any of the air sinuses.

THE EFFECT OF MALFORMATION AND INFECTION OF THE ORAL CAVITY OF THE CHILD, UPON ITS FUTURE HEALTH.*

By STEPHEN PALMER, D.D.S.,

POUGHKEEPSIE, N. Y.

TODAY is the beginning of a new era in medicine and dentistry when for the first time a member of the specialty of medicine which the speaker represents is by invitation presenting the part dentistry plays in the great field of medicine, and the place it is gaining in the great art of healing, and prophylaxis, and in behalf of the Dental Society of the State of New York and the National Dental Association I thank you for the privilege and honor of appearing here today, not on my personal account, but rather for the profession which I love and ever hope to uplift by my efforts.

The dental profession has realized and been preaching for years the importance of a mouth in perfect condition.

We know from observation in our daily vocation, the value of a clean and well-kept mouth and teeth. We know that there is nothing that so reduces the vitality of a boy or girl as decayed and aching teeth. We have noted the effect upon the future life, of the neglect of the mouth conditions of a child. We know that the pupils in our schools cannot do their best unless that portion of their systems, at least, is in a healthy condition. We know that with the mouth and teeth in perfect condition and kept so, many of the bodily ailments and weaknesses can be eliminated, and thus the general health of the children in our schools, and finally the health of the nation will be improved. We know that as the mouth is the gateway of the body; that as the teeth are placed there to perform the first function of the great system of digestion and assimilation, that with them in a perfect, cleanly and healthy condition only can the child be in perfect health, and the future man or woman strong, healthy and intelligent.

The teeth are the organs of mastication; without teeth in perfect condition we cannot have proper mastication, without proper mastication we cannot have proper digestion, without proper digestion we cannot have proper assimilation, without proper assimilation, we cannot have health.

The Creator provided each little mouth with twenty teeth, why? Because they were necessary, to prepare the food for nourishment of the

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child body. Let the teeth and mouth of the child between the age of two and fifteen years be neglected until the teeth are removed to relieve suffering, or left decayed and broken down to the gum so they are of no use, and often abscessed and providing a continual exudation of pus, as well as lodgment for many germs of many of the diseases of the body, during the years when the child is growing and needs every function in perfect order, the child cannot masticate properly the food provided, is suffering, is swallowing food unprepared for digestion, and is swallowing bacteria to be assimilated through the system, and you are laying the foundation for a future ill health that will be carried by them to the grave.

Dr. Victor Vaughan, ex-president of your National Association, says:

"The mouth is the most important port of entry for infection.

"One or more decayed teeth with constant infection, so impairs the vitality of the child that physical and intellectual development is impossible.

"Deformity of the jaw and malposition of the teeth interfere with the proper development and function of the brains."

Dr. Osler says, "There is nothing so important to the health of the nation as the hygiene of the mouth," and added to that I make the assertion, "That there is nothing so important to the health of the coming men and women, as the hygiene of the mouth of the boys and girls of today."

Dr. Williams, Superintendent of Bowne Memorial Hospital for Tubercular Patients, says, "Seventy-five per cent of the children with tuberculosis have very bad teeth and oral infection, when the infections are cleaned up and the teeth restored, the chances for recovery increases, and the return of health is much more rapid."

Dr. Kneph says, "I defy the most skilled physician to either cure or help a tubercular patient which has decayed teeth in the mouth."

We as members of the professions cannot ignore these facts as stated by our leading confrère, the sooner we realize the truth of them, and with all our knowledge and effort in diagnosis and treatment, the more satisfactory will be our results, and prophylaxis in medicine by the aid of prophylaxis in dentistry, will produce the results unprecedented in their improvement of the health and strength of our fellow citizens.

Deformities.—Malformations or deformities of the mouth unless to the extreme are often not noticeable except only to those who have made a study of them, as no two normal human dentures have ever been created exactly alike, in fact it has never been demonstrated that Nature ever duplicated her forms; just so there have never been two cases of malformation exactly alike. Deformity of the teeth which reduces their function, impairs speech, and mars the facial lines are so prevalent that it is now almost a rule rather than an exception. Go where we may, wherever humanity congregates and we are confronted by those deformities in such numbers that we are amazed.

The reason for the great number of deformities is attributed to the mixture of blood of different races, as we note that in the Grecian and Roman ages when the blood was purely Grecian or Roman deformities were practically unknown.

Dr. Wuerpel says: "The tendency of modern civilization seems to be to create a law for each individual and in the face of complex and constantly changing conditions a fixed type as a basis or standard to govern the molding of the human face cannot be established, yet discouraging even as this seems, we believe there is a law for determining the best balance of the features or at least the best balance of the mouth with the rest of the features, which artists probably knew nothing of. It is a law so plain and so simple that all can understand, and apply it: that the best balance, the best harmony, the best proportions of the mouth in its relations to the other features require that there shall be the full complement of teeth, and that each tooth shall be made to occupy its normal position."

"It must be remembered by us all that it takes several years for the completion of the building, of a human denture. We must remember that all parts of the anatomy are liable to abnormalities in development, as your medical literature bears abundant witness, but that no part is more frequently at variance with the normal in its development than the dental apparatus, is evidenced by the fact that malocclusion of the teeth in some form is almost the rule rather than the exception.

We can better understand the reason of this when we remember that the dental apparatus is not an organ with but a single function, like the eye, or the ear, but that it is a very complex structure, with many functions, into which enter not only the jaw, dental arch, and teeth but the muscles of mastication, the lips, tongue, nasal passages, palate, and throat, and that in addition to the function of mastication these are also concerned in the vital function of respiration, and also in speaking, singing, whistling, laughing, crying—in short, in the expression of all the various emotions, the different parts and combinations of parts entering into the performance of these various functions and acts are so intimately associated that even slight inharmony in the growth and development of any one may ultimately involve the whole apparatus, interfering with the normal functions of all, and even producing repulsive deformities, for the influence of these parts on each other is always continuous and progressive toward the maintenance of harmony and normal if normal, and toward increase of

inharmony and the abnormal if abnormal" (Angle).

There are various causes for facial and mouth deformities, but time will only allow us to enumerate those that come under the attention of the general medical practitioner, the general surgeon, the rhinologists, and the laryngologist.

The sole object in establishing dental dispensaries, and the oral hygiene movement in our public schools, is to teach our future men and women the value of the teeth, or in fact the value of *a tooth.*

Every tooth of both temporary and permanent dentures have a function to perform, namely, assisting in keeping the full denture in perfect occlusion, as the loss of one deciduous tooth before the allotted time for the permanent one to take its place results in the eruption of the permanent tooth in malocclusion, and the loss of one permanent tooth results in a permanent deformity, which impairs the functions of the whole dental apparatus for all future time, therefore one cause of dental deformity is the loss of *one* tooth. The one way to guard the future welfare of our patients is to insist upon the care of every tooth both temporary and permanent that it may be retained.

Thumb, lip and tongue sucking habits so often formed by children cause many deformities, but if the habit can be broken before the permanent teeth erupt will reduce the number of cases of malocclusion.

The most serious and constant cause of malocclusion is nasal obstructions, namely, adenoid vegetation. Adenoids being a trouble of childhood, and most active during the growth and development of the denture, namely, before the age of fourteen years, it is very important that the rhinologists and the orthodontist should work together, as it is just as useless for the rhinologists to treat the nasal passages without the assistance of the orthodontist, as for the orthodontist to attempt to correct the deformities caused by nasal obstruction without the removal first of the cause by the rhinologist.

Every dental surgeon who makes a study of mouth deformities, has noted the effect of mouth breathing upon the future health of the individual, causing as it does the contraction or narrowing of the dental arch, the elevating of the hard palate which causes the obstruction of the nasal passages, the obstruction of the tongue, and finally the impairing of speech, and the function of mastication, and the marring of the symmetry of the face.

May we as members of the great professions of the healing art take in consideration finally that the deformities of the mouth from whatever cause, retard the functions of the lips, tongue, cheeks, the nasal passages, the hearing, and the speech, which although lessened at the age of fourteen or fifteen, by atrophy (in case of adenoids) the evil effects may last through life, and uniting our efforts assist in reducing this very serious cause of many future ailments of mankind.

Infection.—It has taken Doctors Mayo and Hunter to bring to the attention of the medical profession, what the dental surgeon has known and been advancing for years, that mouth infection or oral sepsis play an important part in the health or ill health of the individual. Someone has said, "A child's health is only as good as its teeth."

My only ambition at this time is to impress upon my hearers, that as through the mouth passes every substance which enters into the development and strength of the body, health is dependent upon its condition.

During the last few years the origin of many infectious diseases has been traced to conditions of the mouth and teeth. As in medicine so in dentistry the radiograph has become an important agent in diagnosis and by its assistance we have been able to uncover many of our shortcomings and by its assistance we are solving many problems and correcting many errors of the past.

An unclean mouth is one of the causes of many bodily weaknesses and the value of oral prophylaxis has been proven in many cities by the establishment of dental dispensaries, results of which have been that the child is healthier, and many nervous diseases and much retardation is eliminated, and thus the intellectual condition much improved; and the propaganda is to be continued until there will be established in every city and town a dental dispensary.

I have treated exhaustively the subject of malocclusion, as I believe therein lies the origin of many future mouth infections; to malocclusion is attributed the origin of pyorreah alveolaris: as teeth not in a position that is normal and thus not in use, or if in use are by irregularity receiving under pressure from an unintended direction are always pyorretic, and as pyorreah is not a disease of childhood (or not so prevalent) we believe the prophylactic precaution, namely early recognition and correction of malocclusion, will reduce the now increasing, practically incurable disease. Also irregularity of teeth make the cleansing of them more difficult, therefore providing lodgment for food and eventually caries.

"A clean tooth never decays," is our slogan, and to that might be added, teeth in correct position or occlusion are easy to clean, and therefore never decay.

Again the mouth conditions of the child affect the future health. By the neglect of the temporary teeth often until proper mastication is impossible, and the carious teeth provide lodging places for filth and bacteria, which is mixed with the food and swallowed, and also many teeth in that neglected condition become ab-

scessed and the exudation of pus is also carried into the system with the food.

If we as fellow practitioners of the different branches of medicine would unite our efforts, by early oral prophylaxis many of the problems which are baffling the medical world would be eliminated.

We have the value of strength demonstrated in the Germany Army of today where they have had compulsory dentistry in many cities, a child not allowed to enter school unless the teeth were in order. We have the neglect of teeth demonstrated in the English Army (the nation of the whole world that has neglected the teeth and mouth), where many, many men are obliged to return home because of mouth conditions.

In September a law in our state goes into effect which legalizes dental hygienists, a step toward the ideal we believe, as these trained young ladies may go into our schools and assist in educating as well as applying oral prophylaxis.

By our united efforts I prophesy a healthier, stronger and brighter coming generation.

THE ECONOMIC DISADVANTAGES OF COMPULSORY HEALTH INSURANCE.*

By WILLIAM GALE CURTIS,

Chairman, Educational Committee Insurance Economic Society of America.

IN order that we may have complete understanding, we must begin at the bottom and discover the foundation upon which it is proposed to rear this structure, Social Insurance. The foundation is the shoulders of taxpaying society. The plans are a theory that sets forth an enormous wage loss due to sickness, also the want, misery and suffering resulting therefrom. The plan for Compulsory Health Insurance has been submitted as a proper corrective measure, and is accompanied by arguments to prove their soundness, value and economy.

To economize means to save, and any plan for Compulsory Health Insurance must, if it is to be counted a success, either save money loss or else save the time loss, which is equivalent. Let us admit that the figures of loss are reasonably accurate, being approximately $18.00 per wage earner per year, or a total loss of $600,000,000 through sickness, annually; although we submit that the loss should be increased by 25 per cent, because wages have increased that much since the estimate was made. Can that sum or any considerable part of it, be saved, and what will it cost to make the saving? There is the whole economic problem, and so we now spread the plan of the promoters for search-light inspection, in order to discover its uneconomic aspects or economic disadvantages.

In the saving of dollars the plan offers no economy. It just pretends to make a saving. Let us not confuse *indemnity* and *saving*. The plan contemplates replacing a few of the wage-earners' lost dollars, the state contributing part, the employer part, and the wage-earner standing the balance. But that isn't economy or saving. It is accomplished by reaching into your pocket, lifting a few dollars and dropping them into the wage-earner's pocket.

To illustrate the point, let us divide this audience into three parts. Over here we have the state, over here the employer, and in between the wage-earners. It is now reported that as each wage-earner entered the building, sickness robbed him of nine days' pay, the loss in money being $18.00 each. What can we do about it? The state says, "I'll put $1.60 in each of their pockets; and you, Mr. Employer, must put $3.20 in each of their pockets." But is that a saving? No, it is merely replacement, and the loss stands at $18.00, and it will continue to so stand until a plan is devised that will prevent the loss. If the state and the employer could step outside and recover any part of the nine days' loss, there would be a saving, but not otherwise. So we record Economic Disadvantage No. 1.

The plan contemplates compulsory insurance, and includes about 80 per cent of all wage-earners, including farm hands, domestic servants, etc. It isn't difficult to frame and pass a law that says you must, but in many cases the law could not be enforced without aid of police power, and that would be cumbersome and expensive. Such laws as we have reciting penalties presuppose property upon which levy can be made, but it isn't likely that in the absence of property the law would deprive its non-complying citizens of their personal liberty. Can you imagine the horde of constables necessary to even try to enforce such a law—dashing from house to house weekly in pursuit of nickels and dimes, and failing to collect them, arresting the people? Can you see them chasing through the country after farmers and farm hands? Therefore, we say the law could not be enforced. We record Economic Disadvantage No. 2.

Then again, where it could be made to work, viz., on the payroll, through the employer, what a burden of extra labor and expense. According to the plan, industry must make its accounting at least twice a month. Do you realize what that means? Take the United States Steel, for illustration. All deductions to be on percentage basis. The employee contributes about 1 6/10 per cent, so every pay day, the paymaster's department must deduct

* Read before the Medical Society of the County of New York, January 22, 1917.

from each pay envelope 1 6/10 per cent, and must enclose a slip showing how it was figured. Then to the whole amount deducted the paymaster must add an equal amount as the employer's share, and then the whole amount of both must be distributed pro rata to as many carriers as there are carrying the risks. The workmen live all over town, and naturally prefer to be insured with some nearby carrier. If the rates of all carriers are not exactly the same, and they will not be, then the percentage would vary, and the paymaster's work would increase. All this expense is personal to the employer, and means that his cost would far exceed his 40 per cent contribution. We record Economic Disadvantage No. 3.

In the case of family servants or places with one or two clerks, the time waste incident to making weekly or bi-weekly payments would be enormous. So we record Economic Disadvantage No. 4.

Labor is migratory. Not only as regards different plants but regarding cities and states. A 100 per cent labor turn over per year is not unusual. It is not a matter of wages. Every employment department of large industries will tell the same story. Labor is constantly shifting. Under the proposed plan stop and consider the extraordinary amount of transfer accounting from one association to another. Every time a laborer shifts, his employer shifts also. Then what of interstate complications? Several hundred thousand wage-earners of New York live in New Jersey. Which state contributes the 20 per cent? If New York, it can exercise no supervisory capacity over the New Jersey Carrier Associations or over the New Jersey doctors. If New Jersey, it can exercise no rights of payroll inspection or collection from employers in New York. The same conditions would exist at Philadelphia, Cincinnati, St. Louis, Omaha, Chicago, Portland, Detroit and many other points. We record Economic Disadvantage No. 5.

The state must contribute 20 per cent of the whole cost, not to a central body, but to each carrier. How is the state to know the amount of its 20 per cent? The estimated whole cost is 4 per cent of the wage, so the wage must be determined, and in figuring wage, the bill says that board and lodging in case of servants, farm hands, etc., and wages and tips in case of waiters, barbers, etc., must be included. It will mean some job to do that auditing, but it must be done, otherwise the state couldn't possibly know what its 20 per cent would amount to. Then, after learning the amount, think of the work of distributing its 20 per cent in ever-varying amounts to the 1,800 or more carrier associations that would doubtless be established in this state. All the cost of this audit and distribution work is to be charged into the general expense budget of the state. So we record Economic Disadvantage No. 6.

The operating machinery of each carrier association, as outlined, is top heavy. The bill says not less than eight nor more than eighteen directors, so we can reasonably figure on twelve. The bill also says that the advisory council of each carrier association shall consist of not less than twenty nor more than 100, so a reasonable average would be fifty. Officers, managers, auditors, inspectors, examiners, stenographers, clerks, and then medical examiners, specialists, dentists, panel doctors, nurses, dispensary attendants, etc. Whole number associated with each carrier, approximately 100. Compensating all would mean heavy cost. Part of them serving without pay would mean the investment of much valuable time. The employer must perforce join just as many carrier associations as his workmen belong to, because the government of the carriers is vested in a board chosen jointly by the employees and the employers. We record Economic Disadvantage No. 7.

But cumbersome as this carrier association machinery appears, there is still a further handicap. The state under the law must have an elaborate organization. A supreme state commission with an advisory council of twelve elected by the carrier associations, a number of division headquarters, advisory medical board, arbitration committee, investigation and audit committees, etc., etc. An organization purely political in the choosing, and with all its salaries and expense payable from the general fund of the state, so that the cost would be concealed, therefore we record Economic Disadvantage No. 8.

Thomas Sewall Adams, Professor of Political Economy at Yale, says: "The most fundamental causes of inefficiency and waste in public service are indifference and ignorance. Ignorance of public work, its difficulties, its effects, its costs." Continuing further he says: "The diffusion of power and responsibility is the next most potent cause of waste in American government. The people elect a Legislature and then split it so that one branch can check the other. Executive officers are then elected to check and be checked by legislative bodies. Above them the courts and constitution operate as further checks; the whole system being one for impotence, not results, and making it almost impossible to locate responsibility for waste and inefficiency." We record Economic Disadvantage No. 9.

National economy contemplates the continuous employment of the maximum number of wage-earners, for the maximum number of days each year, therefore any plan that in its

application will act as a handicap for many, and will inevitably debar some from obtaining employment, cannot represent economy. One wage-earner out of every ten would fail to pass physical examination. Imagine for a moment that you collectively represent the examining staff of every mill, factory, dock, yard, office, store, etc., in the city. Your employers have set up their standards for employment, and their instructions to you will average about the same. Now comes the string of applicants. Defective eyesight or hearing, hernia, varicose veins, anæmia, rheumatism, ankylosis, asthma, diabetes, eczema, and a dozen other disqualifying conditions, including old age, and in the matter of obtaining employment, fifty would be old. Every tenth man you examine is below standard, therefore rejected. Can you see the line of rejected forming and growing? Can you see every other place of employment turning them away? What becomes of them? Some of them find work somewhere at some wage, but suppose that three of every ten discards are refused everywhere, and what is the loss? Three hundred working days each year for each permanent outcast. That means 120,000 outcasts in New York rendered ineligible by law, and the loss of their time will be exactly equal in days, to the loss of the 4,000,000 wage-earners of the state at an average of nine days each. Instead of making a saving of any part of the time already lost, the plan presents certain additional waste, and therefore we record Economic Disadvantage No. 10.

To confirm this feature, investigate any of the big industries that employ thousands of wage-earners, and that have installed various forms of social betterment departments. You will find that they have already set up physical standards, and that those who cannot qualify are turned away. At present this fact is not noticed because places of employment with social betterment features are few, but it is significant that they all demand physical standards, and with the advent of any general or compulsory plan, must come the discard class.

The argument of the proponents virtually declares that panel physicians are dishonest and cannot be trusted. The plan therefore provides that special medical directors associated with the carriers must declare a man sick before a panel physician can treat him, and the medical director must keep track of all cases and declare them well in order to defeat malingering and collusion between patient and panel physician. We record Economic Disadvantage No. 11.

No definite plan of compensating panel physicians has even been suggested, but there is voluminous record of strikes, wrangles and bitter strife between physicians and carriers abroad. The trend of the argument of the advocates is toward piece work, with a limit of clientele, and the cheerful prospect is for the panel doctor to step up to the paymaster's window weekly or bi-weekly and receive his pay envelope with the customary slip showing performance in hours or piece work. A social if not an economic disadvantage.

But economic disadvantages are not all measured in money. The loss of American spirit, individualism, thrift and self-dependence are all economic disadvantages. This plan is un-American. This country stands as a great monument to democratic rule; of government founded upon equal rights; upon a system of government repudiating the monarchial and paternalistic, and any plan to destroy our independence and set up in its stead a plan of partial dependence is to destroy by wholesale the now thoroughly inculcated ideas of thrift and providence. With the general enactment of Compensation Laws to cover, as they properly should, all hazards of occupation, and with Compulsory Health Insurance to provide for all other disabilities, what incentive remains to lay by something, as at present, for the rainy day? We record Economic Disadvantage No. 12.

Isn't it as a matter of fact the knowledge that the rainy day will come, and the necessity for providing therefor, that accounts for our enormous savings accounts, as evidenced by the records, and isn't most of the hardship and suffering at present due to the unthrifty habits of a large percentage of our wage-earners? Isn't it an indisputable fact that the average loss of 3 per cent of his annual wage would not impoverish the wage-earner? We record Economic Disadvantage No. 13. Compulsory thrift would be more reasonable, more feasible and more economical.

You gentlemen will all agree that 50 to 80 per cent of sickness is preventable. Several members of your profession have read papers going somewhat exhaustively into this matter, and they are all of one opinion, therefore we point out that any plan to pay out hundreds of millions in service and indemnity, when the proper administration of various state and municipal departments would save that money, is a plan to be condemned. We record Economic Disadvantage No. 14.

A National social disadvantage is in the end an economic disadvantage, and we submit that any plan that contemplates dividing society into a self-supporting and contributing class on one side, and a partially dependent class on the other side, is setting up a barrier that must react to the disadvantage of the nation. To tell the 4,000,000 wage-earners in New York that they are incompetent; that they must become wards of the state; that

they may not provide everything for themselves; that they must receive bounty from employer and state, is to deal a body blow to their most precious possession—personal dependence and independence. We record Economic Disadvantage No. 15.

Such a law would undoubtedly trespass upon the constitutional rights of the individual. The constitution does not declare unrestricted liberty for one, and restricted liberty for another. We record Economic Disadvantage No. 16.

Such a law would be confiscatory, in that it would without process take from one of his personal property and bestow it upon another. A radical departure from our well-defined laws covering property rights, and opening up wonderful possibilities, because all social inequalities could speedily be adjusted by amending the law and increasing the tax. We record Economic Disadvantage No. 17.

This country is above the need of any form of compulsory insurance. The conditions in Europe that gave rise to their plans, do not exist here. Wage poverty and paternalism were the causes. Their systems have failed. The cost is ever increasing. The amount of sickness has not decreased. The average period of disability has increased. The average number of cases of sickness per 100 wage-earners has increased. We record Economic Disadvantage No. 18.

The quality of medical service is condemned by all doctors who have any knowledge of its character. Search the records and you will find only failure. We record Economic Disadvantage No. 19.

What this country needs is proper prevention. Dr. Otto Geier of Cincinnati, who has spent years in social betterment work, aptly puts it when he says, "By proper methods and development of preventive systems the average loss of nine days per wage-earner can be reduced to two days, and when that is accomplished all this talk about loss and suffering and misery will disappear." Let us get that point fixed in mind. The only saving that will ever be made will come through cutting down the average period of loss, and that can come about only by a campaign of prevention in which you physicians should play a most important part.

To pass compulsory sickness insurance laws in advance of the general establishment of measures to preserve public health, prevent disease and to ascertain and correct physical defects in school children, is only an attempt to make water run uphill.

Every state and every city has its departments of health, housing, factory inspections, smoke abatement, sewers, water, streets and alleys, garbage, food inspection, etc., and the public is being taxed for their maintenance. Bring those departments to their highest efficiency, and make them do their work, and ⅔ per cent of the present wage loss will be saved. That means a saving of $400,000,000 per year at a nominal additional cost, instead of a continuing loss of $600,000,000, and an expense of at least half as much more. We record Economic Disadvantage No. 20.

Such a law would interfere with national progress, destroy existing relations between wage-earner and employer, between wage-earner and physician, between different branches of medical practice, between members of society, between employer and state. Would promote political and civil corruption. We record Economic Disadvantage No. 21.

If sociological theorists will stop trying to devise and promote plans to pay and continue paying more and more for social loss and turn their attention to a campaign of prevention only, capital, business, industry and labor will stand united with them, and industry and labor will, as it always has done, find a proper solution for its differences.

COMMENTS ON THE ARGUMENTS OF MR. WILLIAM GALE CURTIS.

By SAMUEL J. KOPETZKY, M.D., F.A.C.S.,

Chairman, Committee on Medical Economics, Medical Society, State of New York.

MR. CURTIS presents all the conceivable disadvantages of the Compulsory Health Insurance plan.

Our present purpose is to outline an analysis of these arguments. Space prevents a full analysis at this time.

He admits a monetary loss annually to our wage-earners of about $600,000,000 due to sickness and suggests that the figure should be 25 per cent more. He infers that the proponents of the Health Insurance Bill are trying to replace that loss, and argues that it cannot be done.

This loss is within the whole body-politic and truly it cannot be made good except by the creation of new wealth from outside sources. But the question he raises is not the one at issue.

The loss now falls entirely upon the wage-earner who of all the elements in our community is least able to carry it. Hence the 60 per cent to 80 per cent expenditures of the New York Association for Improving the Condition of the Poor was made necessary by sickness of the wage-earner.

The provision of health insurance is such that it distributes this loss over the whole community, easing the burden from the shoulders least able to carry it. Additionally by lessening the amount of sickness, even as the Workman's Compensation Law lessened accidents, it tends to lessen the entire amount of the loss felt and carried by the whole community.

That the more provident of the wage-earners have striven to indemnify themselves for some of this loss—at a profit to private industrial insurance companies—is evidenced by the fact that in 1914, $29,000,000 were paid to such companies by workers, who incidentally received mostly funeral benefits for their money. And policies in the majority of cases, are found to be lapsed at the end of five years.

Thus the recorded Economic Disadvantage No. 1, is found to be based upon wrong premises, and does not stand.

The argument culminating in Economic Disadvantage No. 2, which may be summarized as an argument that the law would be unenforceable because there is no property held by wage-earners, is hardly worth rebuttal. Wages is property. Has Mr. Curtis never heard of a court levy on wages or earnings? Once the working classes realize what the act offers to them, there will be no trouble about their share of the contribution.

Disadvantage No. 3, which states that the burden upon industry would be too great because of the record-keeping necessary under the act, might receive receptive attention had we not here in America evidence presented by the special tax upon alcohol and liquors, the tax upon tobacco, and the personal and corporate income taxes, that records can and would be properly kept. I saw no troubles in Germany among the householders regarding the contributions from family servants. The objection is negligible. No dashing constables are contemplated or necessary, and the personal liberty of no one is threatened.

That labor is migratory is true. That labor often migrates because the family has become debt-ridden because of some illness, and owes money to the whole neighborhood in which they reside, including the doctor, is also true. The Health Insurance measure will obviate this, and what is recorded as Economic Disadvantage No. 5, becomes as it were, a very distinct advantage.

If accounting is difficult, and there is much of it, because of transfer of the laborer from one locality to another, it cannot be helped. It is not an insurmountable objection. Will it be any more difficult than the transfer accounting of freight cars by railroads? Ask any traffic manager, and he will tell you how easily the problem is handled. Furthermore, we doubt—all arguments being conceded—that the amount of transferring from one carrier to another will in a year equal the transfer accounts of one railroad to another in a month, when keeping track of its rolling stock.

The same holds true regarding the auditing of necessary accounts to determine what quota is the share of the State. Such a question may very properly look formidable and very troublesome to groups of laymen or physicians, but ask the auditing department of any great corporation whether it is not feasible, and reasonably possible. If the great expense of these matters make them prohibitive why can private companies do such work at a profit to their shareholders?

Disadvantage No. 7 characterizes the operating machinery of each carrier association as top-heavy. Why? Because Labor has equal representation with Capital? Would Mr. Curtis find it less top-heavy were the carriers to place the indemnity features of the bill in the hands of industrial insurance companies, as in the Workman's Compensation Law, and hire physicians to do the medical work? Cannot one conceive that a better understanding of their respective needs and desires, their mutual advantages, and a clearer appreciation of each other will result from this association of Capital and Labor in mutual welfare work? This feature alone of this act must commend it to all who have *industrial peace at heart.*

Will Mr. Curtis tell us why small governing groups (he estimates that there will be 1,800 of them), representing the wage-earner and the employer, why shall they be politically corrupt? That's what Disadvantage No. 8 practically states. To advance this as an argument is to say that all labor and all employers are corrupt at heart and only wait proper machinery to put their corrupt wills into force. I hardly think that the opponents of Health Insurance will go that far.

And why shall their expenditures be any more secret than savings banks, life insurance companies, or other large corporations. These are all supervised by the State, and the carrier funds would likewise be under such supervision.

In Disadvantage No. 9, Mr. Curtis practically criticizes the American form of government with its various checks and balances. This form of democracy has well served the American People; and Mr. Curtis has hit the nail squarely on the head when he intimates that the Health Insurance Act has reproduced a similar set of checks and balances. There is no autocratic central body, no arbitrary commission, but a distinctly democratic form of control with the governing boards receiving their powers through the consent of the governed. Any student of American history will tell you, Mr. Thomas Sewall Adams to the contrary notwithstanding, that the American People have located responsibility whenever they wanted to, and the alleged waste and inefficiency in our form of government is not due to its form, but to the carelessness of our people, in addition to the great material abundance with which they are endowed. The People under our government, as under this insurance act, will receive just the sort of services they want. Nothing more and nothing less, and the machinery is there for them to use to procure for themselves as efficient governing boards as they demand. More is unnecessary.

To quote Mr. Curtis, "National economy contemplates the continuous employment of the maximum number of wage-earners for the maximum number of days each year, therefore any plan that in its application will act as a handicap for many and will debar some from obtaining employment, cannot represent economy." We concede all this. But who has said a word about debarring anyone? Who has said anything about physical examinations of the wage-earners? There is nothing in the Bill about it; so the whole sad story of the long line of disbarred workmen falls, because no one is trying to disbar any of them. From other sources we learn that the private corporations who have established voluntary health services have instituted such examinations, and because it means financial loss to these corporations they have debarred the partially unfit workmen who must perforce seek work elsewhere. The physically unfit are a charge upon the community anyway, therefore universal health insurance measures do not insist upon a physical examination as a prerequisite to joining the funds or procuring labor.

The young when they first go to work are generally fit. They become unfit because the slighter ailments are neglected until chronicity sets in. Under the bill, these younger workmen will have competent medical supervision during all their working years, and it becomes a distinct economic advantage to keep them fit by attending properly to their lesser ailments so that when they reach more advanced years, they will not suddenly be confronted with a possible voluntary medical service which examining them and finding them unfit will disbar them. The argument advanced by Mr. Curtis voices some of our objections to the voluntary private systems now in vogue in some sections of our community. So much for the so-called Economic Disadvantage No. 10.

In Economic Disadvantage No. 11, it is stated that the proponents of the Health Insurance Bill virtually declare that panel-physicians are dishonest and cannot be trusted. I wonder whether Mr. Curtis really means what he says! Does he not realize that the average doctor wants to retain under the provisions of this act, the same sacred relation between himself and his patient, that the family doctor now holds to his patient in private practice? It is not a question of honesty or dishonesty at all.

If the medical provisions of the bill can be so drawn, that the panel-physician shall not become an official of the funds,—a monitor upon the life and acts of his patients, then that is a very desirable provision from the medical standpoint, and does not impugn the panel-physicians' honesty at all. Furthermore if the proper professional attitude can be maintained under the act, then at some later period, when the workingman has advanced himself, and is no more a beneficiary under the act, then when that time comes,—he will retain his family physician to their mutual advantage. This arrangement also tends toward more efficient medical services and adds to the advantages of the measure.

The question of medical remuneration is truly not in the act. I deprecate any effort to put a fee schedule in the act. Our experience with the unofficial fee schedule under the Workman's Compensation Law is enough to make any physician object to it. Any minimum scale of fees made, would eventually become the maximum schedule, and I prefer to leave this matter to the various Local Medical Committees who know the prevailing fees in their respective localities. Such Local Medical Committees would be untrue to their constituents—the panel-physicians—did they not make contracts at no less a rate than the average medical fee prevailing in their own localities.

Thus is answered the so-called social and economic disadvantage cited.

If the plan is un-American because it is compulsory, then compulsory education, compulsory vaccination, compulsory income tax are all, also un-American; and Mr. Curtis' suggestion of compulsory thrift is also un-American.

That the act will not prevent thrift among our people, both Germany and France evidence. If it will, as contended, lessen self-dependence, then our charity hospitals and dispensarys should be closed to increase self-dependence. The act provides for the constitutionally improvident and brings relief where it is most needed, and it takes the greater burden of public charity off from the shoulders of the medical profession.

Hardship and suffering are concededly due to the unthrifty habits of a large percentage of our wage-earners as Mr. Curtis states, but to provide some percentage of relief to the wife and family of these unthrifty ones cannot conceivably be a repudiation of Americanism. The health and happiness of its citizens is properly the care of the State and the act provides the means for this care.

Who says the act would divide Society into a self-supporting and contributing class, and a partially dependent class? We were of the opinion that the whole community pays, and all are contributing. No one says that the 4,000,000 wage-earners in New York are incompetent, nor do they become wards of the State.

They simply do what Capital has long learned to do advantageously. They combine their resources for medical and surgical treatment, and for partial retention of their wages while ill and incapacitated.

Nor can a law be considered confiscatory when it takes nothing from anyone in particular, but equally levies a proportionate tax upon the whole population.

Were the law as disastrous to Industry as is

implied, how account for the fact that the great industrial nations of Europe all have it.

The quality of medical services given abroad are condemned, because they have not separated the panel physician from the Fund's Medical Officer. The American act provides for this, and medical practice can be carried out with the same high standards as under private practice.

Finally, why should the conjoining of the interests of Capital and Labor for mutual benefit destroy national progress? Does the National Civic Federation stand for a stoppage of national progress because employer and employee and the public interest are represented in one organization? Will not this act rather tend to multiply the very idea which underlies that organization? We should like to see detailed proof of how such an organization could stop national progress.

Concluding, I submit that the arguments advanced are not well grounded nor do they present sufficient reasons to accept them as having proved the so-called disadvantages of Compulsory Health Insurance, either from the Public viewpoint, the Laborers' standpoint, or from the interests of Capital.

THE NEED FOR HEALTH INSURANCE.*

By IRVING FISHER,

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IN the last six months, through the efforts of the American Association for Labor Legislation, a consciousness of the imperative need in this country for health insurance has dawned upon thinking Americans.

At present the United States has the unenviable distinction of being the only great industrial nation without compulsory health insurance. The enlightened nations of Europe have one after another adopted the idea. Germany showed the way in 1883 and her wonderful industrial progress since that time, her comparative freedom from poverty, reduction in the death rate, advancement in hygiene, and the physical preparedness of her soldiery, are presumably due, in considerable measure, to health insurance.

Following the example of Germany, health insurance was adopted successively by Austria, Hungary, Luxemburg, Norway, Serbia, Great Britain, Russia, Rumania, and Holland. Other countries have adopted a subsidized voluntary system, namely, France, Belgium, Switzerland, Denmark, Sweden, and Iceland. Thus the only European countries which, like the United States, are without any general system are Italy, Spain, Portugal, Greece, Bulgaria, Albania, Montenegro, and Turkey.

There are special reasons to hope that health insurance may win favor rapidly. The war has made labor scarce and therefore dear. This fact will make not only for high wages, but also for the conservation of labor.

Fortunately we have already taken one step in a conservation program. After a long and uphill fight, workmen's compensation has had a belated recognition in America. The American Association for Labor Legislation was foremost in this fight, and now at last it is ready for a similar fight to secure workmen's health insurance. For four years an able committee of this Association has been studying American conditions and foreign health insurance acts, and constructing a standard bill. This bill, with some variations, has been introduced into the state legislatures of Massachusetts, New York and New Jersey, and commissions to consider the subject have been appointed in Massachusetts and California and are expected to report in January.

The United States Public Health Service has issued a special study on Health Insurance by Dr. B. S. Warren and Edgar Sydenstricker. The American Medical Association has a working committee on health insurance of which Alexander Lambert is chairman and I. M. Rubinow, secretary. This association has published a report on social insurance. Several medical societies, including the Pennsylvania State Medical Society and the State Medical Society of Wisconsin, and several public health associations, have endorsed the principle of health insurance. The American Association for the Study and Prevention of Tuberculosis and many of its affiliated organizations have, through public meetings and otherwise, helped the movement. A number of charitable organizations have also favored the idea and forty-five organizations of various natures, including the American Academy of Medicine, the International Association of Industrial Accident Boards, the National Conference of Charities and Correction, the New York Chamber of Commerce, and the American Public Health Association have appointed committees to study and report upon health insurance.

The Federal Commission on Industrial Relations recommended health insurance. In accepting favorably the report on health insurance of its industrial betterment committee the National Association of Manufacturers at its annual meeting last May put itself on record as favoring the project. The Associated Manufacturers and Merchants of New York State have expressed their approval.

Many trade unions have taken up the subject. Some have strongly favored the idea; a few leaders have vigorously opposed it, apparently because of a groundless fear that in some way the power of the labor unions would be lessened. Thus some oppose health insurance as they at one time opposed compulsory workmen's compensation. On the other hand, several international unions, including the International Typo-

* Read before the Medical Society of the County of New York, January 22, 1917.

graphical Union, have definitely gone on record as favorable. State federations of labor in Ohio, New Jersey, Massachusetts, Missouri, Nebraska, and Wisconsin are favorable. A number of local trade unions have taken favorable action. Many individual labor leaders of prominence have definitely approved it; these include John Mitchell, Ignatius McNulty, Van Bittner, James H. Maurer, Andrew Furuseth, S. E. Heberling, John B. Lennon, James O'Connell, Austin B. Garretson, William Green and James Duncan.

The cordial and almost unprecedented welcome which this movement has received in spite of the opposition of strong vested interests and their industrious and insidious efforts to misrepresent and injure the movement would seem to indicate that the time for health insurance in the United States is ripe.

The plan as put forth by the American Association for Labor Legislation is fully described in its draft of a standard bill and defended in its *Brief for Health Insurance*. The bill proposes the obligatory insurance of substantially all workingmen and women. In case of sickness the insured will receive medical or surgical service, medicines, and nursing, and a cash benefit amounting to two-thirds of the weekly wages of the insured for the period of illness up to six months.

Benefits are paid for at cost by the joint contributions of the insured employee, his employer, and the state. The cost to the employee will average about 1½ per cent of his wages. I am here concerned, however, not with the merits of this particular plan but with the need of some plan of universal health insurance for workmen.

The need for health insurance, like that for most other forms of insurance, is twofold. There is the need of indemnification against loss, and the need of diminishing the loss itself.

Indemnification is the essence of the insurance principle. It spreads the loss of each person in a group over them all. For each individual it converts large fluctuating haphazard losses into small regular and certain costs. The well-to-do have long made use of the insurance principle. But the curious and melancholy fact is that outside of workmen's compensation the poor in this country have received, as yet, very little benefit from the application of it. Yet it is the poor whose need of health insurance is greatest, and for two important reasons. One is that the worker is more likely to lose his health than the capitalist; for it is well known from several lines of research that the death rate, and therefore the sickness rate, prevailing among the poor is from two to three times that prevailing among the well-to-do. The other reason is that any loss from sickness is a far more vital matter to the poor than to the rich.

To ascertain the exact extent of health insurance in the United States we need further investigation, but we know with certainty that the amount is small. At present the amount of such insurance in the United States as that under fraternal societies, labor unions, established funds, and insurance companies, covers only a small fraction of workingmen and women. Judging from the tentative estimates of Rubinow, only about 5 per cent of our workmen needing insurance actually have it. The other 95 per cent have been deterred by the high cost of such insurance under the voluntary system, by their lack of appreciation of its benefits, by the inertia of custom, and by the sheer desperation of poverty.

Also millions of American workmen cannot at present avail themselves of necessary medical, surgical and nursing aid. When they most need it they cannot pay for it. The Rochester survey of the Metropolitan Life Insurance Company showed that 39 per cent of the cases of illness did not have a physician in attendance.

Workmen's health insurance, like elementary education, needs must be universal, in order that it shall function properly; and to be universal, it must be obligatory.

Certain interests which would be, or think they would be, adversely affected by health insurance have made the specious plea that it is an un-American interference with liberty. They forget that compulsory education, though at first opposed on these very grounds, is highly American and highly liberative, that prohibitory laws on various subjects such as habit-forming drugs and even alcohol have introduced liberative compulsions in many states in America, and that workmen's compensation acts have introduced liberative compulsion in this very field of workingmen's insurance.

England, the most liberty loving of nations, the home of laissez-faire, adopted the compulsory system after careful and deliberate study of the German and other systems. It is also noteworthy that where, as in Switzerland, France, and Belgium, the half-way stage of a subsidized voluntary system has been reached, the tendency has been to convert this into a compulsory system.

In addition to the primary advantage of universality there are incidental advantages in the compulsory system, such as important economies in administration. The superintendent of insurance of the District of Columbia reports that the people who pay health insurance to agents who collect 10, 15, and 25 cents a week at the homes of policy holders "have to give up $1 for every 40 cents they get back." The National Convention of Insurance Commissioners in their examination of the fourteen principal companies writing industrial health and accident insurance found that the ratio of losses showed that the policy holders spent $1 to receive back a benefit of between 30 and 46 cents. These figures are in striking contrast to the results of the compulsory system abroad; even in England where the cost of administration is high because of the sup-

posed necessity of utilizing pre-existing friendly societies, the administrative cost amounts to only 14 per cent of the income of the national health insurance fund, or something like one-fourth to one-third the cost under the voluntary system.

Under the voluntary system the policy is apt to lapse just when it is most important that it should not. The Armstrong investigating committee in New York (1906) received testimony from one of the largest of the industrial life insurance companies to the effect that one-third of the policies lapsed within three months, one-half within a year, and nearly two-thirds within five years! Under the compulsory system there could be no lapses.

As important as is indemnification, it is far less important than prevention. Health insurance will stimulate preventive measures as the form of social insurance recently adopted in the United States, namely "workmen's compensation," has had the effect of greatly stimulating industrial methods in accident prevention. The health movement can be far more potent than the safety movement because sickness is more prevalent and more preventable than accidents. Pasteur convinced us that "it is within the power of man to rid himself of every parasitic disease," and his successor, Metchnikoff, went far to show us that normal life span, the Utopian ideal for future generations, is much beyond the century mark. Without looking so far ahead we may, I think, accept as conservative the calculations of the National Conservation Commission that at least 42 per cent of the deaths now occurring in the United States are unnecessary, or that over 630,000 lives could be saved annually by applying existing and known methods of life saving, which would add at least fifteen years to the average duration of human life. These estimates are doubtless over-conservative, as may be judged from the data of the Commission on Industrial Relations, from the recent health surveys of the Metropolitan Life Insurance Company, and from other evidence.

After some fifteen years' study of the preventability of sickness, I am convinced that the great virtue of health insurance, for decades, perhaps for centuries to come, will lie in the prevention of illness. It has already achieved considerable life-saving in Germany, although when the system was established there the idea of the preventability of disease was in its infancy. According to Dr. Zacher, reputed to be the best authority on health insurance in the world, twelve years were added to the worker's life span during thirty years of health insurance.

Health insurance will afford a very powerful and pervasive stimulus to employers, employees, and public men to take fuller and speedier advantage of possible health-saving devices. The standard bill of the Association is so drawn as to give any locality and any trade the benefit in lower contributions of any reduction in sickness rates which may be achieved, thus creating an immediate financial motive to reduce illness.

Just as employers have installed safeguards for dangerous machinery in order to reduce the cost of workmen's compensation, so in order to reduce the cost of health insurance they will supply, for instance, better sanitation, ventilation, and lighting, more physiological hours of labor, and fuller consideration for the special needs of employed women and children. Employers will collect facts and statistics as to sickness, analyze them and apply such corrections as the facts discovered indicate. It is especially to be expected that as soon as employers realize the nerve strain caused by over-long hours and consequent increase of illness and, therefore, the cost to themselves, they will acquaint themselves with the effects of long hours of labor and reduce them.

The employee, on the other hand, will be likewise stimulated to welcome and to utilize factory hygiene, and improve his own domestic and individual hygiene. The employee will be more ready to apply to his own internal machinery a principle, long since applied by his employer to inanimate machinery, the principle of inspection and repairs. After health insurance has been adopted slight impairments to health will be remedied before they become serious.

One important effect of such attention to the health of the workman will be the prolongation of his life and especially of its earning period. Fewer workingmen will be thrown on the scrap heap in their forties with all the tragic consequences involved to their families as well as to themselves.

Moreover, the cash benefit gives the workman a better chance for recovery as well as a more perfect recovery if attained; for, to the poor, the obstacles to recovery are largely economic—insufficient food or other necessaries, worry over making both ends meet, and the consequent necessity of a premature return to work while still half-sick. It is found that the longer the time given up to sickness which means the more care given to get well, the lower the death rate.

Again under compulsory health insurance both employer and employee will co-operate with the general public in securing public water supply, better sewerage systems, better milk, meat, and food laws, better school hygiene, more playgrounds and parks, and proper regulation of liquor and other health destroying businesses.

Health insurance will operate, as it did in Germany to stimulate the general scientific study of disease prevention, the future possibilities of which though unknown are, we may be sure, enormous. A German observer states that social insurance led to new knowledge in the field of occupational diseases, epidemics, and accidents. Lee K. Frankel, now of the Metropolitan Life Insurance Company, said at one time that "German insurance legislation has been effective

in producing a comprehensive industrial hygiene."

Dr. Bielfeldt, quoted by Frederick L. Hoffman, says: "The conviction may be expressed, after the experience of several years that an effective battle against consumption among the working classes would have been all but impossible without the workmen's insurance of the German empire, and, by the support of their powerful pecuniary resources and with the aid of national social regulations, in the end we are quite certain to be victorious."

In Great Britain the health insurance act has led to education on the prevention and treatment of tuberculosis, many of the insurance companies having arranged for lectures, moving picture shows, and other means of educating the public.

I venture to predict that medical and hygienic discoveries and applications will be far more rapid in the future than in the past. What directions these discoveries will take can only be guessed. I expect, however, that a new field will be found in what may be termed industrial psychiatry, the development of which will not only diminish definite diseases but will also diminish industrial discontent and give back to the workman what the economic division of labor has taken away from him—a real interest in his work. The studies of a few of us in economics, particularly Professor Carl Parker of the University of California, and a few in industry, particularly Mr. Robert B. Wolf of the Burgess Sulphite Fiber Company of Berlin, New Hampshire, have led to the conclusion that a fundamental, perhaps the fundamental, cause of industrial unrest is to be found in the fact that most workers at present cannot in their daily tasks satisfy the fundamental human instinct of workmanship. I anticipate that, within a few years, under proper stimulus, psychiatrists will be able to show employers how to make jobs interesting, through a system which enables the workman to understand and keep a record of the results of his efforts and to receive credit for them in the eyes of his fellow workers, his employer, and himself.

But prevention of disease and disability is not the only prevention to be effected by health insurance. It will indirectly but powerfully tend to reduce poverty. The simple operation of the indemnity principle itself tends to reduce poverty, for poverty today is largely mischance. When a poor man becomes sick, unless he can tide the emergency over by insurance or otherwise, he runs the risk of getting "down and out," for he has little or no margin. At present the American workmen without health insurance are gambling with their livelihood and in millions of cases are sure to be thrown out of the game.

Aside from the reduction of destitution, health insurance will tend to raise slightly the entire wage level. As Professor Moore of Columbia has shown in his *Laws of Wages* the wage level is fundamentally influenced by industrial productivity. Anything which raises the physical stamina of workmen increases their productivity and earning power. The Life Extension Institute found that out of 2,000 workingmen and women over 99 per cent were below their normal working power, i. e., were suffering from some condition or habit which subtracted from their efficiency. These minor impairments of health and efficiency are mostly preventable, and, in fact, in the group referred to, were in part prevented through the suggestions of the institute to the workingmen themselves.

Finally, we may expect health insurance to help forward industrial peace, for it will create machinery for continual conference between employers and employees.

We conclude that health insurance is needed in the United States in order to tide the workers over the grave emergencies incident to illness as well as in order to reduce illness itself, lengthen life, abate poverty, improve working power, raise the wage level, and diminish the causes of industrial discontent. It is not a panacea. It will not bring the millennium. But there is no other measure now before the public which equals the power of health insurance toward social regeneration.

INDUSTRIAL VERSUS PRIVATE MEDICAL PRACTICE.

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IN the practice of medicine, as in other lines of endeavor, no one branch possesses all the advantages without some of the disadvantages. This is fortunate as otherwise everyone would be flocking to that field which presented no drawbacks leaving very few, if any, interested in doing the remaining necessary work. While specialism in medicine is attractive to many, others hesitate when all the considerations are carefully weighed. The larger fees of the specialist; the relatively shorter hours and freedom from night work carry a strong appeal. But the long time of preparation and study before proficiency is attained; the necessity of an income in the meantime and the uncertainty of sufficient work once the training period is over serve to deter just as many from taking up special work. But how about industrial medical practice, the newest specialty? With its fixed and comparatively short hours of work as compared with general practice, the absence of night calls and an assured income from the start together with the opportunity of service to sick and injured persons on a large scale, it would seem to possess most of the advantages of other forms of special work with but very few of the drawbacks. Of one thing I am

quite certain—that it would be difficult to convince those of us engaged in this work that it is not at once the most interesting as well as the most promising field for the accomplishment of the greatest amount of good along the lines of preventive medicine. Let us consider briefly some of the advantages which this form of practice possesses as compared with private medical practice.

Preventive Medicine the Keynote of Industrial Practice.

First and foremost, the practice of medicine from the industrial standpoint is pre-eminently preventive. It is, in fact, a definite form of public health work as is evidenced by the existence of sections of industrial hygiene in both the American Medical Association and the American Public Health Association.

While the medical profession as a body undoubtedly stands for the elimination of disease and while certain altruistic physicians, in comfortable financial circumstances, earnestly favor any measures which tend to do away with sickness, to say that the average private practitioner wishes that his practice might become smaller and smaller, would be absurd; yet this would seem to be the ultimate result if the aims and objects of preventive medicine became a reality. It would be about as logical to assert that the lawyer looks forward to the time when men shall live together and conduct themselves and their affairs in such a manner that the need for legal services shall cease to exist. The lawyer and the physician in private medical practice present parallel cases. They cannot consistently be heart and soul in any movement which tends to destroy their livelihood. Dr. Richard C. Cabot, of Boston, puts it tritely when he says that the general practitioner who does his utmost to teach the prevention of disease is "sawing off the branch on which he is sitting." I take it that the individual physician is interested in assisting each one of his patients to recovery as rapidly as possible once the patient is ill; if he were not, he would soon have little or no practice whatever. In fact, upon his ability to materially aid the sick and injured depends his reputation and consequent success. On the other hand, what physician doing private work does not want his practice to grow? The aims and ideals of preventive medicine, however, are absolutely inimical to the growth and development of medical practices—the two ideas are directly opposed.

Medical men may be divided into two groups according to their attitude towards preventive medicine. Public health officers of city, state and nation; laboratory workers and those engaged in scientific research; medical teachers in schools and universities and finally full time industrial medical officers; all these are keenly and vitally interested in the prevention of disease. On the other hand, while most physicians in private practice may profess a mild interest in public health work it is difficult to believe that this interest is either heartfelt or genuine as the viewpoint is so entirely different. Until such time as we adopt the scheme of paying a physician a stipulated sum each year for medical attention and advice regardless of the amount of sickness he is called upon to treat, we cannot hope for any great improvement over present conditions. As a part of some such plan the idea of "group diagnosis" by a number of trained specialists constituting a diagnostic team, promises much. This method is in vogue at the present time at the University of California, the "pay clinic" of the Massachusetts General Hospital and in certain other places.

What occurs when an industrial worker suffers an accident or becomes ill? The employe is usually desirous of returning to work promptly, the company wants him back as soon as possible in order that the curtailment of product shall be slight and the company physician, working in the interests of both, takes a personal pride in his ability to cut short the period of disability as much as he can. The result is that the interests of the sick or injured employe, the company and the physician all run along parallel lines. All concerned are desirous of the return of the employe to work as speedily as possible. There are no conflicting interests, no counter motives or considerations; all are out for the accomplishment of the same purpose. This fact is responsible for probably the greatest single advantage of the industrial physician over the private practitioner.

Industrial Cases Seen Earlier.

Suppose an employe is not feeling well or suppose he has vague apprehensions about some imaginary condition or possibly he may have a trifling injury; any one of these or a dozen other conditions, while sufficient to worry him, may not cause him to feel justified in incurring the expense of a visit to his own doctor. But give him the privilege of consulting the company physician, without cost to himself, and he is quick to avail of the opportunity. Such consultations are often productive of great benefit to employes in enabling the physician to discover in its incipiency some condition or disease which, if neglected, might easily become serious before ultimate detection. On the other hand, the physician may quickly put an end to the employe's worry about some imaginary trouble. It is predicted that when industrial medical supervision is in general operation and when its privileges are fully realized by the employe he will not be nearly so apt to wait for pain or serious discomfort to force him to his family physician. When this point is reached a distinct advance in preventive medicine will have been accomplished.

Industrial Physician and Employe on Common Ground.

It has been said that the relationship existing between family physician and patient is more intimate than that between the people and any other profession—that not even the clergyman enjoys the confidences often freely given to the family doctor. This may still be so in some instances and in certain localities but I imagine that conditions are not as they used to be in this regard. With increasing popular enlightenment, with the frequent appearance of medical articles in the lay press and with discussions in the newspapers from time to time of the mercenary motives of a few unprincipled physicians, traditions are being upset and the implicit trust in the family physician so common in former years is rapidly disappearing. At any rate, the thoughtful industrial worker realizes that there can be but one motive back of the advice of the company physician, and that is the desire to give him honest, conscientious advice coupled with the effort to get him "back on the job" as quickly as possible in case he has been obliged to lay off work. Further, the industrial physician is in a position to state his views of a case truthfully and fearlessly so that the employe invariably gets "the straight of it." There is not the slightest temptation to see the case once oftener than is necessary; no incentive to advise an operation which, while it might not be at all harmful, is not needed; no temptation to act in any way with other than the real interests of the employe in mind. I do not for a moment wish to create the impression that physicians in private practice are actuated by anything but honest motives for I believe that the vast majority of them are perfectly fair with their patients. The point I wish to bring out, however, is that the temptation to be otherwise may be very great at times and that a doctor shall never be influenced in any way by a prospective fee requires a greater degree of moral courage than is possessed by the average person.

How different it is when an employe consults the industrial physician. With the removal of all pecuniary bias the case may be gauged entirely on its merits, final judgment resting solely upon the professional skill and ability of the physician.

Drugs Prescribed Only When Needed.

Oftentimes people consult a physician for troubles which are obviously the direct result of improper living habits; these cases constitute a really large proportion of any physician's practice. It does not take much questioning to determine that constipation, frequent colds, "tired feeling" and many other common ailments do not need drug treatment; all that is necessary is a little intelligent attention to proper habits of exercise, bathing and sleeping and the troubles soon disappear. It is a fact, however, that nearly every patient who consults a physician is not satisfied with such hygienic advice alone—he must have some medicine to take if he is to get well. This is a superstition which has been fostered from time immemorial by the medical profession and it is deplorable that the deception is still quite generally practiced. It may ease the patient's mind to be given a bottle of colored, flavored water or an innocuous sugar pill and this form of treatment may even effect a psychic cure at times but it is not helpful in educating people to the fact that every symptom, ache and pain does not call for a corresponding drug, plaster or liniment. As long as this state of affairs exists just so long will medical quacks and patent medicine manufacturers reap a harvest and the advance of public health through personal hygiene will be correspondingly retarded. It must be admitted that often the "successful" practitioner is the one who appears to take his patients' statements at their face value and, after listening attentively to a recital of minor aches and pains, "does something" in the way of prescribing or dispensing some form of medicine. Indeed, should he fail to do so, the unhappy patient drifts from doctor to doctor until he finds some one who *will* do something for him. Very often he ends up in the hands of an osteopath or chiropractor who "does something" for half an hour or so in the way of "adjusting" a misplaced (?) vertebra or in performing some other manipulation after which the patient pays the fee with no misgivings and goes away well satisfied that he has received an equivalent for his money. So it is really in self-defense that placebos (bread pills) are sometimes given by doctors, although this does not in any way lessen the harm created by the deception.

How is it in industrial practice? Does the company physician feel obliged to give medicine to every employe who consults him? Not at all. In this field, medicine may be practiced in the ideal way; precisely as it is practiced by a very few wealthy physicians who are not in the least dependent on their incomes for a livelihood and who have not the slightest concern if a patient changes doctors provided they feel that they have told that patient the truth and have refused to drug him when no medicine was needed. Where one patient in a thousand is seen who refuses to take medicine, the rest demand it. To always be in a position to tell the truth to those not in need of drug treatment is at once one of the great advantages of industrial over private practice as well as a step towards idealism in medicine.

Advantage of "Follow Up."

Physicians in private practice are often heard to remark, "I had a very interesting and unusual case under my care recently; he was doing nicely and making steady improvement but he failed to keep his last appointment and I understand

Dr. X. is looking after him now." Perhaps not just these words but the same idea. The physician may have taken an unusual interest in a patient and put forth extra effort in the endeavor to do his utmost to get results. Then, when recovery is in sight, the patient, for some unknown reason changes doctors. What physician is there with a practice of any size, who is not having such experiences constantly? It is discouraging to say the least.

The physician in industry, on the other hand, is in a position to observe the case of a sick or injured employe as often as he desires from the time of the commencement of the trouble until full recovery. Any employe who is sick yet still able to be at work, may be seen on five minutes' notice by simply telephoning the department in which he works. Or the employe may even be seen at home if the illness is a serious one in which case the visit is, of course, non-professional in character. Private patients, however, would resent what might appear to them as unnecessary visits and an attempt on the part of the doctor to "run up a bill."

Continuous observation for a period of a week or ten days is almost a necessity in forming an intelligent opinion in many cases of beginning tuberculosis. Also, in certain other cases such as fractures, amputations and operations for the cure of rupture, it is helpful to be able to check up one's work at intervals of one, three or six months. In industrial practice it is quite possible to do this, whereas in private practice once a patient is discharged it is exceptional to see him again until the next illness and even then he frequently consults a different physician. Other similar instances are constantly arising in the practice of medicine in which a correct diagnosis is impossible at the time of the first visit. To know how to treat an abnormal condition to the best advantage it is necessary to understand the basis of the trouble. At times, this may be determined at a glance but more often such is not the case. Perhaps certain laboratory tests are required and the patient seen frequently in order that the progress of the case may be noted before a diagnosis is reached. All this is part of the daily work of the industrial physician and to be able to follow up a case in this manner is valuable not only as an aid in diagnosis but also in furthering the general medical knowledge of the physician.

Extensive and Varied Experience.

Regarding medical experience, it has been said that the physician who has had the advantage of a year's service in a busy metropolitan hospital has gained the equivalent of five—some say ten—years of general practice. This also applies in a measure to the industrial practice of medicine. The physician in charge of an active industrial clinic often sees as many as fifty sick and injured employes a day. How many physicians doing private work are there who, regardless of length of practice, have such opportunities? To those who have the idea that the cases presenting themselves for advice and treatment at an industrial clinic are trifling in nature, a perusal of the monthly or yearly records of the medical department of a large manufacturing concern would prove most enlightening.

Unlimited Equipment.

The medical quarters of a large factory or industrial plant are known as the "hospital." With its waiting rooms, examining rooms, X-ray department, surgical dressing room, laboratory, sterilizing room and operating room it is truly a hospital in miniature, and with its usual interior finish of white enamel and tile is superior to some public hospitals many times its size. To have the use of such unlimited equipment is a great aid in diagnosis, and the clean, white surroundings are an important link in the chain which has for its object the prevention of infection. Another point in connection with the matter of equipment is that of drugs and medicines. With the price of many drugs soaring as a result of the war, physicians who are in the habit of dispensing their own medicines are often forced to discontinue the use of some of these drugs as their prices have become prohibitive. Living expenses are said to have increased fifteen per cent in the last five years; certain commonly used drugs cost as much as ten or twenty times their price two years ago, but medical fees remain the same. What is the result? Medicines "almost as good" are sometimes dispensed, whereas if the element of expense did not have to be considered, another drug might be used. This consideration does not enter into industrial practice. The sick employe receives the medicine indicated and no other, while the injured employe has the advantage of every surgical accessory which might aid or hasten recovery, regardless of cost. Because of these facts, it is not too much to state that in the matter of equipment and supplies, the industrial physician has the advantage over the *average* man in private practice.

Industrial Practice a Stimulus to High Grade Work.

It is common knowledge that when a person works hard for something or actually pays cash for it, a much higher valuation is apt to be placed on it, whether it be a suit of clothes, groceries, or medical service. Conversely, those of us who "get something for nothing" are often the most critical. These principles applied to industrial practice tend to put the physician on his mettle. All advice and treatment being strictly gratis to the employe there is sometimes apt to be a little hesitancy on his part in making the first visit to the medical de-

partment. Consequently, it behooves the physician to relieve any such suspicion or hesitancy, and also to see to it that his services are of such a character that the employe will go away well satisfied, and be a "booster" instead of a "knocker." To do this successfully requires a combination of ability, good judgment, personality and tact. The point I wish to make is that work of this character is the best sort of training for a physician, for if he is to progress and make a success of the work he must be well informed on the latest advances in medicine, and also alert to improve himself in every other way. Any work which provides such a stimulus as this presents a decided advantage rather than otherwise.

Present Status of Industrial Medical Practice.

Some physicians are inclined to look upon industrial medical supervision as a transient institution, and to regard the full time medical officer as somewhat of an intruder in the medical field. This is a mistaken idea, for although industrial medical supervision is still in its infancy, there are practically none of the larger industries that have not at the present time well organized medical departments. With such an extensive and growing field, and with so many physicians already engaged in this form of work it can be readily seen that industrial medical supervision must be regarded as a permanent institution, and that the industrial physician is an indispensable part of this system. Having the advantage of a closer touch with social and industrial medical legislation, the corporation physician is in a position to see more clearly the "signs of the times" and to note the general trend of events which is leading to a veritable revolution in the practice of medicine in this country. Workmen's compensation has already arrived in two-thirds of the states, and sickness, old age and unemployment insurance are on the way—they are bound to come, and probably within the next five years. At any rate, the field of industrial medical practice is definitely established and has come to be a necessary factor in the new order of things.

Conclusions.

1. Industrial medical practice is a form of public health work, and as such its principal aim is the practice of preventive medicine.

2. Sick and injured industrial employes are more apt to consult the company physician without delay in cases of minor illness and accident than if such services were not provided. This aids materially in the prevention of wound infection and in the early detection of disease.

3. The relationship between industrial worker and company physician is an unusually straightforward one, and is entirely free from the element of money. As a result of this, conditions are ideal for giving the employe the best possible service.

4. The industrial physician is in a position to prescribe drugs only when actually needed.

5. Patients in industrial practice may be seen as often as necessary or desirable without opposition on their part.

6. The number and variety of cases seen in industrial practice is great, thus providing wide experience for the physician engaged in this work.

7. The industrial physician has the use of unlimited equipment, and in this respect has an advantage over the average man in private medical practice.

8. Industrial medical practice provides a stimulus for high grade work for the reason that it requires ability, good judgment and personality to please thousands of employes.

9. Industrial medicine is a definitely established fact, and its field is being rapidly extended.

GASTRIC AND DUODENAL ULCER.*

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MY conclusions are based on an examination of the clinical records of 383 cases of gastric and duodenal ulcer operatively demonstrated in the Mayo Clinic during the period from June 1, 1915, to June 1, 1916. The various factors and their relative importance which in our experience contribute to successful diagnosis will be considered.

The opinion prevails among clinicians and surgeons of the widest experience that the patient's history is of primary importance. There is still good reason for maintaining this opinion. Others disagree in this, ascribing to the history a minor or secondary role. Those inclined to the latter view have freely criticised Moynihan's dictum that the diagnosis of duodenal ulcer may be made by correspondence. I freely concede that an extra-gastric lesion or functional state may engender symptoms so similar to those of ulcer as to deceive even the elect; that occasionally the usual symptoms in ulcer may be lacking; that the presenting symptoms may be those largely the result of complications. However in our experience, a characteristic syndrome carefully elicited and interpreted is present in the large majority of cases. We should next consider the diagnostic data supplied by a study of the secretory and motor function and by the roentgen ray. Gradually the fact has been evolved, that the results of routine gastric analysis per se, while essential because of their correlative value in most instances, are of secondary diagnostic importance. It is the determination of motor function rather

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than secretory function that is the primary consideration. The third factor in diagnosis, the roentgenoscopic and serial roentgenographic examination, which by virtue of rapid development and the high degree of efficiency attained by skillful and conservative roentgenologists, bids fair to share almost equal honors with purely clinical methods of diagnosis. Because of occasional inherent shortcomings in both methods our experience daily teaches us that the one is a necessary complement to the other and that the proper correlation of all data invariably makes for prompt and accurate diagnosis.

Before going into a specific consideration of the material studied it seems opportune to briefly review the etiology, pathogenesis and symptomatology of ulcer in the light of our present knowledge.

Since the epochal observations of Beaumont in 1833, we have made rapid advances. To him and to such investigators as Pawlow and his associates, Cannon, Carlson, and others, is due the remarkable increase in our knowledge of the chemical and physiologic processes. Medicine is founded on physiology, and physiology in turn, on physics and chemistry. Moreover, the allied sciences of serology and bio-chemistry have made noteworthy contributions. A proper appreciation of normal and morbid physiology is necessary for the interpretation of clinical symptoms. Nowadays in the consideration of disease processes in the stomach or elsewhere, our interest must be centered as much on the disturbed physiology as on the lesion itself. As a consequence, our knowledge with respect to secretion, motility, sensation, innervation, and other factors (in the presence of gastric ulcer, for example), in a large measure explains the symptomatology. Thus, diagnostic accuracy is greatly enhanced and expedited.

On the introduction of the stomach-tube by Kussmaul in 1867, examination of the gastric contents became the most important procedure in the diagnosis of gastric diseases and disturbances. It was truly a great advance, but after a time evolved into a formidable system without definite anatomic and physiologic basis.

Treatises written on the subject of gastric disease were voluminous and contained an array of apparent disease entities which must have caused genuine despair to anyone contemplating mastery of the subject. On the heels of this stage of affairs, came the revelations of the operating room, based on living pathology. This extraordinary advance is forever to the credit of American surgeons who were pioneers in clarifying and simplifying problems connected with gastric malfunction. Speculation and fine theories gave way to pathologic fact. Cases of recurring and distressing hyperchlorhydria which hitherto had been looked on as a functional state or secretory neurosis were definitely recognized as duodenal ulcer. Duodenal ulcer was proved to be three times more frequent than gastric ulcer. Derangements of secretion, motility, sensation, or a combination of these, and the various types of symptoms associated with them, previously recognized as disease entities, were not always actually diseases at all, but dependent on or secondary to, some systemic condition or contiguous lesion. Perhaps of greatest importance was the recognition of the frequency with which disease of the accessory digestive tract (gallbladder, appendix and pancreas) gave rise to disturbances of gastric function, and often simulated actual organic disease of the stomach. It is a striking anomaly in medical history that continental internists and surgeons who were pioneers in earlier gastric research were the last to recognize these truths. That the influence of their teaching is not yet over, is evidenced by too-numerous instances of energetic and long-continued treatment of disturbances of digestion engendered by extra-gastric disease.

Clinical and experimental research in the etiology and pathogenesis of peptic ulcer has again become active in the past decade. Numerous theories with respect to the former had been advanced in the past but no one theory was generally accepted. Acute experimental ulcers with a tendency to prompt spontaneous healing were produced in numerous ways. The infection theory to explain the origin of peptic ulcer has been revived. The recent brilliant findings of Rosenow[1] with respect to the role of the streptococcus, based on a series of convincing experiments, seem to prove the infectious origin of gastroduodenal ulcers. Certain clinical facts, recognized for some time, have direct bearing on his conclusions. Chronic infection about the teeth, pyorrhea, or blind alveolar abscesses, chronically infected tonsils, or sinuses about the head, are invariably present in ulcer-bearing patients. Aggravation of symptoms in chronic duodenal ulcer occurs during the months when throat and other streptococcal infections are particularly prevalent. Improvement in symptoms has followed on the eradication of infectious foci, usually in or about the teeth, tonsils, and accessory nasal sinuses. Streptococci of a certain grade of virulence, quite irrespective of their original source, are prone to localize in the mucous membrane of the stomach and duodenum of animals following intravenous injection and produce ulcers which resemble those in man, as shown by Rosenow. The frequent coincidence of disease in the appendix, gallbladder and duodenum or stomach is best explained on the basis of infection. Rosenow's researches, extending to this field in which all three lesions are simultaneously produced by streptococci of ceratin virulence and tissue affinity, seem conclusive in support of the infectious origin of most ulcers. He has shown the almost constant occurrence of streptococci in the depths of human ulcers.

Bolton's[2] experiments conducted to determine

the factors which may convert an acute ulcer, whatever its cause, into a chronic ulcer, showed in a convincing way the role that delayed motility played in combination with the acid of the gastric juice, which acts both as an irritant and necrotic agent. Rosenow also infers that the localization of streptococci in the depths of ulcers and tissues about them is an important factor in preventing the healing of the ulcer.

The actual factors concerned in the production of pain in peptic ulcer has been made a subject of renewed investigation. This is of immediate importance inasmuch as epigastric distress or pain is the most constant symptom, and a rational understanding of the pain mechanism is essential to diagnosis and treatment. It has generally been taught and believed that the pain was due to direct irritation of the sensory nerve endings at the base of the ulcer by the free hydrochloric acid or by mechanical means through peristalsis. Thus the corrosion theory gained many adherents and fairly effective systems of therapeutics on the principle of the control of corrosion by frequent feeding and sufficient alkalinization, were the result. It is a fundamental clinical fact that the distress or pain of an uncomplicated gastric or duodenal ulcer bears a fairly definite relation to alimentation, being present presumably at the time of maximum free hydrochloric acid concentration in the stomach and being relieved by any measure which neutralizes or removes this offending hyperacid chyme. Thus the relation of acidity to pain seemed plausible and valid. On the other hand, clinicians and scientific investigators for reasons clinical, physiologic and experimental, too numerous to be detailed here, felt that there must be another primary factor in the mechanism of pain production which would adequately explain painful phenomena in the absence of hyperacidity, even in achylia, in extragastric conditions, etc. In this respect the work of Hertz[3] in particular, Carlson,[4] Cannon,[5] Bolton,[6] Kast and Meltzer,[7] Ginsburg,[8] Edelman,[9] Duchese[10] and others has seemed to prove quite conclusively that intragastric tension, the result of hypertonus, hyperperistalsis and pylorospasm, however produced, is the immediate cause of pain. In order to reconcile acidity and pain on the ultimate basis of tension, Hertz offers a solution by explaining that excessive acid chyme passed into the duodenum prevents relaxation of the pylorus. Of course the effect of this acidity will depend on the alkalinity of the duodenal juice. Thus hyperacidity may cause hyperperistalsis, prevent relaxation of the pylorus in a naturally hyperirritable stomach and intensified gastric tonus results. Pain is accompanied by contractions and pain in gastric or duodenal ulcer is said not to be felt unless contractions are present.

Painful muscular contractions occur most frequently at the pyloric end of the stomach, and are due to an exaggeration of the normal reflex. The deeper layers of the gastric walls, especially the muscular layer, contain more afferent nerve fibers than the mucosa; hence, the ulcerated areas, when irritated, cause an exaggeration of the pyloric reflex, often with normal, and more frequently with hyperacid, secretion. As a result, the rise in intragastric pressure provokes pain. According to Hertz, the sensation produced by pylorospasm varies from a feeling of fullness to the typical hyperacidity pain relieved by milk, alkalies, etc. We have reason to believe that pylorospasm may cause very acute pain, simulating perforation. Especially in the presence of hyperacidity and hyperperistalsis, pylorospasm frequently occurs in disease of the gallbladder and appendix, and this theory best explains the gastric disturbances or suggestive ulcer symptoms arising in disease of these organs. Pylorospasm has even been demonstrated roentgenographically by Cole[11] to be due to reflexes from the terminal ileum and cecal region. Carman,[12] in like manner, has frequently shown it to occur in gastric ulcers remote from the pylorus. The exaggeration of the pyloric reflex, which is regarded as the basis of late pains, may occur in cases of hyperacidity and hypersecretion with or without ulcer, and in so-called vagotonic persons having the combination of visceroptosis and hyperacidity with late pain and no ulcer.

Symptomatology.—In view of the foregoing facts, we can anticipate the symptomatology in the majority of cases of ulcers and at the same time keep in mind those other conditions which may give rise to a similar train of symptoms. In recent years numerous contributions on the subject have appeared from time to time by representatives of the Mayo Clinic. Our clinical observations now are based on a series of over 2,500 operatively demonstrated cases of benign gastric and duodenal ulcer. Both types of lesions have many things in common symptomatically, with some variation in a certain percentage of cases. The majority of the case histories reveals a chronic, periodic or intermittent progressive course, especially notable in uncomplicated pyloric and duodenal ulcers. The periods of exacerbation alternating with symptom-free intervals are variable in duration, but usually extend over a period of several weeks to as many months. Such "spells" are characterized by a daily repetition of symptoms in which pain or distress bears a definite relation to alimentation, and is controlled or relieved by food, alkalies, lavage, or posture. It is not so much the character, degree, location or radiation of the pain, but the time of its appearance and means of control or alleviation which is diagnostic. If this relation is constant or fairly regular, other things being equal, the possibility of ulcer should receive primary consideration. The usual accompaniments of burning, gnawing, hunger or aching pain are pyrosis, belching, often regurgitation of sour fluid, and a sense of distressing fullness in the epigastrium. In over 75 per cent

of the duodenal ulcers this pain appears on an average of three or four hours after eating; in over half of the gastric ulcers, within one-half to two hours after eating. As a rule, the nearer the ulcer is to the pylorus, the later the appearance of pain, and the more remote or higher the ulcer along the lesser curvature of the stomach, the earlier the appearance of the pain.

In the event of hemorrhage, which occurs in an average of 30 per cent of all the cases, with the other features mentioned in whole or in part, the diagnosis of ulcer is justifiable in over 95 per cent of instances.

As has been previously stated, both gastric and duodenal ulcers, clinically speaking, have much in common, inasmuch as they tend to be chronic and intermittent in their manifestations and have the same group of symptoms. But duodenal ulcers have more well-defined symptoms, as the regularity of the case histories daily attests. However, in at least one-fourth of the gastric histories this regularity of the clinical course is quite indistinguishable from the duodenal syndrome. We have found it a working convenience to divide our cases into three main groups: (1) the regular type of duodenal ulcer; (2) the regular gastric type; (3) the irregular ulcer type. The first of these needs no further elucidation. The second or gastric type should be considered because it is in the main the syndrome of chronic gastric ulcer, concerning which there has been so much uncertainty in the past. The onset of pain or distress appears sooner after meals, is briefer in duration, usually disappears before the next meal, or may cease and temporarily reappear during the interval. The pain is often eased by food, though not so clearly or completely as the pain of duodenal ulcer. Fear of food pain is more often noted. Small amounts of food will give ease when larger amounts may provoke pain; nausea, belching and emesis are more likely to be present. In cases of uncomplicated gastric ulcer careful diet seems to give more relief than in cases of duodenal ulcer. Exacerbations are likely to be more frequent, although shorter in duration and more easily follow on fatigue, exposure or dietary indiscretions. In many instances, a definite intrinsic complaint runs through the history, less distinctive than in duodenal ulcer, and there is a lack of assuredness in the diagnosis. However, the combination of pain soon after meals, continuing less clearly to the next meal, with a tender point and pain radiation to the left epigastrium, and the predominance of hematemesis over melena, is strong presumptive evidence that the lesion is situated on the gastric side of the pylorus. The third or irregular ulcer type has lost the distinctive time of onset of symptoms and their control. This is often the result of complicating factors such as pyloric stenosis, perigastric adhesions with chronic perforation, hour-glass contracture or extensive ulceration. This type of history does not run a clear-cut course, "chemical" distress and food ease being less definite, but in spite of an apparent irregularity the complaint is clearly that of an intrinsic gastric lesion. Day by day during the period of attack, the pain, vomiting, distress, gas or regurgitation are the results of taking food. Relief is found in abstinence, bland diet, alkalies, lavage, or other individual agency. In its very inception such a complaint may be irregular and complicated, but in many instances careful inquiry into the earlier period brings out clear-cut ulcer features which strengthen the final diagnosis. Ulcers well up along the lesser curvature, may present this irregular train of symptoms. Duodenal and pyloric lesions less frequently present them, and then only when some complicating factor has been superimposed. Such irregularity is sometimes characterized by brief painful seizures simulating hepatic colic, the result of chronic or subacute perforation, or unusually painful pylorospasm. The acute perforative ulcers can be recognized by the manifestly severe and grave symptoms. Their proper interpretation is made easier if clinical evidences of ulcer antedated the perforation. However, even skillful clinicians and surgeons erroneously interpret the supervening phenomena (peritonitis and gravitation of fluids to the right fossa with local muscular rigidity) as an acute perforative appendicitis unless careful inquiry is made. Such inquiry is justified in the face of greatest urgency.

The so-called "silent" or latent nature of ulcer is often strikingly evident clinically, and substantiated by the disclosures of the operating room or postmortem findings. The first tangible signs of an ulcer may be the result of pyloric stenosis, a hemorrhage perforation or malignant process. In an average of 5 per cent of our cases recurring hemorrhage with a few or none of the usual associated signs is the primary symptom.

Problems in differential diagnosis are concerned chiefly with instances of disturbed gastric function, the result of extragastric disease. I refer particularly to disease conditions of the gallbladder, appendix and pancreas—the accessory digestive tract. In many instances, such disturbances may simulate disturbances accompanying peptic ulcer even to hemorrhage, so that differential diagnosis is exceedingly difficult, taxing all our resources. Sometimes a proper conclusion is not reached even after extended observation and proper therapeutic management. Generally speaking, careful analysis of symptoms during the period of attack is most vital and helpful. The day-by-day symptoms vary—today one effect, tomorrow another; one day food may ease or relieve, another day it provokes. There is a certain capriciousness, as a rule, not consistent with the usual factors that obtain in the presence of a peptic ulcer. The irregularity is concerned chiefly with the time of the appearance

of pain and the influence of food. Probably the basis for this lies in the fact that the stomach functionates normally unless irritated by the contiguous lesion, and the extrinsic lesion is irregular in its influence. Moreover, the periods of exacerbation are less regular in appearance, briefer in duration, except in cases of impacted gallstones. Usually on one or more occasions during the life history of the disease definite localizing symptoms are present which should be inquired into.

Another factor of great diagnostic, therapeutic and surgical import, is the co-existence of disease in the stomach or duodenum, gallbladder and appendix. In a recent article, I noted the association of chronic cholecystitis or cholelithiasis, or both and chronic appendicitis in conjunction with peptic ulcer in 9.7 per cent and 40 per cent respectively.[13]

The Significance of Physical Examination.

Of primary importance in the routine examination is the detection of muscle-spasm or resistance, tender point, mass, succussion splash, visible peristalsis, and percussion boundaries of the stomach. A rigid rectus is indicative of an inflammatory or perforative process. Tender point in uncomplicated ulcer, except during some instances of acute exacerbation, is usually absent. There is more or less epigastric sensitiveness in all cases having gastric disturbances irrespective of the cause, so that especial care is necessary in making a proper interpretation. However, a definite localized and fairly constant tender point, often corresponding to the pain area, has diagnostic significance. Chronic and subacute perforating ulcers are invariably sensitive to pressure. Ninety-five per cent of all epigastric tumors or masses in association with intrinsic gastric symptoms are malignant; the remainder are the result usually of an inflammatory process. A small, non-sensitive, movable mass having a tendency to disappear and reappear, is characteristic of a palpable pylorus. Peristaltic unrest of the stomach signifies obstruction and is always looked for when evidence of retension is at hand. This sign may often be brought out by careful kneading of the abdomen or by gaseous distension (sodium bicarbonate and tartaric acid). In the large majority of cases the physical examination of the abdomen in benign lesions is of least diagnostic value owing to the usual absence of these signs.

Significance of Gastric Analysis.

Examination of the gastric contents is done routinely unless there are urgent contraindications. The gastric contents are removed twelve hours after a modified Riegel meal and one hour after an ordinary Ewald test-meal. The recovery of gross food remnants usually signifies organic obstruction. Marked hypersecretion of 200 cc. or more in the absence of food remnants, is characteristic of ulcer, other things being equal, and is most frequently found in the presence of pyloric or duodenal ulcers. Hyperacidity is the rule in 60 per cent of gastric and 75 per cent of duodenal ulcers. Achlorhydria, except in very old patients, argues against benign ulcer. The presence of blood, fresh or altered, is of relative diagnostic value only. If blood persists on frequent examinations, the possibility of cancer must be considered. Sarcinae signify stasis. Normal or subnormal acid values are found in the presence of ulcer in 15 to 20 per cent of all cases. Hyperacidity and hypersecretion, even stasis of the first degree, are frequently associated with functional states, ptosis and extragastric lesions. In the main, conclusions must not be drawn from a single or even repeated gastric analysis. The real importance of chemical and microscopical analysis of gastric contents is in its correlation with other data. Examination of the feces for occult blood is not routinely done in view of other more direct reliable methods of diagnosis—the nature of a benign, callous ulcer invariably precludes a bleeding element, at the best the bleeding is intermittent. On the other hand positive occult blood reactions may be the result of minute hemorrhage extrinsic to the stomach or duodenum, ranging from a bleeding gum to a rectal polyp or internal hemorrhoid. Such examination, however, is uniformly undertaken in certain instances, especially in cases of supposed ulcer associated with anemia, but with no evidence of gross hemorrhage; in cases in which persistent positive reactions may help differentiate between a benign and primary or secondary malignant lesion; and in cases undergoing medical management to determine the influence of treatment.

The Significance of Roentgenologic Examination.

The combination of roentgenoscope and roentgenograms, when indicated, marks the most recent important and far-reaching advance in the diagnosis of gastro-intestinal lesions. In the hands of competent, experienced roentgenologists this method is sharing honors with the usual clinical diagnostic methods. In their enthusiasm some roentgenologists would do away with all other methods—an attitude both unscientific and harmful in its influence on the profession. If in some instances roentgenologic examinations have usurped usual clinical methods, it was not because the latter were at fault, but because they were not sufficiently employed. Speaking from the standpoint of the internist, the roentgen method has the following particular advantages:

1. The screen gives accurate information regarding form, tonus, peristalsis, size and position of the organ.

2. The roentgenologic bariumized carbohydrate double-meal method is a most sensitive test for gastric motility, since it shows delay of evacuation beyond six hours and yields information as to hypermotile conditions.

3. The cardinal and most dependable roentgenologic sign of gastric or duodenal ulcer is a defect in the contour of the luminal outlines, expressed in terms of niche, accessory pocket (in gastric lesions), or deformity of the duodenal cap. This could be demonstrated conservatively by my associates in studies of large series in an increasingly high percentage of cases.

4. This method affords the only reliable means of localizing the lesion. Although the clinical history and the results of physical and chemical examination invariably justify an unreserved diagnosis of ulcer, they do not indicate with any certainty whether such ulcer is gastric or duodenal. Graham[14] has recently contributed to the literature an exhaustive study bearing on the differential clinical characteristics of both types. He concludes that no symptom or group of symptoms can more than suggest location, and often, as the histories show, the gastric case may have the pure duodenal syndrome, and the duodenal case may quite as clearly give the gastric type of symptoms.

5. The roentgenogram best reveals unexpected instances of multiple ulcers, hour-glass deformity and other abnormalities, including organic gastric syphilis.

6. The roentgen method has its most unfailing application in the recognition of gastric cancer, and in the frequent detection of gastric ulcer undergoing malignant change. Besides, it usually gives an index not only as to location in such cases, but also as to type, extent and operability. Negative roentgen findings in cancer suspects are most convincing evidence of the absence of disease.

While obviously the roentgen examination is essential it should not be undertaken until a careful history has been taken and the complete physical and laboratory examination made; it should not be resorted to as a first aid nor should it be contrasted with the clinical evidence for it is a part of the clinical examination. Otherwise erroneous conclusions may be drawn. Daily experience attests the value of the combined procedure in establishing within a brief period the proper diagnosis in all but a negligible few cases.

Statistical Review.

During the period between June 1, 1915, and June 1, 1916, there were 275 cases of duodenal ulcer and 108 cases of gastric ulcer operatively demonstrated at the Mayo Clinic, or a total of 383 cases. These are exclusive of the cases clinically diagnosed and placed under medical management.

In the 275 cases of duodenal ulcer, the clinical course and characteristic symptoms, or in other words, the syndrome of duodenal ulcer, was regular in 225 (82 per cent). The gastric ulcer type of syndrome was present in 8 per cent. The total number of cases with an ulcer syndrome amounted to 90 per cent. In the remaining 10 per cent the clinical features were atypical, so that in the absence of laboratory data or more extensive observation, no diagnostic conclusion could have been reached. Hyperacid gastric contents were noted in 80 per cent, gross pyloric obstruction in 10 per cent, and hemorrhage, single or repeated, in 25 per cent.

A primary clinical diagnosis of duodenal ulcer was made in 81.4 per cent, gastric ulcer in 4 per cent—a total of 85 per cent. An erroneous diagnosis of gallbladder disease was made in 9.4 per cent. These percentages average up well with the results of former statistics. Appendicitis was the sole diagnosis in 3.6 per cent of the cases.

Definite roentgen diagnosis of duodenal ulcer was made in 67 per cent and the roentgen examination rendered assistance in a further small percentage. In a total of 93 per cent, the diagnosis of ulcer, primary or alternative, was recorded. Of 275 patients, 242 (88 per cent) were submitted to the test-meal and roentgen examination. Of 108 patients with chronic benign gastric ulcer, sixty (56 per cent) had the clinical characteristics of the purely gastric type; 37 per cent of the case histories, while indicating ulcer quite clearly, did not designate whether it was gastric or duodenal. In the remainder the clinical history was so irregular or insufficient as to have no contributory diagnostic value. Gross obstruction was noted in 14 per cent, hyperacidity of the gastric contents in 72 per cent, anacidity in 2.8 per cent, hemorrhage in 25 per cent, i. e., hematemesis in 10 per cent, both hematemesis and melena in 12 per cent, and melena alone in 2.8 per cent.

In eighty-six (80 per cent) of the 108 cases a primary diagnosis of gastric ulcer was made. The results of the roentgen findings were included in this percentage. In eighteen cases (16.6 per cent) a primary diagnosis of duodenal ulcer was made. Thus there was a primary diagnosis of ulcer in a total of 104 of 108 cases (96 per cent). This unusual showing and localization of the lesion was made possible through close routine correlation of clinical and roentgen data. Cardinal signs of ulcer were demonstrable in seventy cases (65 per cent). In another 13 per cent the roentgen findings of a lesion in correlation with clinical data justified the diagnosis of ulcer. Thus in a total of 78 per cent of the cases there was direct roentgenologic data, and in this particular series these findings were of primary importance in the diagnosis and localization. Of interest was the presence of a six-hour barium residue in varying amount in 40.7 per cent of the cases, in contrast to 13.4 per cent in the duodenal series.

During the same period of one year, 1,019 cases of gallbladder disease came to operation. Because of the difficulties in making a differential diagnosis in a certain percentage, the cases in which ulcer was considered in the diagnosis were studied to determine what factors gave rise to such diagnosis. In seventy-six, more than 7 per

cent, a primary or alternative diagnosis of ulcer was reported. Fifty-nine (78 per cent) were of the chronic cholecystitis or "strawberry" gallbladder type, in which gastric remittent disturbances and, in a considerable measure, characteristic symptoms of ulcer are likely to occur. Gallstones were present in seventeen other cases in which ulcer was considered in the diagnosis—an unusually low percentage (1.6), in view of the total number of cases. Taking first the fifty-nine cases of chronic cholecystitis without stones, the following interesting clinical data are noted: In fifty-six (95 per cent) pain or distress bore definite relation to the ingestion of food; ease from food was experienced in 69.5 per cent, ease from alkalies in 32 per cent. Duration of attacks at times for periods of two weeks or longer was recorded in more than 55 per cent. Hyperacidity was present in 46 per cent and hemorrhage in 22 per cent of the series. Incorrect roentgen diagnosis (ulcer or lesion) was recorded in 22 per cent, and this factor has a large influence in the final diagnosis in view of the clinical symptoms.. Food remnants were recorded in one instance only—a six-hour barium residue in two. In numerous instances pylorospasm and direct involvement of the stomach by extensive adhesions was apparently evident. The hemorrhages are explained on the basis of a follicular erosion of the gastric mucous membrane superinduced by spasm and infection.

In the seventeen cases of cholelithiasis, similar clinical, chemical and roentgenologic factors were present to give the basis of a primary diagnosis of ulcer in 59 per cent, and a secondary diagnosis of ulcer in 41 per cent. However, the alternative diagnosis of gallstones was recorded in all cases because of intervening acute seizures characteristic of hepatic colic. All in all, these data show the extreme difficulty in making satisfactory differential diagnosis under the circumstances in a small percentage of cases.

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TORTION OF THE PEDICLE OF OVARIAN CYSTS COMPLICATING ACUTE APPENDICITIS.*

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TORTION of the pedicle of an ovarian cyst was first mentioned by Rokitawski, in 1841, and in 1855 he reported thirteen instances, probably all observed post mortem. The first clinical description was by Ribbentrop, in 1865, while Wiltshire, three years later, reported the first successful operation for the condition. Since then a voluminous literature has accumulated, that relating to its occurrence during pregnancy and the puerperium being particularly rich. It is pre-eminently a disaster of the pregnant state, being observed three times more frequently in pregnant than in non-pregnant women. And the woman who has harbored an ovarian cyst safely through pregnancy and labor is in still greater jeopardy during the first few days after delivery. Some degree of rotation is found in upwards of 35 per cent[1] of all cysts operated upon and actual strangulation in from 8 to 15 per cent.[2] Sutcliffe[3] and Loving[4] have reported successful operations in children of three and six years of age, respectively.

A number of writers[5 6] report instances in which tortion, sometimes of left-sided cysts, has been mistaken for acute appendicitis, one patient having had repeated attacks. But as a complication of acute appendicitis, tortion of the pedicle of an ovarian cyst is either so common that such cases are not reported or must be extremely rare. If the latter, my experience has been unique for I have met with it four times within the past three years.

In reviewing the complications of 500 consecutive cases of appendicitis, J. N. Hall[7] encountered it but once. Rushmore[8] collected 113 cases of tortion and added one of his own,

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but made no mention of associated acute appendicitis in any of them. Again, Storer,[1] who in 1896 collected and reviewed 248 instances of tortion, in one of the most exhaustive papers I have found, says nothing about its relation to acute appendicitis. A member of this Society, H. P. Jack,[9] has spoken of the "confusion of diagnosis between acute appendicitis and ovarian cyst with tortion of the pedicle," and both he and R. B. Hall[10] call attention to the tendency of the profession to attribute all acute abdominal symptoms occurring in a woman the known host of a tumor of her generative organs, to some accident involving the tumor, and the latter warns us to be on the lookout for other possible causes in such cases.

The first paper bearing directly on the association of acute appendicitis and tortion which I have been able to find is the report of such a case by Henry D. Fry[11] in 1905. His patient was operated for acute appendicitis at the fourth month of pregnancy. An unrecognized ovarian cyst with tortion of its pedicle was found overlying the inflamed appendix. The patient recovered and I believe, went to term.

Then in 1906 appeared a review of the subject by J. T. Hewetson,[12] Assistant Obstetrical Officer of the Birmingham (England) General Hospital. He was able to collect reports of but seven such cases to which he added one of his own. As his paper appeared more than a year after that of Fry, it is likely that Fry's case is included in the seven, but as Hewetson fails to give the sources of his cases, one can not be sure of this. His personal case is that of a nullipara supposed to be pregnant, but without cessation of her menstrual function. At about the reckoned termination of pregnancy the patient was seized with severe abdominal pain, not intermittent, vomiting and elevation of temperature, but as there was no dilatation of the os, no softening of the cervix, no fetal heart sounds, no mammary secretion, or other signs of pregnancy or labor, an exploratory operation was undertaken, disclosing perforative appendicitis and a seventeen-pound ovarian cyst with strangulation of the pedicle. The patient recovered. Had it not been for the intercurrent appendicitis and tortion this patient might have been distinguished among her neighbors as a case of prolonged pregnancy.

A fairly thorough review of the literature from 1890 down, including the material of the Surgeon-General's Library, has failed to reveal any other examples of this association. To these seven, or possibly eight cases, I desire to add the following four personal cases:

Case 1.—Mrs. B., referred by Dr. Sarah Green, February 3, 1913; age twenty-eight, married, multipara. Previous history negative. Present illness began February 1st with epigastric pain which soon shifted to McBurney's point, vomiting, elevation of temperature, acceleration of pulse and right rectus rigidity. Dr. Green diagnosed acute appendicitis and urged her removal to a hospital on this and on the following day, but was only successful in having this advice carried out on the third day. I saw her soon after her arrival at the hospital. She was in severe pain, had been vomiting a great deal and had a temperature of 101 and a pulse of 125, of high tension. Examination disclosed a large, smooth, globular mass, the size of a pregnant uterus at between the third and fourth months, occupying the middle of the lower abdomen. It was tender upon manipulation, but when asked to indicate her pain, the patient put her finger over McBurney's point. Dr. Green declared that this mass had developed since her examination of the day previous. Pregnancy was excluded by the rapid development of the tumor, by the history of regular menstruation, by the firmness of the cervix, the color of the vaginal mucous membrane and the absence of either enlargement or secretion in the breasts. Neither could the mass be a localized abscess —it was too large and too definitely outlined.

Abdominal section proved the mass to be a cyst of the right ovary, strangulated by tortion of its pedicle. Its walls were thick and edematous, almost black in color, its dilated veins were thrombosed and its contents hemorrhagic. It was removed without difficult and the appendix was found to be acutely inflamed, the tip being badly thickened, adherent, and very angry. The patient recovered. When questioned later, the patient said that for some months she had thought her abdomen was a little larger than formerly, but had paid no attention to it.

Case 2.—Miss K. H., referred by Dr. C. G. R. Jennings, January 2, 1915; age 19. Menstruation painless but usually delayed from one to two weeks. Had had a few attacks of slight pain in the region of the appendix but never was disabled by them. An apparently typical attack of appendicitis came on late in the evening of January 1, 1915, with vomiting, localized pain, tenderness and right rectus spasm. She was seen by Dr. Jennings and Dr. Charles Haase, who were agreed as to the diagnosis of acute appendicitis, and was taken to the hospital where I saw her early the following morning. Upon examination, I found the symptoms as given above and also a large, tender mass in the median line above the pubes. Bimanually, per rectum, it gave the impression of being a pregnant uterus and in this case we had the history of delayed menstruation. Drs. Jennings and Haase, however, had found no such a tumor six hours before.

Operation disclosed a cyst of the right ovary with tortion of the pedicle, with the usual appearance of strangulation, and when this was out of the way, we found the appendix moderately inflamed, with distended capillaries and containing gas and fecal matter. A small cyst of the left ovary was excised, saving the ovary. The patient's mother told me afterward, that she had noticed, for a few months, that her daughter's waist bands were quite tight for her and she thought she was taking on flesh. Recovery.

CASE 3.—Mrs. A., seen with Dr. H. H. Ford, May 23, 1915; age 31. Previous history negative except for a slight attack of appendicitis three months before. She is now five months pregnant for her first child. Dr. Ford would have advised operation at the first attack but for this. Present attack began on May 21st, late at night with vomiting, severe pain in epigastrium which became localized by morning around McBurney's point, and temperature of about 100. I saw her the next day and her condition not improving, we operated the day following. We found a right-sided ovarian cyst, strangulated by tortion of its pedicle, overlying the pregnant uterus, to whose right side and fundus it was glued by plastic lymph. When it was removed, the appendix was found highly inflamed and surrounded by many fresh adhesions. The condition of the appendix and the presence of considerable turbid fluid in the peritoneal cavity, decided us upon drainage for forty-eight hours. The patient recovered and went to term at which time she was delivered of a fully developed child which was dead, probably from the tedious instrumental delivery.

CASE 4.—Miss O'C., seen with Dr. Abraham Lande, September 22, 1915; age 24. Previous history negative. This patient was suddenly seized with severe abdominal pain, general in distribution, vomiting and diarrhœa. Assuming that her illness was due to cholera morbus, she did not summon her physician for several hours. He found her with a temperature of 102½, respirations 26 and a rapid, thready pulse. The abdomen was distended, tympanitic above the umbilicus and dull below, especially on the left side. There was general muscle spasm and the patient was in shock. I saw her with Dr. Lande soon after, and profiting from my previous experience, I suggested the tentative diagnosis of tortion of a cyst complicating a severe type of appendicular inflammation, Dr. Lande concurring. She was operated immediately and our opinion was confirmed. The appendix was gangrenous and with its wrapping of omentum, accounted for the modified dullness found in the right fossa. The strangulated cyst, however, was from the left side. Drainage was instituted after removal of both the cyst and the appendix and the patient made a good recovery.

I wish to emphasize the fact that in all these cases the appendix was clearly and apparently, primarily involved. There was not one in which its condition upon removal would have caused the slightest embarrassment to him who had made a diagnosis of acute appendicitis. In the first two, indeed, this was the only diagnosis made although we were aware of some profound change in the abdomen between the hour of diagnosis and that of operation. In the third case, on account of the size of the pregnant uterus and the flacidity of the cyst wall owing to its rapid and complete strangulation, the complication was entirely unsuspected until the abdomen was opened. This patient gave the characteristic history of at least one attack of appendicitis earlier in her pregnancy. In the fourth case, the diagnosis was made before operation.

The diagnosis of tortion of a cyst or solid tumor should be fairly easy when its existence is known before the acute symptoms supervene. I was able to do this in a recent case of pedunculated fibroid. In none of these cases, however, was the existence of a cyst suspected beforehand although in cases 1 and 2, after the operation, we elicited the information that for some weeks the patients had noticed that their ordinary clothing was becoming more snug but not sufficiently to excite investigation.

Conditions favoring tortion are numerous. First, we have Freund's law, based on the theory of Goodsir and Fisher, according to which there is a natural tendency for all organisms to grow in a spiral direction. Among the exciting causes, we have to consider the length of the pedicle, freedom from adhesions and irregularity in form. Given a long, thin pedicle, a cyst free from adhesions and one with a heavy lobe, imperfectly counterbalanced by one or more smaller lobes, tortion may result from emptying or filling of the bladder or rectum, violent intestinal peristalsis pressure of another tumor, increased intra-abdominal pressure from coughing, vomiting, lifting, falls or jolts. Likewise, the rapid reduction of abnormal intra-abdominal pressure, as from tapping or the emptying of a full term pregnant uterus may induce tortion. Fry[11] thinks that at the fourth or fifth month of gestation a cyst may rest, very insecurely balanced, on the fundus and that any of the foregoing causes will then act with increased force. In pregnancy, providing the case proceeds to term, it is likely the pedicle may be greatly thinned and elongated and then, with the rapid decrease of intra-abdominal tension, we have ideal conditions for rotation. The muscle spasm, the vomiting, the distention of the bowels, which are such constant and important features of acute appendicitis, in like manner favor tortion and it may occur in some slight degree much more frequently than we know of.

The results of tortion depend upon the degree and rapidity with which it occurs. Sudden, complete strangulation will result in

gangrene, subsequent infection and peritonitis, but without any increase in the size of the cyst. Commonly, the venous supply being greatly hampered and the arterial very little, we note a rapidly developing tumor with pain of moderate intensity, diffuse in character, with vomiting and possibly obstipation. Storer[1] says that a cyst the size of an orange may reach the umbilicus in a few hours. The cyst wall becomes edematous, dark in color, with thrombosis of the veins, sometimes extending to the broad ligaments. The cyst contents will be more or less blood-stained. Muscle spasm will be present but disturbance of pulse and temperature will only come with secondary changes—infection. Dysuria is a very constant symptom,[14] and in many ways, tortion of a cyst may closely simulate strangulated hernia or acute intestinal obstruction, but *without* stercoraceous vomiting.[12 13]

In these apparently rare instances of acute appendicitis complicated by tortion of the pedicle of a previously unrecognized ovarian cyst, is diagnosis possible except on the operating table? I believe that it is frequently possible, that it is alway desirable and that its possibility should ever be borne in mind. I can only point out as diagnostics the rapid development of a globular tumor, too large, too smooth and well defined, too movable, to be taken for an appendiceal abscess, with perhaps, diffuse abdominal pain and tenderness, and very likely, dysuria. These signs and symptoms engrafted upon the typical, localizing signs of acute appendicitis make the diagnosis of tortion of the pedicle of an ovarian cyst more than problematical.

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Discussion.

Dr. M. Mortimer Brown, Rochester: I would merely report one case that I came in contact with—the only one that I have ever seen—several years ago in which the only anteoperative diagnosis that was made was appendicitis. I was called in by two physicians to operate on the patient and the only examination I attempted to make showed very marked right-sided rigidity. It was so perfectly evident that the patient was in an extreme condition and in need of an operation that I felt it would be foolish to attempt to make any refined diagnosis, but simply operated on her, thinking, I admit, that it was a clear case of appendicitis. The appendix in that case was absolutely normal and the cyst —it was in a girl about sixteen years old—had ruptured. It evidently had ruptured within a very short time because the viscid fluid of the cyst was still lying free in the pelvis, estimated at perhaps six ounces. The cyst was not larger than a croquet ball and it was gangrenous.

The patient made an absolute recovery, but it was the only case that I have come in contact with, and as far as I know, the only case where there was a spontaneous rupture of the cyst. The pedicle was twisted and the cyst ruptured before I saw her, and I am not sure whether it had not ruptured before the other physicians saw her also.

Section Meeting Places

Waldorf Astoria.

Surgery ..... Grand Ball Room
Obstetrics and Gynecology.....Astor Gallery
Genito-Urinary Diseases ..... Green Room
Orthopedic Surgery ..... Assembly Hall

McAlpin.

Diseases of Children....Winter Garden (Blue Room)
Nervous and Mental Diseases.....Roof Garden
Pathology and Physiology ..... Blue Room
Gastro-Enterology and Proctology.....Green Room

Astor.

Ophthalmology ..... North Ball Room
Laryngology, Otology and Rhinology..East Ball Room
Lantern Slide Exhibitions ..... College Hall
Stomatology ..... Yacht Room

Biltmore.

Practice of Medicine ..... Supper Room
Preventive Medicine and Public Health...Music Room

Manhattan.

Pharmacology and Therapeutics .....

Academy of Medicine.

Dermatology ..... Du Bois Hall

Legislative Notes

STANDING COMMITTEES OF THE SENATE, 1917.

On Judiciary—J. H. Walters, Syracuse; A. J. Gilchrist, 294 Ridgewood Ave., Brooklyn; M. S. Halliday, Ithaca; A. W. Burlingame, Jr., 391 Fulton St., Brooklyn; C. W. Walton, Kingston; C. D. Newton, Geneseo; J. Knight, Arcade; A. Ottinger, 165 Broadway, New York; L. W. H. Gibbs, 110 Franklin St., Buffalo; A. P. Brown, Leonardsville; E. R. Brown, Watertown; J. A. Foley, 66 Broadway, New York; E. J. Dowling, 120 Broadway, New York; R. F. Wagner, 244 East 86th Street, New York.

On Public Education—C. C. Lockwood, 954 Greene Ave., Brooklyn; M. S. Halliday, Ithaca; C. D. Newton, Geneseo; W. A. Carson, Rushville; A. P. Brown, Leonardsville; T. D. Robinson, Mohawk; O. L. Mills, 340 Park Ave., New York; E. R. Brown, Watertown; E. J. Dowling, 120 Broadway, New York; R. F. Wagner, 244 East 86th Street, New York.

On Rules—E. R. Brown, Watertown; H. M. Sage, Menands; G. F. Argetsinger, Rochester; R. F. Wagner, 244 East 86th St., New York; J. H. Walters, Syracuse.

On Public Health—G. H. Whitney, Mechanicsville; C. W. Wicks, Sauquoit; G. B. Wellington, Troy; J. W. Yelverton, Schenectady; J. J. Dunnigan, 1861 Holland Ave., New York; S. A. Cotillo, 235 East 116th St., New York.

STANDING COMMITTEES OF THE ASSEMBLY, 1917.

On Judiciary—C. O. Pratt, Washington County; L. M. Martin, Oneida Co.; A. V. Parker, Niagara Co.; W. S. McNab, Schenectady Co.; R. McC. Marsh, New York Co.; A. C. Flamman, Kings Co.; N. D. Perlman, New York Co.; M. Bourke, New York Co.; H. J. Crane, Onondaga Co.; W. E. Pierce, Clinton Co.; C. D. Donohue, New York Co.; M. Goldberg, New York Co.; M. M. Fertig, Bronx Co.

On Rules—T. C. Sweet, Oswego Co.; S. A. Adler, Monroe Co.; H. E. H. Brereton, Warren Co.; H. E. Machold, Jefferson Co.; J. G. Malone, Albany Co.; J. M. Callahan, Bronx Co.; D. F. Farrell, Kings Co.

On Public Education—M. E. Tallett, Madison Co.; H. A. Murphy, Suffolk Co.; J. A. Harris, Monroe Co.; W. S. Augsbury, Jefferson Co.; E. C. Davis, Montgomery Co.; C. F. Welsh, Albany Co.; W. Duke, Jr., Allegany Co.; M. J. Soule, Onondaga Co.; H. P. Gage, Wyoming Co.; J. Brink, Ulster Co.; O. M. Kiernan, New York Co.; A. Goodman, New York Co.; H. A. Seesselberg, Richmond Co.

On Public Health—G. T. Seelye, Saratoga Co.; H. L. Grant, Lewis Co.; J. A. Harris, Monroe Co.; C. Fenner, Tompkins Co.; J. A. McGinnies, Chautauqua Co.; S. R. Green, Kings Co.; L. F. Hager, Cayuga Co.; E. G. Danser, Erie Co.; F. E. Hopkins, Queens Co.; F. A. Lattin, Orleans Co.; R. P. Bush, Chemung Co.; M. Bloch, New York Co.; J. F. Twomey, Kings Co.

BILLS INTRODUCED INTO THE LEGISLATURE.

IN SENATE.

January 3 to February 3, 1917.

Enacting the Health Insurance Law, establishing a system of compulsory insurance to furnish benefits for employees in case of death, sickness and accident, not covered by Workmen's Compensation and for their dependents in case of sickness and accident, and to furnish maternity benefits, and to provide for contributions by employers, employees and the State, and creating the health insurance commission. By Mr. Mills. To Judiciary Committee. Printed No. 69. Int. 69.

Giving the Board of Regents supervision over experiments on living animals within the State and providing for appointment by the regents of the necessary number of assistants. By Mr. Boylan. To Judiciary Committee. Printed No. 84. Int. 84.

Adding new article 26b to Education Law, prohibiting experimentation upon living animals in common schools of the State. By Mr. Boylan. To Judiciary Committee. Printed No. 85. Int. 85.

Requiring all laboratories and places where live pathogenic germs are handled or cultivated, to be licensed by the State Health Department. The fee is one dollar. Each culture must be labeled to show the laboratory license number, name of person obtaining it, and destination of the germs. By Mr. Gilchrist. To Public Health Com. Printed No. 243. Int. 242.

IN ASSEMBLY.

Amending subdivision 7, sections 3 and 10, Workmen's Compensation Law, by defining "injury" and "personal injury" to mean injuries received in the course of employment and such disease and infection as may naturally and unavoidably result therefrom. By Mr. Kelly. To Judiciary Com. Printed No. 23. Int. 23.

Repealing section 2, adding new section 2, amending section 3 Workmen's Compensation Law, by providing that compensation shall be payable for injuries or death incurred while engaged in any profession, trade, or occupation, including work carried on by the State or a municipal corporation and striking out the limitation to hazardous employments. By Mr. Perlman. To Judiciary Com. Printed No. 29. Int. 29.

Amending sections 12, 18 and 20, Workmen's Compensation Law by providing that compensation shall be allowed from day of disability, requiring notice of injury to be given employer within five days and permitting claims to be presented for compensation at any time after the first seven days of disability. Mr. Perlman. To Judiciary Com. Printed No. 31. Int. 31.

Defining and regulating the practice of osteotherapy and providing for the appointment by the regents by July 1, 1917, of a board of examiners in osteotherapy to consist of five members. By Mr. Mahony. To Public Health Committee. Printed No. 124. Int. 124.

Amending subdivision 7, sec. 692, Greater New York Charter, by providing free ambulance service in the district between 120th St. on the north, Park Ave. on the east, 96th St. on the south and Fifth Ave. on the west, for removal of sick or disabled persons from residence to a public hospital. By Mr. Levy. To Cities Com. Printed No. 304. Int. 297.

Adding new section 1142-a to Penal Law, making it a misdemeanor to publish an advertisement concerning a venereal disease or sexual organs and calling attention to a medicine to be used or person to be consulted therefor. By Mr. Marsh. To Codes Com. Printed No. 309. Int. 302.

Amending sections 250, 251, 252 and 253, adding new section 254, Public Health Law, by providing for an advistory council to be appointed annually by the Regents to advise regarding courses and standards in nurses' training schools, rules for examination of nurses, and changing the provisions relative to definition of the practicing of nurses, board of examiners of nurses, waiver of examinations, and violations. By Mr. Mills. To Public Health Com. Printed No. 317. Int. No. 309.

Medical Society of the State of New York

17 West 43d Street, New York.
January 15, 1917.

The regular annual meeting of the Medical Society of the State of New York will be held on April 24, 1917, at 8.15 P. M., in the First Presbyterian Church, Utica, N. Y.

MARTIN B. TINKER, M.D., *President.*
FLOYD M. CRANDALL, M.D., *Secretary.*

17 West 43d Street, New York.
January 15, 1917.

The regular annual meeting of the House of Delegates of the Medical Society of the State of New York will be held on April 23, 1917, at 8 P. M., in the Ball Room of the Hotel Utica, Utica, N. Y.

MARTIN B. TINKER, M.D., *President.*
FLOYD M. CRANDALL, M.D., *Secretary.*

111th ANNUAL MEETING.

Tuesday, April 24th, 8.15 P. M.

First Presbyterian Church.

Calling the Society to order by the President.
Invocation by Rev. Ralph W. Brokaw, D.D.
Address of welcome by Thomas H. Farrell, M.D., Chairman Committee on Arrangements.
Reading of minutes of 110th Annual Meeting, by Floyd M. Crandall, M.D., Secretary.
Address of welcome, Hon. Elihu Root.
Oration,

PRELIMINARY SCIENTIFIC PROGRAM.

ARRANGED BY THE COMMITTEE ON SCIENTIFIC WORK.
Samuel Lloyd, Chairman,
12 W. 50th Street, New York City.
Thomas H. Farrell, Utica.
Edward J. Wynkoop, Syracuse.
Robert L. Dickinson, Brooklyn.
Abram T. Kerr, Ithaca.
Thomas F. Laurie, Auburn.
John M. Swan, Rochester.
Linsly R. Williams, Albany.
The order of reading papers will be in accordance with the printed program.

SECTION ON MEDICINE.

Chairman, John M. Swan, M.D., Rochester.
Secretary, Arthur F. Chace, M.D., New York.
Place of Meeting, Park Baptist Church Chapel.

Tuesday, April 24th, 2 P. M.

Therapeutics.

"The Present Status of Vaccine Therapy," Warren B. Stone, M.D., Schenectady.
"The Present Status of Serum Therapy," Rufus I. Cole, M.D., New York.
"The Present Status of Drug Therapy," Warren Coleman, M.D., New York.
"The Present Status of Physiological Therapy," H. Burton Doust, M.D., Syracuse.

Wednesday, April 25th, 9.30 A. M.

Joint Meeting with Section on Surgery.
Peptic Ulcer.

Honorary Chairman, Albert Vander Veer, M.D., Albany.
"The Symptomatology of Peptic Ulcer," George Roe Lockwood, M.D., New York.
"The Practical Pathology of Peptic Ulcer," James Ewing, M.D., New York.
"The Medical Treatment," Edward Quintard, M.D., New York.
"Surgical Treatment," John Blair Deaver, M.D., Philadelphia, Pa. (by invitation).

Wednesday, April 25th, 2 P. M.

The Treatment of Heart Disease.

"The Treatment of Heart Diseases in the Convalescent Institution," Frederick Brush, M.D., New York.
"The Testing of the Heart's Functional Capacity and Its Relation to Graduated Exercises in Cardiac Insufficiency," Theodore B. Barringer, Jr., M.D., New York.
"The Treatment of Heart Disease by Drugs," W. Dewey Alsever, M.D., Syracuse.
"The Hydrotherapeutic Treatment of Heart Disease," Hubert Schoonmaker, M.D., Clifton Springs.

Thursday, April 26th, 9.30 A. M.

"The Experiences in the 1916 Epidemic of Poliomyelitis," Simon Flexner, M.D., New York.
"The Treatment of Dysthyroidism by Roentgen Rays," Myron B. Palmer, M.D., Rochester.
"Arthritides Associated with Intestinal Disorders," G. Reese Satterlee, M.D., New York.
"The Early Diagnosis of Tabes and Its Treatment by the Subdural Use of Mercurialized-Salvarsanized Serum," Malcolm S. Woodbury, M.D., and S. T. Nicholson, M.D., Clifton Springs (by invitation).
Discussion opened by Malcolm S. Woodbury, M.D.

SECTION ON SURGERY.

Chairman,
Secretary, Thomas F. Laurie, M.D., Auburn.
Place of Meeting, Tabernacle Baptist Chapel.

Tuesday, April 24th, 2 P. M.

Subject to be announced. Frederick H. Flaherty, M.D., Syracuse.
"Acute Hemorrhagic Pancreatitis," William Linder, M.D., Brooklyn.
Subject to be announced. Samuel Lloyd, M.D., New York.
"Cancer of the Bladder," James A. Gardner, M.D., Buffalo.
Subject to be announced. Ledra Heazlit, M.D., Syracuse.

Wednesday, April 25th, 9.30 A. M.

Joint Meeting with Section on Medicine.
Peptic Ulcer.

Honorary Chairman, Albert Vander Veer, M.D., Albany.
"Symptomatology of Peptic Ulcer," George Roe Lockwood, M.D., New York.
"The Practical Pathology of Peptic Ulcer," James Ewing, M.D., New York.
"The Medical Treatment," Edward Quintard, M.D., New York.
"The Surgical Treatment," John Blair Deaver, M.D., Philadelphia.

Wednesday, April 25th, 2 P. M.

Joint Meeting with Sections on Pediatrics and Eye, Ear, Nose and Throat.
Symposium on the Glands of the Neck in Children.

"Differential Diagnosis of the Enlargement of the Cervical Glands in Children," Royal Storrs Haynes, M.D., New York.
"The Relation of the Nose and Throat to Cervical Adenitis," George Bacon Wood, M.D., Philadelphia, Pa. (by invitation).
Discussion opened by Henry W. Frauenthal, M.D., New York.
"The Relation of Teeth and Enlarged Glands," Thomas B. Hartzell, D.M.D., M.D., Minneapolis (by invitation).
"The X-Ray Treatment of Enlarged Cervical Glands," George E. Pfahler, M.D., Philadelphia, Pa. (by invitation).
"The Indication for the Removal of the Enlarged Cervical Glands," Charles N. Dowd, M.D., New York.

Thursday, April 26th, 9.30 A. M.

"Fracture of the Neck of the Femur in Children," Henry Ling Taylor, M.D., New York.

Subject to be announced. Gordon K. Dickinson, M.D., Jersey City (by invitation).

Subject to be announced. Parker Syms, M.D., New York.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Chairman, Robert L. Dickinson, M.D., Brooklyn.
Secretary, Ross George Loop, M.D., Elmira.
Place of Meeting, Tabernacle Baptist Church.

Tuesday, April 24th, 2 P. M.

Symposium on Birth Control.

"Medical and Moral Aspects," S. Adolphus Knopf, M.D., New York.

"The Significance of a Declining Birth Rate," by Frederick L. Hoffmann, M.D., Prudential Insurance Co. (by invitation).

"The Social Significance of the Clinics in Brooklyn," F. A. Blossom, Ph.D., Johns Hopkins, Charity Worker, Editor, *Birth Control Review* (by invitation).

"The Changes in State Law to Free the Doctor from Criminal Liability When Advising Contraception in Chronic Diseases." Name to be announced.

"The Dangers and Objections," James J. Walsh, M.D., New York.

"Physical Hurt or Harmlessness; For the Man," ..... (Genito-Urinary Specialist).
For the Woman:..... (Gynecologist).

Wednesday, April 25th, 9.30 A. M.

Symposium on Every Day Obstetrics.

"The Irreducible Minimum of Care and Asepsis in the Country District," Eugene W. Belknap, M.D., Syracuse.

"The Irreducible Minimum in the Tenement," James W. Markoe, M.D., New York.

"The Primapara Belongs to the Specialist; the Multipara to the Family Doctor and the Home," Ralph H. Pomeroy, M.D., Brooklyn.

"The Training of the General Practitioner for Obstetrics."

"The Fifth Year in Medicine and Its Obstetric Course; the Ten Dollar Fee in Practice; the Free Maternity, and the Midwife." Pennsylvania's plan. J. W. Baldy, M.D., Member Bureau Medical Education and Licensure, Commonwealth of Pennsylvania (by invitation).

"The Post-Graduate City Course vs. College Extension Courses," by Travelling Instructors from State Medical Society or Medical Colleges. Watson S. Rankin, M.D., Secretary State Board of Health, North Carolina (by invitation).

The Combination of Obstetrics and Gynecology:

"As One Department in Hospital or College," John Whitridge Williams, M.D., Prof. Obstetrics Johns Hopkins, Baltimore, Md. (by invitation).

Wednesday, April 25th, 2 P. M.

Symposium on Every Day Gynecology.

"Routine Diagnostic Methods in General Office Practice," "Conditions Proper for Office Treatment," "Recent Developments in Gynecology That Every Practitioner Should Know," John Goodrich Clark, M.D., Prof. Gynecology, University of Pa., Philadelphia (by invitation), and Walter William Chipman, M.D., Prof. Obstetrics and Gynecology, McGill University, Montreal, Canada (by invitation); George Gray Ward, Jr., M.D., Prof. Gynecology, Cornell, New York.

"The Reason for a Gynecological Department in a General Hospital," Eliot Bishop, M.D., Brooklyn.

"Preliminary General Surgical Training Should Be Required of Every Specialist in every Sub-Department of Surgery," Howard L. Prince, M.D., Rochester.

"Motion Pictures of Surgeons at Work Proving the Grievous Need of Drill and of Time Saving Methods," Frank B. Gilbreth, Efficiency Engineer, Providence, R. I. (by invitation).

Thursday, April 26th, 9.30 A. M.

"The Choice of Operation for Retroversion" (lantern slides), Edward E. Montgomery, M.D., Prof. Gynecology, Jefferson Med. Coll., Philadelphia (by invitation).

"The Necessity and Usefulness of Follow-up Methods in Ward and Dispensary Cases in Bellevue Hospital," William E. Studdiford, M.D., New York.

"Rectal Examination in Obscure Pelvic Pain," Dwight H. Murray, M.D., Syracuse.

"The Irritable Bladder in Women," George W. Stark, M.D., Syracuse.

SECTION ON EYE, EAR, NOSE AND THROAT.

Chairman, Thomas Henry Farrell, M.D., Utica.
Secretary, Arthur J. Bedell, M.D., Albany.
Place of Meeting, Tabernacle Baptist Chapel.

Tuesday, April 24th, 2 P. M.

Symposium on the "Luetic Lesions of the Eye, Ear, Nose and Throat."

"Of the Eye," William Campbell Posey, M.D., Philadelphia, Pa. (by invitation).

Discussion opened by Percy Fridenberg, M.D., New York City and Albert C. Snell, M.D., Rochester.

"Of the Ear," Bradford A. Richards, M.D., Rochester.

Discussion opened by——

"Of the Nose and Throat," Joseph C. Beck, M.D., Chicago, Ill. (by invitation).

Discussion opened by Joseph H. Abraham, M.D., New York.

"Some of the General Skin Diseases with Ocular Manifestations," Walter B. Weidler, M.D., New York.

Discussion opened by ——.

Wednesday, April 25th, 9.30 A. M.

"Value of Routine Examination of the Labyrinth," illustrated by moving pictures, Isaac H. Jones, M.D., Philadelphia, Pa. (by invitation).

Discussion opened by Isidore Friesner, M.D., New York.

"Asthenopia Due to General Affections," W. Gordon M. Byers, M.D., Montreal (by invitation).

Wednesday, April 25th, 2 P. M.

Joint Meeting with Sections on Surgery and Pediatrics.

Symposium on the "Glands of the Neck in Children."

"Differential Diagnosis of the Enlargement of the Cervical Glands in Children," Royal S. Haynes, M.D., New York.

"The Relation of the Nose and Throat to Cervical Adenitis," George Bacon Wood, M.D., Philadelphia, Pa. (by invitation).

Discussion opened by Henry W. Frauenthal, M.D., New York.

"The Relation of Teeth and Enlarged Glands," Thomas B. Hartzell, D.M.D., M.D., Minneapolis (by invitation).

"The X-Ray Treatment of Enlarged Cervical Glands," George E. Pfahler, M.D., Philadelphia (by invitation).

"The Indications for the Removal of the Enlarged Cervical Glands," Charles N. Dowd, M.D., New York.

SECTION ON PEDIATRICS.

Chairman, Edward J. Wynkoop, M.D., Syracuse.
Secretary, T. Wood Clarke, M.D., Utica.
Place of Meeting, Baraca Room, Tabernacle Baptist Church.

Tuesday Afternoon, April 24th.

"Internal Hydrocephalus," Carl G. Leo-Wolf, M.D., Buffalo.

"The Mortality of Pneumonia in Infants and Children Under Various Methods of Treatment," Henry D. Koplik, M.D., New York.

"Practical Infant Feeding," J. Roberts Johnson, M.D., Syracuse.
"Indicanurea in Children," William J. Schuyler, M.D., Utica.
"The Mechanism of Intestinal Atony in Children; Etiology and Treatment," Fenton B. Turck, M.D., New York.

Wednesday, April 25th, 9.30 A. M.

"Pertussis Vaccine from a Prophylactic and Remedial Standpoint," Henry L. K. Shaw, M.D., Albany.
"The Nature of Food Idiosyncrasies in Children," Oscar M. Schloss, M.D., New York.
"The Rôle of Idiosyncrasies in Practice," Fritz Bradley Talbot, M.D., Boston, Mass. (by invitation).
"Early Diagnosis of Poliomyelitis," Wardner D. Ayer, M.D., Syracuse.

Wednesday, April 25th, 2 P. M.

Joint Meeting with Sections on Eye, Ear, Nose and Throat and Surgery.

Symposium on the Glands of the Neck in Children.

Place of Meeting, Tabernacle Baptist Church.
"The Differential Diagnosis of the Enlargement of the Cervical Glands in Children," Royal Storrs Haynes, M.D., New York.
"The Relation of the Nose and Throat to Cervical Adenitis," George Bacon Wood, M.D., Philadelphia (by invitation).
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"The X-Ray Treatment of Enlarged Cervical Glands," George E. Pfahler, M.D., Philadelphia, Pa. (by invitation).
"The Indications for the Removal of the Enlarged Cervical Glands," Charles N. Dowd, M.D., New York.

Thursday, April 26th, 9.30 A. M.

Automobile trip to the New York State Custodial Asylum at Rome.
"Symposium on Mental Defectives," Charles Bernstein, M.D., Rome, and others.
(Full program to be announced later.)
Luncheon as guests of the Custodial Asylum.

Thursday Afternoon, April 26th.

"Clinical and Laboratory Demonstrations of the Methods of Examining Feeble Minded Children," by the Staff of the Custodial Asylum.
Inspection of the institution.

SECTION ON PUBLIC HEALTH, HYGIENE AND SANITATION.

Chairman, Linsly Rudd Williams, M.D., Albany.
Secretary, William G. Bissell, M.D., Buffalo.
Place of Meeting, State Armory.

Tuesday, April 24th, 2 P. M.

"Public Health and Medical Problems in the South and in the Orient," illustrated by lantern slides. Victor G. Heiser, M.D., New York, International Health Board (by invitation).
"The Development of the Health Centers in the Department of Health," Walter S. Goodale, M.D., Buffalo.
"Serum Diagnosis of Tuberculosis," Hans Zinsser, M.D., New York (by invitation).
"Diagnosis of Pulmonary Tuberculosis by Roentgen Rays," Frederick H. C. Heise, M.D., Trudeau, New York.

Wednesday, April 25th, 9.30 A. M.

"Para-typhoid Fever," Major J. F. Siler, Medical Corps, U. S. A., Fort Sam Houston, Texas (by invitation).
"The Bacteriology of Para-typhoid Fever," Charles Krumwiede, M.D., New York.
"Report of an Epidemic of Para-typhoid Fever," Charles W. Berry, M.D., Brooklyn.
"Study of an Epidemic of Para-typhoid Among the Troops," Augustus B. Wadsworth, M.D., Albany.

Wednesday, April 25th, 2 P. M.

"An Epidemic of Bacillary Dysentery," John A. Smith, M.D., Albany.
"Results Obtained from the Use of Pertussis Vaccine," George W. Goler, M.D., Rochester.
"Diphtheria in New York State," Fred M. Meader, M.D., Albany (by invitation).
"An Outbreak of Diphtheria in Binghamton," Paul B. Brooks, M.D., Norwich.

Thursday, April 26th, 9.30 A. M.

"The Epidemic of Poliomyelitis in New York State," Matthias Nicoll, Jr., M.D., New York.
"Epidemiology of Poliomyelitis," J. S. Conway, M.D., Hornell.
"Diagnosis of Poliomyelitis," Albert Bowen, M.D., Rochester.
"Treatment of Poliomyelitis with Immune Serum," Harold L. Amoss, M.D., Allan Chesney, M.D., New York (by invitation).
"Treatment of Poliomyelitis with Immune Serum," Edward Taylor, M.D., Burlington, Vermont (by invitation).
"Poliomyelitis as a Public Problem," Armitage Whitman, M.D., New York.

ENTERTAINMENTS.

Wednesday Evening, April 25th,
Smoker.

HOTELS.

Baggs Hotel, European plan:
No. of rooms, 125.
Single rooms with bath, $2 to $5.
Single room without bath, $1 to $2.
Double room with bath, $1.50 to $3 per person.
Double room without bath, $1 per person.

Hotel Utica, European plan:
200 rooms.
Single rooms, $2, $2.50, $3, $3.50, $4, $5.
Double rooms, $3.50, $4, $5, $6, $8.
All rooms have bath.

Yates Hotel, European plan:
80 rooms.
Single rooms with bath, $1.50.
Single rooms without bath, $1.
Double rooms, $1 per person.

St. James Hotel, American plan:
About 125 rooms.
Rooms, $2.50 and up per day.

Hotel Martin, European plan:
200 rooms.
Single rooms without bath, $1.50 and $2.
Single rooms with bath, $2 and $3.50.
Double room without bath, one bed, two people, $2.50 and $3.
Double room without bath, two beds, four people, $1 each.
Double room with bath, three or more people, $1.50 each.
Cots in room, $1 extra.
Double room with bath, two people, $3.50, $4.

County Societies

MEDICAL SOCIETY OF THE COUNTY OF ALBANY.

SPECIAL MEETING, ALBANY, January 10, 1917.

The meeting was called to order by the President H. Judson Lipes at 9 P. M. to discuss the proposed medical plan under the 'tentative draft" of a law introduced in the legislature relative to Compulsory Health Insurance.

Dr. Samuel J. Kopetzky, Chairman of the Committee on Medical Economics of the State Society, spoke on "The Medical Plan under Compulsory Health Insurance." Dr. Kopetzky wished to make it plain that he was not advocating the passage of such law; but, that in the event of such legislation, he believed that the proposed medical plan was a good one.

Dr. Rooney, Chairman State Society Committee on Legislation, gave a brief history of the inauguration of compulsory health insurance in Germany, Austria, and England.

Drs. E. S. Haswell, J. N. Vander Veer, and Eugene E. Hinman each discussed the plan and stated their various objections to the same. Drs. Stone and Towne, of Schenectady, also discussed the plan.

Deputy Attorney General of the State of New York, Harold Hinman, on the request of the chair, made a few brief remarks in opposition to the plan.

An abstract of the numerous and various objections which were raised against compulsory health insurance by different members is as follows:

Six classes of people are concerned: Labor, that is, the working ones, who receive $100 or less per month; Capital, that is, the employer; The insurance companies; The state; the taxpayers; The medical profession.

1. Labor—That it interferes with the inalienable right of American citizens to exercise their own judgment and free thought regarding their individual and personal welfare.

It would be hiring a physician for a family; or, permit only a limited number of physicians from which the family or individual might choose a medical advisor. This is limitation of free will.

The individual would be forced to contribute towards something which he might not desire. The State could underwrite the regular insurance carriers, also the fraternal, lodge and union systems. If the laboring men are compelled to carry state insurance, there are many who could not afford to maintain their fraternal, and union insurance. This would be a direct blow at fraternal bodies and unionism.

The state would be assuming guardianship over the individual who would then no longer be a citizen but a subject. It would discriminate between classes of labor, dividing it into those who receive $1,200 or less per year and those who receive more.

2. Capital—Capital is required to contribute towards the health of an employee and his family. There are many forms of disease which can be contracted without any direct relationship to occupation. The health of an employee's family bears no direct economic relationship to the productiveness and efficiency of the factory.

The employer, or capitalist, in order to compensate himself for the 40 per cent tax levied on him, must raise the selling prices of his wares. The jobber and retailer in turn will add this to their selling price, so that the employers' 40 per cent will ultimately be paid by the consumer. If the consumer is one of those receiving less than $1,200 per year, he will be paying a double tax for the same purpose, *i. e.,* he will pay his original 40 per cent and through the retailers will also pay the employers' 40 per cent.

3. The State—The proposed plan is that for those compulsorily insured, 20 per cent of the premium shall be paid by the state, and 40 per cent by the employer, and 40 per cent by the employee. Figuring this premium on a 4 per cent basis of the average salary, *i. e.,* $500 of the approximately 7,000,000 insurable people under the act, it would amount to about $140,000,000 per annum. Of this the state pays 20 per cent or approximately $28,000,000. The difference between $28,000,000 and $140,000,000, *i. e.,* $112,000,000 would be equally divided between employer and employee, which would mean that they each respectively would contribute about $56,000,000. That this $112,000,000 would be equally divided between the employer and the employee, appears to be true. In reality it is a fallacy, for as we have seen in the preceding paragraph, that the employer's 40 per cent would ultimately come out of the consumer, or employee, but, in reality the employee, as a consumer and other consumers not coming under jurisdiction of this act would pay 80 per cent or $112,000,000, enough to build a barge canal every year. The tax and rentpayers today are contributing towards the support of the dependent and semi-dependent people in as much as part of the taxes are used for the maintenance of the state asylums and supporting municipal charity boards.

The annual budget of the State of New York is approximately $65,000,000. The state's contribution, under the proposed act, would amount to almost 50 per cent of the present budget, thereby increasing the state's budget by $28,000,000, or a total budget of $93,000,000. This again is class distinction for it is taxing the independent people for those who are dependent or semi-dependent.

4. The Taxpayer—This extra $28,000,000 which would be added to the budget of the state will be paid by the taxpayers and rentpayers, but more than this, the employer and employee are each asked to contribute about $56,000,000, or almost twice the present budget of the State of New York.

5. The proposed plan for the administration of health insurance appears to be unwieldy, complicated and affording many opportunities for political intrigue and monopoly of practice.

A limit would be placed upon a certain class of practice, as the physician would be allowed only 500 insured persons with the dependent members of their families, or 1,000 individuals receiving $1,200 or less a year. This restriction would act indirectly as a limit to a physician's income.

To Summarize—The proposed bill would be unfair to the individual laborer and to the plan of American liberty. It would force a form of socialism upon the people and at the same time be detrimental to the cause of organized labor. It appears to be unfair to the capitalist, and to be levying a double tax for the same purpose on land owners and rentpayers. It would create medical monopoly. And be conducive to contract practice with its numerous vices and disadvantages. It places a legal limit to the number of patients which a physician may treat, and is dictating the amount of his fees and his income.

Dr. Elwin W. Hannock introduced the following resolution and moved its adoption:

"Be It Resolved, That this Society wishes and does hereby record its opposition to Compulsory Health Insurance; that the Society does not consider the medical provisions as published in the tentative draft of the bill proposed by The American Association for Labor Legislation as satisfactory; and, that the Secretary be directed to notify the Council of the State Society to this effect through its accredited representatives."

After a brief discussion the resolution was adopted.

Among the visitors present there were Deputy Attorney General Harold Hinman, Deputy Commissioner Abbot, of the State Compensation Commission, and many members of the Medical Society of the County of Schenectady.

The Society adjourned at 11.45 P. M.

MEDICAL SOCIETY OF THE COUNTY OF LIVINGSTON.

Regular Meeting, Mount Morris, January 2, 1917.

The meeting was called to order at 12 o'clock, noon, the President, Dr. W. N. Trader, presiding.

The Secretary read a letter from the Secretary of the State Society relative to reinstantement of former members, who have been dropped on account of non-payment of dues, and in conformity with his letter, after discussion by a number of members, a resolution was adopted along the lines of the State Secretary's letter, *i. e.*, that a member who has been dropped on account of non-payment of dues shall be reinstated on condition that he pay his dues for the year in which he was dropped and for the year in which he is reinstated.

Dr. Charles A. Joy was duly elected to membership. The application for membership of Dr. William E. Diefenbach, of Nunda, N. Y., was presented and, as required by our By-Laws, will lay over for final action at our next meeting.

A letter relative to proposed legislation f r compulsory insurance, with explanation by the Committee on Legislation of the State Medical Society was read, as also the proposed draft of Bill by the American Association for Labor Legislation, and a communication from the Flatbush Medical Society, regarding this proposed legislation. There was a very free discussion by those present regarding the question of health insurance, and it was the feeling of the Society that such legislation as was being proposed by the American Association for Labor Legislation was inopportune at this time.

The following resolution, relative to fees allowed under the Workingmen's Compensation Act was adopted:

Resolved: That the Medical Society of the State of New York be, and hereby is, petitioned by the Medical Society of the County of Livingston to indorse and urge the adoption by the Insurance Companies doing business under the Workingmen's Compensation Act, as a substitute for the Fee Bill now in use, relating to fees charged by attending surgeon, the rule which has been adopted by the State Insurance Fund, administered by the State Workingmen's Commission, viz.:

"All fees and other charges for (such) treatment and services shall be limited to such charges as prevail in the same community for similar treatment of injured persons of a like standard of living."

Dr. Allan A. Jones, of Buffalo, presented a very instructive paper on "Pernicious Anæmia," which brought out considerable discussion. Dr. F. J. Bowen, of Mount Morris, presented a case of mitral stenosis.

The members of the Society were the guests of the physicians of Mount Morris at luncheon.

At a meeting of the Medical Society of the County of Livingston, held on January 2, 1917, at Mount Morris, the following resolution was adopted:

Resolved: That the Medical Society of the County of Livingston, after a full discussion of the proposed legislation toward health insurance as developed by the American Association for Labor Legislation, feel that the time is not opportune for the passage of such a measure, and we hereby wish to register our opposition to such legislation.

MEDICAL SOCIETY OF THE COUNTY OF JEFFERSON.

Annual Meeting, Watertown.

Thursday, January 11, 1917.

The following officers were elected: President, O. P. Joslyn, Great Bend; Vice-President, Norman L. Hawkins, Watertown; Secretary, Elgin R. McCreary, Watertown; Treasurer, Page E. Thornhill, Watertown; Censors, D. C. Rodenhurst, G. B. Van Doren, M. MacG. Gardner, C. N. Bibbins, C. B. Forsyth; Delegate State Society, J D. Olin; Alternate, E. R. McCreary.

MEDICAL SOCIETY OF THE COUNTY OF MONROE.

Special Meeting, Rochester, N. Y.

Tuesday, January 23, 1917.

The meeting was called to order at 8.30 P. M. by the President, Dr. M. B. Palmer.

The minutes of the last meeting were read and adopted after a minor correction.

Letters from the Medical Society of the County of Schenectady, the Secretary of the State Society and the Flatbush Medical Society were read and placed on file.

Dr. Snell read the resolution drawn up by the special committee in answer to the resolution from the Add Club. The Committee's resolution was unanimously adopted.

Dr. Seelye Little gave a brief report of the Legislative Committee and read favorable letters from Mr. Dobson, Mr. Mullen and Mr. Argetsinger. Moved, seconded and carried that the communication be received and placed on file.

Dr. Bowen read the report of the Committee to secure information on Health Insurance.

Dr. Swan moved that the report be received and placed on file and that the Committee be thanked.

The scientific program was presented. Dr. James F. Rooney, Albany, N. Y., spoke on "The Effect of Compulsory Health Insurance upon the Medical Profession as Evidenced by Its Operation in Germany, Austria and England."

Dr. Henry Lyle Winter, Cornwall, N. Y., spoke on Legislation and Medicine. Very free discussion followed.

The following resolution was proposed by Dr. W. T. Mulligan, seconded by Dr. Wolf and unanimously adopted by the Society:

That the Medical Society of the County of Monroe approves of the passage of the Medical Practice Act.

In regard to the Compulsory Health Insurance Bill, the following action was taken:

Dr. Dean proposed this resolution: That the Medical Society of the County of Monroe feels that any action on the present bill is premature: that the Society disapproves of the bill as it now stands and that no commission should be appointed.

This was amended by Dr. W. M. Brown: That this Society is opposed to Compulsory Health Insurance and that it instructs its delegates in the House of Delegates to act against it. The resolution and the amendment were seconded and unanimously adopted.

Dr. Charles R. Barber moved that the delegates of this Society to the State Society, when the proper time comes, sign a call for a meeting of the House of Delegates at Albany, to be held on or before March 1, 1917.

MEDICAL SOCIETY OF THE COUNTY OF HERKIMER.

Annual Meeting, Herkimer.

Tuesday, December 5, 1916.

The meeting was called to order at the Palmer House, at 8 P. M.

The following officers were elected for 1917: President, Charles J. Diss, Ilion; First Vice-President, William P. Earl, Little Falls; Second Vice-President, U. Grant Williams, Newport; Third Vice-President, H. H. Halliwell, Ilion; Secretary, A. Walter Suiter, Herkimer; Treasurer, George Graves, Herkimer; Librarian, William B. Brooks; Censors, A. D. Chattaway, A. W. Albones, I. S. Edsall, A. B. Santry, and F. B. Conterman.

Scientific Program.

Anniversary Address by the President, James W. Graves, M.D., Herkimer.

Address, William A. Howe, M.D., State Medical Inspector of Schools, Albany.

Clinical Reports and Presentation of Specimens.

MEDICAL SOCIETY OF THE COUNTY OF RENSSELAER.

ANNUAL MEETING, Tuesday, December 12, 1916.

The meeting was opened with the business session, and the Secretary, among other things reported that eight regular meetings besides the Annual Meeting had been held during the year and that four new members had been added since his last annual report.

The Treasurer submitted the following report:

Balance from 1915	$11.00
Received from dues, etc.	543.00
Total	$554.00
Expended as per vouchers No. 1 to 50	$538.39
Balance on hand	15.61
Total	$554.00

The following officers were elected for the ensuing year: President, Emmett Howd, Troy; Vice-President, Rollin A. Kirkpatrick, Troy; Secretary, William Trotter, Troy; Treasurer, Osman F. Kinloch, Troy; Censors, John Trotter and John H. F. Coughlin; Delegate, Harry W. Carey; Alternate, Christopher J. Patterson.

SCIENTIFIC SESSION.

"Infections of the Cerebro-spinal Space." George Draper, M.D., Rockefeller Institute, New York.

"Recent Advance in Our Knowledge of Spinal Diseases and Their Importance to the General Practitioner and Surgeon," by Charles A. Elsberg, M.D., New York.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us as a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

A TEXT-BOOK ON THE PRACTICE OF GYNECOLOGY. For Practitioners and Students. By W. EASTERLY ASHTON, M.D., LL.D., Prof. Gynecology Graduate School Medicine, University of Pennsylvania. Sixth edition, thoroughly revised. Octavo of 1,097 pages with 1,052 original line drawings. Philadelphia and London:, W. B. Saunders Company, 1916. Cloth, $6.50 net; Half Morocco, $8.00 net.

A TREATISE ON DISEASES OF THE SKIN. For the use of advanced Students and Practitioners. By HENRY STELWAGON, M.D., Ph.D., Prof. Dermatology, Jefferson Medical College, Philadelphia. Eighth edition, thoroughly revised. Octavo of 1,309 pages, with 356 text-illustrations, and 33 full-page colored and half-tone plates. Philadelphia and London, W. B. Saunders Company, 1916. Cloth, $6.50 net; Half Morocco, $8.00 net.

THE NEW METHOD IN DIABETES: The Practical Treatment of Diabetes as Conducted at the Battle Creek Sanitarium, Adapted to Home Use, Based Upon the Treatment of More Than Eleven Hundred Cases. J. H. KELLOGG, M.D., LL.D., Author of "Neurasthenia—Its Causes and Cure," "Colon Hygiene," "Rational Hydrotherapy." Battle Creek, Mich., Good Health Publishing Co., 1917. Price $2.50.

THE MEDICAL CLINICS OF CHICAGO. Volume II Number IV (January, 1917). Octavo of 231 pages, 20 illustrations. Philadelphia and London: W. B. Saunders Company. 1917. Published Bi-monthly. Price per year: paper, $8.00; cloth, $12.00.

PUBLIC HEALTH NURSING, by MARY SEWALL GARDNER, R.N., Superintendent Providence District Nursing Association, President National Organization Public Health Nursing, 1913-1916. With an introduction by M. Adelaide Nutting, Prof. Nursing and Health, and Director of Department Teachers' College, Columbia University. The Macmillan Co., New York, 1916. Price, $1.75.

THE DIAGNOSIS AND TREATMENT OF ABNORMALITIES OF MYOCARDINAL FUNCTION with special reference to the use of Graphic Methods, by T. STUART HART, A.M., M.D., Asst. Prof. Clinical Medicine College of Physicians and Surgeons, Visiting Physician Presbyterian Hospital. Illustrated with 248 engravings, 240 of which are original. The Rebman Company, New York, 1917.

AN INQUIRY INTO THE PRINCIPLES OF TREATMENT OF BROKEN LIMBS. A Philosophico-Surgical Essay with surgical notes by WILLIAM F. FLUHRER, M.D., Consulting Surgeon Bellevue and Mt. Sinai Hospitals. The Rebman Company, New York, Price, $3.00.

NOTES ON THE CAUSATION OF CANCER by the Hon. ROLLO RUSSELL, with a preface by Dr. DAWTREY DREWITT. Longmans, Green & Co., 39 Paternoster Row, London. Fourth Ave. and 30th Street, New York. Bombay, Calcutta and Madras. 1916. Price, $1.25 net.

MY BIRTH. The Autobiography of an Unborn Infant, by ARMENOUHIE T. LAMSON. The Macmillan Co., New York, 1916. Price, $1.25.

THE PATHOLOGY AND DIFFERENTIAL DIAGNOSIS OF INFECTIOUS DISEASES OF ANIMALS. For Students and Practitioners of Veterinary Medicine, by VERANUS ALVA MOORE, B.S., M.D., C.M.D. Professor Comparative Pathology, Bacteriology and Meat Inspection, New York State Veterinary College, Cornell University and Dean of the College. Fourth edition; revised and enlarged with 120 illustrations. The Macmillan Co., New York, 1916. Price, $4.00.

THE ORGANISM AS A WHOLE, from a Physiochemical Viewpoint, by JACQUES LOEB, M.D., Ph.D., Sc.D Member Rockefeller Institute for Medical Research. 51 illustrations. G. P. Putnam's Sons, New York and London. Knickerbocker Press, 1916. Price, $2.50.

THE NERVO-MUSCULAR MECHANISM OF THE EYES AND ROUTINE IN EYE WORK, by G. C. SAVAGE, M.D., ex-President Nashville Academy of Medicine, Tennessee State Medical Association, ex-Chairman Ophthalmology Section American Medical Association. Three full-page plates and four cuts. Published by the author, Nashville Tenn. Printed by McQuiddy Printing Co., Nashville, Tenn.

Deaths

CHARLES RUXTON ELLISON, M.D., New York City, died January 31, 1917.

FRANK SIDNEY FIELDER, M.D., New York City, died January 24, 1917.

GEORGE W. GRABENSTATTER, M.D., Buffalo, died January 3, 1917.

LEOPOLD F. W. HAAS, M.D., New York City, died January 18, 1917.

ARTHUR A. VIBBARD, M.D., Albany, died January 19, 1917.

NEW YORK STATE JOURNAL OF MEDICINE

A Journal Devoted to the Interests of the Medical Society of the State of New York

JOHN COWELL MAC EVITT, M.D., Editor
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EDITORIAL DEPARTMENT

POWERS AND DUTIES OF THE STATE SOCIETY'S PRESIDENT, CONSTITUTIONAL AND ACTUAL.

WHEN anything does not go to the liking of certain men of any organization they are likely to say, "Why doesn't the President see to it that this thing is promptly and properly done." Then follow criticisms, uncomplimentary, caustic or abusive, depending upon the temper and early home training of the individual. Seldom do such men stop to think that the President is strictly limited by the Constitution and By-Laws as to what he may do, whatever his personal inclinations might be in any specific instance.

Some Things Not Among the President's Powers.—Almost daily letters come requesting that special meetings of the House of Delegates be called; that certain legislative action be taken; that a place be given on the Scientific Program for certain topics or speakers. These requests are especially mentioned because so large a number of letters relate to them. Many such letters might remain unwritten or be sent to the proper authority if the writer would first read carefully the Constitution and By-Laws of the Medical Society of the State of New York.

The President is not empowered to call special meetings of the Society as a whole or of the House of Delegates. Relative to meetings the Constitution and By-Laws, Chapter II, Section IV and V, specify that special meetings of the Society shall be called by the President upon the request of 100 members: special meetings of the House of Delegates upon the request of 50 delegates. Probably those who send requests for special meetings do not always consider the expense to the Society or the personal sacrifice required of delegates if such meetings are called. To avoid the necessity of special meetings many matters might properly be referred to some of the standing committees; for example the Committee on Legislation and the matter be given such emphasis as seems desirable.

The President, strange as it may seem at first, has no direct power in arranging the Scientific Program of the Annual Meetings of the Society. Chapter VII, Section III, states specifically that the Committee on Scientific Work shall prepare the necessary program. It is true that the President has

the appointment of one member of this committee, the other members being the Chairman, who is appointed by the House of Delegates and the Chairmen of the Sections, who are elected by their respective sections.

The President is not authorized to appoint chairmen of the important standing committees to which matters of the most vital importance to the Society are referred. These appointments for the Committee on Legislation, Public Health, Arrangements, Medical Economics, Medical Research as well as Scientific Work are elected by the House of Delegates and the chairmen appoint the other members of the committees subject to approval by the Council. While it is perfectly evident that the power of the President as given by the Constitution is relatively small, any man who commands enough esteem of the members of the Society to be elected to this important office will doubtless always have an opportunity to consult with his lieutenants and bring many of his wishes to pass.

What is and Should be Required of the President?—According to the Constitution and By-Laws, Chapter VI, Section I, the President is assigned four duties:

I. To preside at meetings of the Society, House of Delegates, Council and Censors (he may delegate this to a Vice-President).

II. Appoint all committees not otherwise provided for (further study will show that the more important ones are provided for).

III. Deliver an address at the Annual Meeting.

IV. Perform other duties required by custom and parliamentary usage.

Besides these assigned duties of presiding, appointing, addressing and following parliamentary usage and custom, it would not be unreasonable to expect at least an effort to understand many problems concerning the profession's welfare.

It is surely equally as important that your officers should know something of the special needs of the widely separated parts of the state. Why are large groups of able men taking no part in County and State Society work in certain sections; why in other localities are so many not even members; why are illegal practitioners and quacks flourishing; why is division of fees frequent in certain parts and less so in others. These and many other questions are of vital importance to us. As an aid to better understanding of special problems of different localities your President and Secretary have this year attended all of the eight District Branch Meetings. Many difficulties are far from settled, but at least we know some conditions necessary for solution.

The high honor of office in our Empire State Society carries with it equally heavy responsibilities. In order that the greatest good to the greatest number may be accomplished, you have a right to expect of your President not alone familiarity with the Constitution and By-Laws and parliamentary usage, not alone knowledge and fairness in despatching routine. He should know something of what is being done in other countries and states; "to enlighten and direct public opinion regarding great problems of state medicine; to elevate the standard of medical education; to extend medical knowledge and advance medical science; to promote friendly intercourse among physicians; to organize the medical profession in such a way as to protect against imposition and to guard and foster the best interests of members." These problems are political, educational, social and economic as well as medical and few medical men find time from their practice to get even the essentials well in hand; real, first-hand, worthwhile knowledge in any of these lines would call for the research work of an advanced student for Ph.D. The prescribed duties and powers are few—the ideal duties and powers unlimited, so unlimited that not even the most versatile human could hope to fill the office acceptably. No officer can hope to please everyone (if he tries his efforts will surely be of little help to anyone), but whatever dissatisfaction there may have been thus far this year, friendly suggestions have been far more numerous than adverse criticism and the unstinted help from many men in time and enthusiastic effort should make any man optimistic as to the future of the Society and glad of the privilege to serve it.

M. B. T.

STUDIES IN ACIDOSIS.*

By CHARLES G. STOCKTON, M.D.,

and

JOHN L. BUTSCH, M.D.,

BUFFALO, N. Y.

MUCH attention has been given to acidosis in the past few years. This is especially true since we have processes, more or less accurate, that we may use for its detection. With acidosis, as with many other things, the clinician must wait until the chemist, physicist, or mechanic gives him processes with which conditions may be studied.

We might ask ourselves, what is acidosis? No doubt each mind in the audience has its own notion of the condition. With some a positive acetone test in the urine is deemed sufficient to warrant a diagnosis of acidosis, and much alarm is felt. With others, the urinary acetone must reach a certain quantitative value before much anxiety is experienced. It is not the acetone bodies in the urine, but it is the amount of acid in the blood that gives us concern; in other words, the lack of alkaline in the blood. Let us review for a moment the true cause of acidity in any solution. All acidity is due, as you know, to free hydrogen ions, and all alkalinity is due to free hydroxyl ions. When these two ions are balanced we have neutrality. If, however, one is in excess of the other, we have an acid or an alkaline reaction. If the hydrogen ions predominate the solution is acid, if the hydroxyl ions predominate the solution is alkali. The degree of acidity or alkalinity is measured by comparison with some known standard. That standard, as in many other instances, is water. The number of hydrogen ions in water which is absolutely pure is the same as the hydroxyl ions. We can measure the number of the hydrogen ions very accurately. Such measurement shows that in pure quadruple distilled water we have one hydrogen ion for each 10,000,000 parts of water. We do not, however, use this form for expressing hydrogen ion concentration or acidity. We use the logarithm of the number, that is, the negative logarithm which in this case is Log. 7. In expressing the acidity of a solution their neutrality is Log. 7. Numbers lower than Log. 7, for example Log. 6.5, are more acid than solutions having an hydrogen ion concentration Log. 7.0. Numbers above Log. 7, as for example Log. 7.8, are more alkaline in reaction than solutions where hydrogen ion concentration is Log. 7. If we study the blood serum we find that it constantly gives reactions that correspond to a hydrogen ion concentration of Log. 7.4 to Log. 7.8. Anything below this minimum means a beginning of acidosis. The organism has a wonderful power to maintain the reaction of the blood plasma at about this point. The tissue cells can't carry on their normal functions in an acid medium. To show how delicately balanced the solutions of the body must be, it is only necessary to keep in mind that if the body fluids were to become as acid as ordinary distilled water the organism would die. The same is true if its fluids were to become as alkali as tap water. The tendency in metabolic reaction seems to be toward producing acid. It behooves the body, therefore, to keep in store plenty of alkalis to keep the acidity reduced, or to use any other means that it has to neutralize acid.

We should like to discuss three questions on the subject of acidosis. First: What are the acids that are produced, and what is their source? Second: What protection has the body against this acid production? and third: What processes may we use to detect an early acidosis?

In considering the source of the acid and products of metabolism, we of course turn to the three great classes of foods. No matter what class of food we ingest the end product of combustion is CO_2 and H_2O. This is entirely true of fats and carbohydrates. The proteid gives us other end products of which we might mention urea, uric acid, creatinin, undetermined nitrogenous products, sulphuric and phosphoric acids. Other sources of phosphoric and sulphuric acids are the mineral constituents of our foods.

Let us see how CO_2 plays its part in making the body fluids acid. CO_2 dissolved in plasma makes carbonic acid. The amount of CO_2 formed daily in the tissues, amounts to several litres of N_{10} hydrochloric acid; and plays an important role in producing an acidity of the tissues. There would be sufficient in one day's production to cause death, if it were not taken care of by some of the mechanisms the body has to protect itself. The sulphur and the phosphorus in the protein molecule are oxidized into sulphuric and phosphoric acids. Another source of acid formation, to say nothing of their source, is the minerals we ingest in our daily intake of food. Let us not forget that in certain pathologic conditions, these normal processes do not take place, and we have certain intermediate products of metabolism which are of an acid nature that also produce acidity. This is true in the case of the fats more than with any other of the foods; at least, so far as our knowledge goes today.

These intermediate products of fat metabolism are the acetone bodies. Ordinarily they need not give us any concern, just as fever in the infection need not concern us, unless a hyperpyrexia is produced. It is only when they are in the blood and tissues in so great amount that they rob the body of its alkali that they need alarm us.

* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 18, 1916.

The testing of the urine does not suffice to give us a true estimate of the condition of acidity of the blood and tissues. The urine may contain a high percentage of acetone bodies and a high titration acidity, yet the body fluids be normal if the kidney and other excretory organs can do their duty.

To understand how acidosis may be brought about, or how the normal relation of acids to alkalies in the body may be disturbed, it is necessary to consider briefly the methods by which the body protects itself against acid; how it maintains its equilibrium, in which there is a preponderance of alkali over acids.

The blood, during life, remains alkaline with extraordinary regularity. The necessity for this one can easily understand if one keeps in mind the extreme sensitiveness that the enzymes of the body have for the reaction of the media in which they act. Other chemical reactions, too, depend greatly on the reaction of the media in which they take place. The minutest change in the reaction of the media are sufficient to cause great disturbances with enzymatic action. A reaction from the normal of the blood to precise neutrality, would be sufficient to cause death.

Ordinary distilled water, which of course responds neutral to litmus, as does tap water, shows a decided reaction to our modern methods of determining acidity. Such a slight change, as we have above pointed out, means either life or death to the organism.

Once knowing this, it is not a wonder that the body can protect itself against so much acid. The body is constantly liberating acid as a result of the metabolic processes. As an example one might cite the oxidation of the sulphur and phosphorus to sulphuric and phosphoric acid, and all organic matter to CO_2 and H_2O. Besides certain organic acids are formed in small amounts and are as a rule oxidized to CO_2 and H_2O, but to some extent are excreted as free acid. If the body had no protection against such acid formation, harm would soon result. The body fluids must be alkaline. The mechanism which regulates this alkalinity is mainly in the blood.

The blood has three lines of protection: the sodium carbonate, the acid and alkaline phosphates, and the proteids of the body.

From the viewpoint of ability to neutralize acids the blood may be considered a solution of sodium carbonate and disodium hydrogen phosphate; keeping in mind, however, that the proteid content of the blood has a great influence upon its reaction.

Proteid is capable of taking up much acid without showing great acid reaction. The sodium carbonate and the disodium hydrogen phosphate are the main factors in disposing of our acids.

The acid is formed in the tissues, and as it is formed it is dissolved in the plasma but immediately neutralized by the two above mentioned salts. In the case of the carbonic acid, the sodium carbonate is changed into the bicarbonate. The concentration of acid in the tissues becomes high and would be harmful were it not for the circulation and respiration. The blood—in which the concentration is less than in the tissues—transports this acid to the lungs, where the concentration is still less. If there were no respiration the concentration of acid in the tissues, in the blood, and in the alveoli of the lungs would soon become quite equal, and the organism would suffer from a condition of acidosis. Here is where the respiration plays its part in relieving the body of acid.

The respiratory center is exceedingly sensitive to slight changes in the acidity of the blood. As soon as the blood acidity becomes raised we have a stimulation of the respiratory center, the respirations increase, and this of course ventilates the lungs, and so decreases the acidity of the air in the alveoli. This allows the escape, through the lungs, of the acid of the blood which is of higher concentration. This lowers the acidity of the blood, thus allowing the high concentration of acid in the tissues to be discharged into the blood. This endless chain allows the body to rid itself of several hundred c.c. of acidity (recovered as N_{10} hydrochloric acid) daily. It is one of the most important atria of exit of our acids, especially of carbonic acid. Other acids, whether formed in the body or introduced from the outside, do the same thing. They displace the CO_2 from the sodium carbonate, or bicarbonate, which is removed by the lungs, while the neutral salt formed, is excreted by the kidneys. Increased pulmonary ventilation (dyspnœa) is then one of our greatest avenues of acid excretion, as well as our best sign of an existing acidosis.

While we have thus presented the great influence of the lungs, we must not lose sight of the kidneys. Beside their many other functions they, too, play an important role in the elimination of acid. As we have shown above they eliminate neutral salts of the alkalies, and in that way reduce the body acidity. But a far more important method which they employ is through the discharge of the acid and alkaline phosphates. While the lung is busy eliminating acid by a play on the sodium and carbonic acid combination, the kidney is busy by a play on the sodium phosphoric acid and probably sulphuric acid combination. The kidney has the power of taking the acid out of these acid salts. It is thus a great alkali saver of the body. The sodium dihydrogen phosphate which is an acid salt is converted into the disodium hydrogen phosphate, which is more alkaline and capable of fixing more acid. This is another endless chain which the body uses to get rid of its acid.

This play on the sodium carbonic acid, the

sodium phosphoric and the excretion of neutral salts, is probably the most important process of acid excretion, but we must not forget the part played by proteid itself.

Protein substances, as you know, are amphoteric. That is, they can absorb much alkali or acid without modifying the reaction of the media. The part played by proteid substances is not so definitely worked out, since our knowledge of coloidal chemistry is as yet not greatly developed. That the proteids do play a part cannot be disputed. Just how they operate is not known.

So much then for sources of acid production and acid neutralization and excretion. On the side of acid neutralization and excretion, we must not forget the function of the liver. Beside the lungs and kidney, the liver, too, plays its part. The liver has much to do with the disposition of ammonia. Ammonia is an alkali with strong powers of neutralization. Here we have a source of alkali of no small amount.

Physiologically the body has little use for ammonia, so it must be prepared for excretion at once. Its source is principally from the ingested proteids, the amino-acid, of the proteids. The liver takes off the NH_2 group, leaving a straight aliphatic acid in its place. Now, in disposing of the ammonia so that it will do the body no harm, the liver again uses carbonic acid. Not to form carbonates or carbomates as an end stage but to form urea. The exact stages of the synthesis of urea from ammonia and carbon dioxid are not known.

However, we have here the elimination of two important waste products. These facts are physiological. Pathologically other things may occur. Instead of the liver making urea from the ammonia that it receives from the ingested amino-acids, it can use the ammonia for the direct neutralization of acids forming neutral ammonium salts, which are excreted by the kidney. It does this, of course, at the expense of urea production.

Still one other method of some importance for the elimination of acid is the sweat. In our opinion the good effect of diaphoresis in chronic kidney lesions comes not so much from elimination of the proteid waste as from the elimination of acid.

The clinician has long been interested in methods to discover the reaction of the blood and tissues. He is interested in his study of metabolism of the body to constantly know its degree of acidity. Not so much, probably, its degree of acidity, as its lack of alkalinity. For after all, so far as we know, these acids are not toxic in themselves, and only produce symptoms when they are present in sufficient amount to rob the body of its alkalies. Chemists are searching diligently for methods by which the degree of acidity can be reached. To search for the acids direct makes a more complicated chemical problem than to search for an increase in the activity of the body's defenses. However, both processes are being used by the chemists. Not only the pure chemists, but the physical-chemist, the physiological chemist, and the physiologist are making every effort to get further insight into the chemistry of the body tissues.

We owe much to such workers as Sorensen, Henderson, Cobot, Van Slyke, Haldane, Folin, Rountree, Sellards and many others.

The work of Sorensen on the determination of the hydrogen ion concentration of body fluids is monumental.

The work of Haldane, Van Slyke, Folin and Sellards is of the utmost importance, for they give us new methods of attack. Whenever the chemist presents to the clinician a new method of analysis the clinician is not slow to appreciate the value of the gift. In the study of acidosis the value of the Van Slyke apparatus for the study of the CO_2 combining power of the blood, cannot be over-estimated. For CO_2 in the alveolar air, the Haldane apparatus or the Fredrica apparatus, are exceedingly valuable. The titration method of determining the blood alkalinity was given us by Sellards. All are valuable and have their place. If running experiments in which all are used it is gratifying to find how nicely they check in a general way.

The oldest methods for determining acidity were directed toward the urine. In making titration of the urine it was soon discovered, however, that mere urinary acidities did not give us a picture of the condition of the blood and tissues. To get at the blood and tissues was the problem. Keeping in mind the facts above reported about the liver, and knowing that in acidosis most of the ammonia that goes to form urea was used in the direct neutralization of acid, and excreted by the kidneys as ammonium salts, it was thought that by determining the amount of ammonia in the urine, especially the ammonia coefficient of the urine—that is the relation of the ammonia nitrogen to the total nitrogen of the urine, one could get an idea of the degree of acidosis, and one can if the acidosis is high and the body robbed more or less of its alkali, but for smaller degrees of acidity the process is not sufficiently accurate.

Other investigators of the problem sought to work with the expired air. The expired air contains normally a certain amount of carbon dioxide, a certain percentage, usually 5.5 to 6 per cent. If the blood has sufficient alkali such a carbon dioxide percentage can be maintained in the alveolar air. If, however, the blood does not have sufficient alkali such percentages do not maintain, since the CO_2 carrying power of the blood is reduced, due to a lack of alkali dissolved.

This lack of alkali in the blood can be easily determined by making an estimate of the CO_2 in the alveolar air.

There is an element of error in making these CO_2 estimations in the alveolar air, due to this that the factor of the patient comes in. He cannot always give us residual air, for it is the residual air, not the tidal air, that is wanted. To overcome such obstacles other investigators work directly on the blood in determining its alkali content. They determine the CO_2 combining power of the blood, and since the power to combine CO_2 depends very largely on the alkali content of the blood, we have a very accurate means to determine its alkalinity, in which the factor of the patient is removed. This process is quite accurate, and in our opinion the most useful. Normally the blood will fix 53 to 77 volume per cent of CO_2. The process is based on a very old method of estimating CO_2 of the blood, by allowing blood to flow in a vacuum. The Van Slyke process, not only allows blood to flow into a vacuum, but adds acid afterward to liberate all the CO_2 present. The reading is made direct in percentage, which is gradual on the tube. From this reading by reference to tables which have been prepared especially for the instrument, the volume per cent of CO_2 may be read.

The Rountree Levin indicator-dialyzer method is based on the fact that where hydroxyl and hydrogen ions are placed in a colloidal sac, the hydrogen ions dialyze through more rapidly than the hydroxyl ions. The dialyzed ions are received in normal salt solution and compared with standard tubes, whose hydrogen ions concentration is known. The degree of acidity is determined by the variation of color produced with a few drops of phenol-sulphone-phthalein solution.

Here, then, is an attempt at an untechnical description of the meaning of acidosis.

The importance of the subject to the clinician is manifest.

This much we know of the nature of acidosis, but no one pretends that the subject is fully understood.

Clinically, we are faced by a toxic state, often accompanied by dyspnœa, or edema, or coma and, upon investigation, acidosis is found to be present. When the acidosis is relieved by a suitable diet and by the administration of alkalies, the condition is relieved. We often encounter acidosis in nephritis, in diabetes; in the puerperal state, in hepatic and cardio-vascular disease; in persistent vomiting, in the gastro-intestinal diseases of childhood, etc.

While it is true that some cases appear to suffer from certain types of intoxication in addition to the acidosis, most of them are promptly relieved by increasing the alkalinity of the blood. The benefit that follows the introduction of alkaline hypertonic solution of sodium chloride, Fischer's solution, intravenously or per rectum, in some cases of nephritis is very remarkable. Similar results may be observed in the approaching coma of diabetes and in other states.

The persistent use of alkaline waters or of alkaline mixtures is of great importance in more chronic conditions. In conclusion it may be stated that the search for acidosis is demanded in most cases of coma, dyspnœa, edema and persistent vomiting; also, that when found present, acidosis should be combated and overcome by thorough alkaline treatment.

TYPHOID FEVER IN CHILDREN.*

By GEORGE C. SINCERBEAUX, M.D.,

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TYPHOID fever in children, while in many respects may resemble that of adults, yet has many symptoms less characteristic, and perhaps not recognized as easily as in those in older years.

It is not my purpose to state anything new in diagnosis or treatment, but more to emphasize the importance of milk supply, and give a few facts gathered from our epidemic in Auburn the past year.

The cause of the disease is bacillus typhosus, described by Ebert in 1880, and cultivated by Gaffky in 1884. It is a cylindrical bacillus, with rounded ends, and provided with cilia, and presents lively transverse and longitudinal movements. It does not retain Granes stain, and goes rapidly in ordinary medium, its faculative anærobic, and ceases to grow at a temperature of 115 degrees F., or 46 degrees C.

The appearance of which in bouellon culture is important, as it shows a diffuse turbidity in twelve to twenty-four hours.

The characteristic features are its viability and inability to produce gas in sugar medium. It is important to differentiate the bac typhosus from bac coli and paratyphoid bac, both of which have many similarities.

The bacillus are found in blood roseola feces, urine and spleen. In the blood they are found early in the disease, and in much larger numbers than later.

Koch was able to separate the bacillus from the rejections by the method of Drigalski and Conradi, which was of great diagnostic value, as he was able to recognize and isolate the cases much earlier than had heretofore been thought possible.

Bodies develop and float in the blood stream of which the most important is agglutinin, on which depends the reaction of Widal.

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Typhoid in the majority of cases is water borne, gaining entrance into the body by the alimentary tract, by means of drinking water, polluted milk, uncooked vegetables or shell fish. Flies and wind may play an important part in carrying dried contagion from one place to another, which may be inhaled into the lungs or into the pharynx and then swallowed. Possibly this may explain some of the pneumonic symptoms in early typhoid.

Direct contagion is not the rule, but intermediate contagion is quite common. In later years much attention has been paid to typhoid carriers, which, according to Russel, develop in 3 per cent of all typhoid. The bacillus retain their viability for weeks in water and their virility for a month or more in dried states. They may live in ice for months and milk seems to be heaven for them. Osler says, "Once in the intestinal canal, the typhoid germs probably do not increase in the secretions, but perforate the epithelial lining and reach the lymphoid tissue upon which they exert their specific action, causing a cell proliferation greatly in excess of the physiological process." When introduced into the human body the bacillus is capable of indefinitely reproducing itself.

Age seems to exert some influence, as it is rare before two years of age and over fifty years. Cases have been reported as early as six months.

Morse reports several cases of fœtal typhoid, and also gives the following report on 284 cases; In children up to five years, three cases; five to ten years, 77 cases; ten to fifteen years, 204 cases.

I quote again from Morse investigations made by means of Widal reaction on 50 cases of suspicious gastro-enteric disturbances in children.

1. Typhoid as commonly believed is unusual in infancy.

2. It is possible that women whose blood gives positive Widal reaction, even though it be years after the occurrence of the disease, may in some way transmit this to their infants.

Pathological findings in children are less typical than in the adult. Ulceration, while not infrequent, is often wanting. Sometimes only moderate swelling and redness of Peyers patches solitary glands, esenteric lymphnodes which may occur in simple diarrhea, in fact, there may be no lesion in the intestines at all. The spleen is soft and enlarged, although often much less than in adults. In the more severe cases degenerative changes of liver, kidneys, heart, salivary glands and pancreas take place, hyperemia and œdema of cerebral substance, lobular and bronchial pneumonia with hyperania of bronchial mucous membrane, hypostasis and bronchial œdema. Ulcerative changes in larynx, œsophagus, periostitis and bone changes may follow.

The most characteristic lesions are seen in the digestive tract, though these are much less than in the adult.

There are swellings and hyperæmia of the solitary and agminated glands in the lower part of the ileum and then undergoing resolution without ulceration. If the lymphatic infiltration continues ulceration may, however, develop, which in children has a tendency to heal.

The course of typhoid in children is relatively mild, except in infants. It is liable to be shorter and the prominent symptoms often demonstrable in the adult are less marked or wanting, these only being seen in relapse cases.

The prodromal symptoms, except in severe cases, are slight. Headache and nose bleed are rare, so is diarrhea.

The attack usually is ushered in by slight malaise and gastro-intestinal disturbance, vomiting and constipation being the rule, diarrhea, if any, appearing later. Temperature rises slowly for the first few days, running evenly with slight morning remissions during the second week and declining slowly until normal at the end of third week.

The tongue may be clean, but more often covered with thick white covering with clean tip and margins oftentimes exhibiting the V-shaped red place, or typhoid triangle, in center of tip, which is claimed to be pathognomic.

Loss of appetite and weight are common. The pulse is usually slow in relation to temperature, unless there are certain heart changes. Some have said that a slow pulse with high temperature is suggestive of typhoid.

The younger the child the less the nervous symptoms, usually the only evidence being apathy, restlessness at night, except in severe cases, where we may see the tossing in bed, tremor of hand, picking the bed clothes, delirium and convulsions and other evidences characteristic of meningeal irritation.

The spleen is enlarged according to the severity of the disease, reaching the free border of the ribs at the end of the second week and decreasing rapidly as convalescence progresses. The roseola, which may or may not appear, or be few in number, are seen during the second week on the abdomen or chest. These may come out in crops. The abdominal symptoms are varied. Pain is usually absent, marked tympanitis rare and meteorism not prominent and constipation is the rule. Diarrhea if present, usually appears late and gives the characteristic pea soup appearance.

Intestinal hemorrhages and perforation, so much dreaded in the adult, are rare, except in older children. The urine usually is scant, sometimes containing albumen and casts. The Diazo reaction is generally present until the end of the first week. The blood presents a condition of hypostasis and hypo-leucocytosis, Widal reaction present.

Mortality small, from 2 to 3 per cent to 8 or 9 per cent. Typhoid in children presents so many irregularities that the diagnosis is extremely difficult and frequently is not recognized. The course of the temperature, steady increase in the size of the spleen and eruption of the areola, usually appearing in the second week, together with Diazo and Widal reaction, usually clear up the diagnosis: also Koch's observation of the Dregalski and Conradi method may quickly bring about a satisfactory result in children.

The disease most liable to be confused is military tuberculosis. But in this disease we have the irregular temperature, the spleen not apt to be so enlarged, the Widal reaction negative and absence of the bacillus in the blood.

The important task in treatment of typhoid is prophylaxis and sanitation, i e., in avoiding chief sources of infection, isolation of patients, and disinfection of the excretions, investigation of sewerage and finding good water supply. The room should be kept cheerful and airy, free from noise, and smell of cooking. Dishes and clothing should be kept separate and preferably one attendant.

Baths and sponges should be given for cleanliness as well as to control the temperature. Mouth and teeth should be kept carefully cleaned.

An ice cap to the head is very apt to be unpleasant to the child and when the fever is not high I do not insist on using it. I do not use anything but sponges to control the temperature and not these if they produce untoward symptoms.

Constipation in most cases can be taken care of by the use of oil enemas.

As far as drugs go in typhoid, perhaps my treatment has been a trifle empirical. For the past few years I have been using in all my cases collargolum or colloidal silver. Using in children from one-half to one grain in capsule every six hours. Salol in one to two grain doses every four hours.

Diet.—Boiled water is given in plenty. Milk, while many do not advise it, has always worked well, except for its tendency to cause constipation. Broths, gruel, eggnog, cooked cereals (cooked six hours), orange juice, home-made ice cream, using milk and eggs with addition of milk sugar to each glass of milk, has been my diet.

In the Auburn epidemic there were thirty-nine cases reported of which sixteen were in children under seven years, the youngest being nineteen months. Of these sixteen cases, four were under five years, seven between five and ten years and five over fifteen years.

The first case, an adult, appeared on the 29th day of June and the last one on October 30th. The majority of the cases appeared during July and August. After the first few cases the Health Department started an investigation. This investigation revealed the fact that all of the first cases took milk from the same creamery, except one, and he occasionally bought milk from them.

Following up this clue, by careful inspection of each individual farm furnishing them milk, it was found that on one farm a son of the owner had had typhoid. It was found that two wells on this farm were polluted with intestinal matter. The milk from this creamery was ordered pasteurized and every person willing was given typhoid vaccine. The sewage, water supply, ice cream, skimmed milk, etc., were carefully inspected.

A general admonition was given to the people to drink distilled or boiled water. These precautions being taken, there was soon a marked recession in the number of cases reported.

In the charts which we have here, for which I am indebted to Dr. Sawyer, the health officer, and Mr. Rotherby, the milk inspector, you will note the thoroughness of the campaign.

In order to lessen the chances of cases and carriers of typhoid fever and to control them once they are known, the following are among the means that may be employed:

1. Cleanliness in milk production.
2. Vaccination of dairy employees against typhoid fever.
3. Isolation of infected persons.
4. Official supervision of dairies during the presence of illness.
5. Official supervision of the pasteurization of all milk.

DIAGNOSIS IN GYNECOLOGY.*

Notes on Abdominal and Pelvic Palpation.

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THIS paper is of necessity somewhat elementary. I will therefore select for consideration such points as seem best adapted for the occasion.

All abdominal and pelvic examinations should be preceded by a complete general personal history, and by such general physical examinations as are indicated.

Abdominal Palpation.

An analysis of palpation shows that it is always relative, that the findings are estimated by comparing the resistance to pressure over various areas or tissues or organs. It is usual in making such comparison to use knowledge obtained from past experience. This paper

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advocates a comparative examination upon the same patient and at the same time. A cyst, exudate or solid tumor may in one patient give less, or no more, resistance to pressure of the hand than the normal abdomen in another patient. By such comparison the finding can be very accurately made.

The two sides of the abdomen should be compared, as usually these areas give about the same resistance to pressure. In comparing the resistance in various areas on the same side, it is important to palpate along longitudinal lines to avoid mistakes that may occur from a rigid rectus muscle. The resistance produced by a contracted rectus muscle must be about the same throughout its extent.

By comparison only can a very soft pregnant uterus, a distended bladder, or a cyst with fluid wall be at times detected by palpation. The palpation should always be light, as firm pressure lessens the tactile sense, causes pain, and excites rigidity. Observation of the facial expression is of great value when palpating for tenderness, especially in patients subject to suggestion. In such cases the expression of the face is more accurate than the tongue.

a. Kidneys.—The kidneys in women are palpable as to size, location, mobility, and tenderness in nearly all cases, except in the presence of generalized peritonitis, large abdominal neoplasms, and excessive adiposis. The technique consists in the use of delicate vibratory palpation, such as is employed in bimanual examination of the uterus and ovaries. One hand is placed just below the ribs posteriorly and presses the kidney gently forward; with the other hand delicate vibratory counterpressure is made anteriorly over the region of the kidney. The impulse obtained gives information relative to the kidney. The findings can be verified by comparative palpation; that is, by shifting the position of the hand anterior to the kidney, especially by placing it well beyond the region of the kidney.

In an occasional case an elongated right lobe of the liver extends down over the kidney, and is easily mistaken for an enlarged kidney. Such mistake can be avoided by outlining the liver by means of auscultatory percussion. An enlarged gall bladder may also extend down over the region of the kidney and become engaged with the kidney between the hands, and may be mistaken for a large kidney. This, I believe, can always be excluded by careful palpation.

An enlarged spleen may complicate palpation of the left kidney, but this can generally be excluded by the peculiar contour of the spleen, and with certainty by means of auscultatory percussion.

Other tumors may interfere with palpation of the kidneys and cause errors to be made in diagnosis, but such cases are so infrequent as to be of little importance.

The common method of palpation of the kidneys, namely, by causing them to slip between the fingers with bimanual palpation, is useful and certain, but is not sufficiently delicate for general employment.

b. Gall Bladder.—Estimating from our experience, palpation over the gall bladder, except for tenderness, is of very little importance.

c. Appendix.—It seems advisable to exclude from discussion in this paper the subject of palpation in cases of acute appendicitis. We will also not consider palpation of the normal appendix, as palpation of the normal appendix is entirely imaginary.

For many years the region of the appendix has been palpated for tenderness in nearly all of our patients. In patients who have had an abdominal section, comparison of the findings obtained at the operation with those obtained on abdominal palpation have led to the following conclusions:

Greater tenderness over the region of the appendix than over the corresponding region on the opposite side, is diagnostic of chronic appendicitis, other demonstrable pathology being excluded. Absence of tenderness does not exclude appendicitis, as gross pathologic changes in the appendix are frequently found in the absence of tenderness.

Atrophic changes (appendicitis obliterans of Senn) are accompanied by increased tenderness in about 50 per cent of cases. This variety of appendicitis does not necessarily require surgery, as the atrophy often destroys most of the organ without the occurrence of an acute attack. The difficulty consists in recognition of the variety of the disease. Our experience has led us to believe that in the atrophic type the right-sided symptoms often date back for considerable time and are not intermittent.

Palpation over the region of the appendix in all gynecological patients is highly important, as experience has demonstrated that the appendix is diseased in a very large percentage of cases with extensive pelvic pathology. In women the danger of mistaking suggestive for real tenderness is considerable.

For a time I shared the belief that in cases of colitis more tenderness occurred in some cases on the right side than on the left. My observations have induced the belief that cases of colitis are no exception to the rule. We have encountered few, if any, cases of increased tenderness on the right side due to fecal impaction of the cæcum.

I have frequently directed the patient to point out by palpation the site of greatest

increased tenderness and to compare the amount of tenderness in various regions. This is highly valuable in timid patients with tense abdomens, especially if the facial expression is observed.

Vaginal Palpation.

a. Valuable information is obtained from inspection and palpation of the glands of Bartholin and Skene's ducts relative to the diagnosis of chronic gonorrhea. Redness about the openings of the glands and other signs of infection, such as suppuration or cyst, are almost pathognomonic of gonorrhea. I have not known of a case of abscess or cyst in this location that was not due to gonorrhea, except in one instance where a cyst resulted from a hematoma. Suppuration in Skene's ducts has nearly the same significance as in the glands of Bartholin. The ducts are easily palpated by engaging them between the palmar surface of the finger and the pubic bone. In the absence of a purulent secretion or a cyst, infection is difficult to establish, as the size of the glands varies much in different patients. The finding of a duct larger on one side than on the other, or the presence of a larger urethral valve or fold on one side than on the other, is significant, as they are usually symmetrical.

b. Urethrocele is frequently not detected, and the method of diagnosis is not generally known. Urethrocele is essentially a downward and not a backward displacement of the urethra; palpation of the urethra in these cases demonstrates that it is generally in close contact with the pubic bone. Urethrocele is detected by pressing the urethra upward toward the cervix, and the distance it can be so displaced represents the extent of the lesion, as it is normally quite fixed. At times cases are seen where the lower end of the urethra is not much displaced, while the other portion is considerably loosened and displaced downwards and backwards. In such cases the bladder end of the urethra is often dilated so that the upper part of the urethra appears somewhat funnel shaped. Patients with urethrocele are prone to avoid mention of partial incontinence of urine in giving their clinical history, and thus the lesion is frequently not observed.

c. Ureters.—Palpation of the ureters per vaginam is easily accomplished with little experience, and is valuable in detecting exudates, increased sensitiveness, and occasionally calculi.

Regular attempts at palpation of all cases, especially in a large dispensary practice, very quickly result in ability to palpate a large percentage of ureters along the anterior wall of the vagina.

d. Displacements of the Uterus.—The position of the uterus can often be determined by the appearance of the cervix. When the anterior is much thicker or longer than the posterior lip of the cervix, the uterus is almost invariably in anterior position. The same rule applies to the posterior lip of the cervix. Absence of prolapse of the uterus excludes per se the presence of a retroposition of any pathologic importance. Backward displacement of the uterus, except as a secondary disease, seldom occurs in patients who have a well developed forward curve of the lumbar portion of the spine. These facts are important in examining patients where the pelvic organs are not easily palpated bimanually, and for physicians who are not experienced in pelvic diagnosis.

Palpation of the uterosacral ligaments for tenderness is important, as it often helps determine the degree of pathology of a retropoised uterus. A retroflexed uterus, uncomplicated by other pathology, that is causing symptoms, almost if not invariably has hypersensitive uterosacral ligaments due to increased traction upon the peritoneum. The two band-like folds of these ligaments can usually be detected by palpation in the posterior vaginal fornix, and can more readily be palpated by rectal examination. The experience of most gynecologists is, I believe, that they see very few cases where a retroposition of the uterus without complications is of sufficient pathologic importance to require serious consideration. None of the anterior positions of the uterus should be considered pathologic. The immaturely developed uterus is frequently mistaken for a pathologic anteflexion or anteversion.

e. Chronic Pelvic Infections.—The most difficult class of gynecological patients to diagnose are those with pelvic pain without well defined pathology. Mistakes are commonly made in such cases, as the pain may be due to pathologic states that cannot be detected on pelvic examination, or the patient may have or complain of pain without the presence of pathology in the pelvic organs. Adhesions may involve the uterus, intestines, ovaries, tubes, or pelvic peritoneum, and may be so located as to escape detection on pelvic examination. It has been found that the pain from adhesions is chiefly due to traction upon the peritoneum. It is, therefore, easy to appreciate that any examination which will put such adhesions on tension will be attended by pain. This fact can be utilized in the diagnosis of such cases. The tension may be obtained by traction upon the uterus or by pressure upon the cervix per vaginam or rectum. Any marked distress beyond the normal, which is slight, is of decided importance in the diagnosis. In our experience palpation of the ovary relative to its mobility is very valuable in such cases. If the ovary can be made to slip readily between the fingers on conjoined palpation, the inference should be absence of infection of the tube and ovary on that side, as chronic inflammatory disease of the tube almost invariably in-

volves the ovary. I believe it is conservative to state that chronic salpingitis should be excluded when the ovary can be thus demonstrated to be freely movable. I frequently see patients where the diagnosis of a diseased ovary or tube has apparently been entirely made from the subjective symptom of pain and an abdominal section has been advised.

The low mortality of abdominal section tempts the surgeon to operate for pelvic symptoms without making a careful diagnosis, and for pelvic symptoms without demonstrable pathology. Surgery has developed beyond the time when the results of operations should be based upon mortality. The real test of modern efficient surgery is morbidity. Although exploratory section for pelvic pain in the absence of all pathologic findings is at times indicated, it is a serious problem, as the results are likely to be disappointing and the patient to be made worse.

f. Cystic Ovaries.—It is not necessary to discuss here the diagnosis of large ovarian neoplasms; so-called sclerotic and sclerocystic ovaries will not be considered as they are not proven pathologic entities.

I desire to discuss one feature in the diagnosis of small ovarian neoplasms which is very important, and which has received very meager attention, namely, the differential diagnosis of small ovarian cysts and large corpus luteum. The danger is considerable of occasionally mistaking a large corpus luteum for a small ovarian cyst, and of thus subjecting the patient to an unnecessary operation. The corpus luteum at times attains a size of two or three inches in diameter due to hemorrhage or œdema about the gland. On conjoined palpation it is impossible to distinguish it from a small ovarian neoplasm. The diagnosis should be made by constantly keeping in mind the possibility of a large corpus luteum in the diagnosis of all small ovarian tumors, and keeping them under observation sufficient time to allow absorption in case of a corpus luteum. A lapse of one month is probably long enough to establish a differential diagnosis.

A MODIFICATION OF THE USUAL CLUB FOOT OPERATION, BY THE ADDITION OF TENDON TRANSPLANTATION OR TENDON FIXATION, OR BOTH.*

By PRESCOTT LE BRETON, M.D., F.A.C.S.

BUFFALO, N. Y.

ALL surgeons recognize that a certain percentage of the cases of congenital club foot are too severe to be cured by non-operative treatment. Also that some cases appear for treatment at an advanced age, when it is evident that operation is indicated because of the extent of the deformity and the rigidity. The most popular method of correction is tenotomy of resisting structures plus a wedge osteotomy of the neck and head of the astragalus, and sometimes of the cuboid or os calcis in addition. If any one follows up these operative cases for one or two years, he will find that a certain percentage of them relapse in part. That is to say, the foot does not fully maintain its corrected position, but swings back toward adduction and inversion. The patient walks on the outer border of the foot, pigeon toes, and suffers from callouses. The result is imperfect. This partial recurrence is due to the fact that the operation attacked the effect, which is the deformity, and not the cause, which is the unequal muscle pull. Therefore the writer, during the past three years, has been adding to the usual wedge operation, two procedures, sometimes the one, sometimes the other, sometimes both, according to the case. These are, first, a tendon transplantation of the tibialis anticus, and often the big toe extensor, to the outer side of the foot, and second, a tendon fixation of part or the whole of one peroneal tendon in the fibula. The transplantation robs the inner muscles of some of their excessive pull, and transfers it to the outer side. The fixation absolutely prevents a recurrence of the deformity. It certainly gives one great satisfaction to examine a foot a year after this combined operation and to find that at rest it remains in a normal position, and that on taking hold of the foot and trying to reproduce the deformity, inversion is blocked by the fixation.

The writer has operated on seventeen severe cases, and has done the transplantation fifteen times and the fixation six times. In three cases both the transplantation and the fixation were used with good results in general. He firmly believes that these measures, commonly used in paralytic cases only, are of great value when added to the usual operation for congenital club foot.

The technic, varied to suit the individual case, is as follows: The incision across the dorsum of the foot reaches from the astragalo-navicular joint to the outer side of the os calcis, and includes an oval flap of skin of such width that on correction the skin edges will just approximate. A V is removed by the chisel from the astragalus, leaving a thin shell of the head. Sometimes a smaller V is removed from the os calcis also. Various structures may need tenotomy. The foot then swings to a slightly over-corrected position. From the inner end of the incision the anterior tibial is followed up by retracting the skin, and cut at its insertion. The extensor hallucis is cut opposite the same point. Next a half inch incision is made well above the ankle over these same tendons: they are isolated and drawn out by hooks to emerge from this opening. A thin hemostat is run under the

* Read before the Buffalo Academy of Medicine, January 3, 1917.

annular ligament from the outer side of the foot, is pushed through the upper incision, and the tendons are drawn down toward the cuboid. There they are held temporarily by hemostats, while an incision is made along the groove back of the external malleolus over the peronei tendons. This incision reaches from two inches above the lower end of the fibula to its lower end. The skin is dissected back off the fibula to make a flap. The sheath of the tendons is opened, the peroneus longus drawn out, and cut at the upper end of the incision. Either all of the tendon or one-half is taken to be used for fixation. The periosteum is incised over the fibula in a straight line, and the chisel used to lift periosteum with a thin layer of cortex in both directions. A narrow gouge is made to dig a groove along the bone for the reception of the tendon. Then the foot is turned back again so that the anterior tendons may be anchored first, this part having been deferred so that there will be no strain on their attachments while working back of the fibula. A thin curved chisel lifts a layer of periosteum and bone from the cuboid, one-half inch long and a quarter of an inch wide. A hemostat draws the anterior tendons under this flap and a kangaroo stitch binds them against the bone. The skin incisions over the tibia and over the dorsum of the foot are now closed. The foot is turned over gently, and the peroneus buried in the fibula with kangaroo tendon, the foot being held strongly in eversion. The sheath of the peronei and the posterior incision are closed. The foot is now held by the tendons at a right angle and with a flat sole. The usual cast is applied with overcorrection. The time occupied is about one hour or less for one foot.

A CASE OF LEUKEMIA IN A BOY WITH SOME OBSERVATIONS ON BENZOL.*

By FLOYD S. WINSLOW, M.D.,
and
WALTER D. EDWARDS, M.D.,
ROCHESTER, N. Y.

LEUKEMIA is a disease of the hæmatopoietic system, characterized by an enormous hyperplasia of the leucocytic elements. The disease is of two general types: myeloid and lymphoid, with a few atypical cases. The myelogenous form is characterized by hyperplasia of bone marrow and spleen, while the lymphatic type is distinguished by the hyperplasia of the lymphatic glands and a secondary increase in the size of the spleen. However, in all probability, the whole hæmato-poietic system, marrow, spleen and lymph glands, is involved in every case of leukemia, the essential change being an enormous leucocytic hyperplasia. In some cases this change is localized and proceeds slowly, producing a chronic leukemia; in other cases, of the lymphoid type, it is so rapid as to produce death before there has been much involvement of the other parts of the blood-making system. However, in all cases showing a prolonged course, all the blood-making tissues are involved.

The etiology is obscure. Some cases follow trauma, but the etiology is divided chiefly between the neoplastic and the infectious theories. Streptococci have been frequently reported in the blood and blood-making organs of leukemic patients. Experimental work on chickens has demonstrated the transmissibility of leukemia, but whether in any given case the micro-organism is the actual etiological factor, admits of considerable doubt. In many of these cases towards the termination of the disease, there occurs a rise in temperature, but this may be due to the fact that the vitality of the organism has been so lowered that micro-organisms otherwise harmless for the normal body become virulent and invade the various tissues. The question is, whether the demonstrated micro-organism is the principal infection or merely a sub-infection. Some authorities, notably Mallory, claim a close relationship between leukemia and neoplasms, citing as proof the fact that in many of the organs are masses of cells identical with those of bone marrow, which are foreign to the organs involved, and are apparently metastases.

Pathology.—The pathology is briefly an enormous hyperplasia of all the blood-forming organs—spleen, bone-marrow and lymph-glands; the amount of hyperplasia of the organ usually corresponding to the type of the disease.

Report of Case.

Lawrence Schmitz, age 14, first seen on Feb. 18, 1916. He complained of a large mass in the left side of the abdomen and a general weak-weakness and malaise.

The family history is negative, except that the mother died of eclampsia, and one brother died of convulsions when two days old.

Past History.—Whooping cough at 13 years; chickenpox at 11 years; has had headaches and nose bleed on severe exertion or after eating a full meal; he has occasional sore throat and two or three decayed teeth, which sometimes ache. About two years ago had spontaneous epistaxis every day for about two weeks. One year ago his vision began to be blurred.

Present Illness.—About August 1, 1915, began to feel weak and depressed and his appetite began to fail markedly. He noticed about this time that his abdomen was large and bloated and that there was a "lump" in his left side. He did not tell anyone about this and when his physician came in December, about four months

* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

later, to treat him for a cold, in the course of his examination he found the enlarged spleen.

Physical Examination.—A well nourished boy, age 14, weight 68 lbs. Skin slightly pale, ocular conjunctivæ pale. Lower teeth show a moderately severe pyorrhea. Two lower teeth have large cavities which have been filled, tonsils moderately enlarged and quite ragged. Ophthalmoscopic examination of the fundi shows a typical leukemic retinitis; both retinæ are of a dark red color, the arteries are small and straight and the veins are tremendously engorged and tortuous. There is no enlargement of the lymph nodes. Chest well formed and symmetrical. The lungs are clear and resonant throughout, no rales. Heart enlarged slightly to the left, apex beat one inch outside nipple line. No murmurs. The abdomen is full and protruding and the circumference at the umbilicus is twenty-nine inches. The notch of the spleen is two inches to the right of the umbilicus and the spleen is in contact with the symphysis at the middle line. The liver is slightly enlarged and palpable just below the costal margin. The reflexes are normal. The urine shows a moderate amount of albumin and some hyaline casts.

Blood Examination.—

Leucocytes	550,000
Red cells	2,100,000
Hemoglobin	60%

Differential Count.—

Polyneuclears	15.6%
Eosinophiles	5.6%
Small lymphocytes	6.3%
Large mononeuclears	8.6%
Transitionals	.3%
Myelocytes	56.0%
Mast cells	7.3%

The administration of benzol was begun, starting with 10 M. per day and rapidly increasing to 90 M. per day. Four transfusions were done, beginning February 25th, and repeated at intervals of about one week. The transfusions were done with three possible benefits in view. First, to support the red cell count as much as possible. Second, to prevent any destructive results from the action of large doses of benzol on the red cells. Third, working on the infectious theory of the cause of leukemia, it was thought that transfusions might be beneficial. Transfusions were done by the citrate method, and from 8 to 10 ounces of blood were given each time.

At first the benzol was given with equal amount of olive oil in capsules. The capsules were made up in the pharmacy, a considerable number at a time, and kept in the ward in pill boxes. It was finally noticed that a good many of the capsules were more or less empty, and we came to the conclusion either that he had been getting no benzol at all and that the increase in the number of white cells represented the march of the disease, or else that he got just enough to act as a stimulant to the hæmato-poietic system rather than to produce an aplasia. Then the capsules were filled just before giving them, but they produced so much gastric irritation that the rectum was tried, but it was not retained.

The benzol was started when the leucocyte count was 550,000, and there was a primary rise in the white cell count to 900,000, followed by a gradual drop to 220,000.

At the present time the general condition of the boy is somewhat improved. He is able to be up and about and has gained seven pounds in weight. The measurement of his abdomen has been reduced from 29 inches to 28¼ inches at the level of the umbilicus. The size of the spleen has been reduced to about two-thirds its former dimensions, so that now the splenic notch can be felt just to the left of the umbilicus, and the lower border of the spleen has receded to about four finger breadths above Poupart's ligament. The urine shows neither albumin nor casts. The blood examination at present shows a total leucocyte count of 460,000.

Differential Count.—

Polyneuclears	52%
Eosinophiles	5%
Small lymphocytes	1%
Large mononeyclears	4%
Transitionals	8%
Myelocytes	30%

The subcutaneous injection of benzol was tried on two dogs and fourteen guinea pigs, in some cases clear benzol and in some cases equal parts benzol and olive oil being used, and this did not apparently cause any trouble either local or general, corresponding to the experience of Selling.

A few subcutaneous injections of equal parts benzol and olive oil in doses of M. xv were given to the boy, and although they apparently produced no marked local or general reaction, he complained of considerable pain at the site of the injection. The subcutaneous use of the drug is open to two objections: First, it sometimes produces pain, and second, in giving it, if any benzol gets into the vein the results are liable to be dangerous. During the administration of benzol it was thought that possibly the intravenous route might be used just as salvarsan and mercury can be injected into a vein with much less local reaction than when injected subcutaneously. The drug was tried intravenously on a large rabbit. When first introduced into the veins of the rabbit it was markedly irritant. It first produced marked restlessness and agitation and within fifteen seconds of the beginning of the administration the pupils became dilated, the respirations rapid, followed by a convulsion ending in death. Several doses of benzol were then given to two dogs intravenously, the doses varying from 5 to 15 M. and the effects were the same, except that with a dose of from 5 to 10 minims of benzol, while the animals undergo the same violent agitation

and collapse, they usually recover within a few minutes and later show no ill effects of the drug. Two dogs weighing respectively twenty-five and twenty-nine pounds required a dose of 3 c.c. of benzol to produce death.

During the use of benzol in the above case of leukemia the following observations were recorded:

(1) Benzol produced marked diminution of white cells and its use is attended with benefit in leukemia.

(2) Benzol frequently produces marked irritation when given either per mouth, per rectum, subcutaneously or intravenously.

(3) Benzol is a dangerous drug and its administration should be carefully watched for both the symptoms of benzol poisoning and for a too marked or too rapid reduction of the white cell count.

(4) Benzol cannot be used intravenously.

DR. JOSEPH ROBY, Rochester: The interesting things to me in Dr. Winslow's and Dr. Edwards' paper have been:

First. The rarity of the condition in children. Dr. Holt's book states that the spleno-myelogenous type is more frequent in children, but around Rochester this has not been so.

Second. The unusually high count and the unusual size of the spleen. At one time the proportion of reds to white must have been about 2 or 2½ to 1.

Third. The primary effect of benzol seems to have been a distinctly stimulating one.

Fourth. In another case, in an adult weighing twice as much as the boy, a smaller dose of benzol reduced the count from 500,000 to 30,000 in a short time. Here the rectal administration of the drug worked beautifully, although the man's blood count has since gone back to about the condition it was in before the administration of the benzol.

I think Dr. Winslow is to be distinctly congratulated upon his work, and I hope that it will be in the nature of a preliminary report, and that he will go on and try to develop some safe and sure method of exhibiting benzol. In both cases I think blood transfusion had the effect of holding up the red cells, possibly acting as an anti-toxin and increasing the general resistance of the patient.

Remarks by Dr. William A. Groat at Conclusion of Paper Read by Dr. Winslow.

I am frank to say that I don't believe much in the use of benzol in the treatment of this malady.

Benzol is merely a straight toxication and the presence of a large number of the leucocytes in the blood is not the dangerous element. You can get a line on this very easily from the fact that acute cases are very frequently the cases in which the count is the lowest. In old chronic cases with adults they may run up to a million, and yet they get along fairly well for some time.

There is no question but what benzol would rapidly diminish the number of leucocytes in blood. That can be done experimentally in animals—it wipes them right out. There is no question about that. There is something else back of that. There is some infection agent which—I don't know what it is, but it causes the marked increase in the number of leucocytes.

Another thing in the use of benzol which should be noted, and that is to watch the urine.

IS MEDICINE A BUSINESS?*

By JOHN M. SWAN, M.D.,
ROCHESTER, N. Y.

SEVERAL years ago, in conversation with a physician in one of the smaller cities in this State, my acquaintance said: "After all, medicine is only a business." I have always thought that medicine is not a business, and that the physician who does his work according to the standards of the business man is lowering the dignity of his calling and setting a pernicious example to the other members of the profession.

I recently submitted the four following questions to a conservative business man in this city:

Is it good business policy to buy in the cheapest market and sell in the highest?

Is it legitimate to charge all the traffic will bear?

Is it good business policy for A to claim that his wares are superior to B's?

Is it good business policy to try to create a market for a commodity by advertising it?

In reply to my first question, this responsible, conservative, and successful business man said yes. If this policy is applied to medicine, then the agitation for the suppression of the inferior medical school and the diploma mill is futile. A man would be justified in getting his diploma by the cheapest route and then charging the highest figures obtainable for his services. Having secured his license to practice, he would be justified in spending the least possible amount for journals, text-books, post-graduate study and equipment consistent with his ability to attract patients and to "hold them."

The reply to the question, "Is it legitimate to get all the traffic will bear?" was "Yes, within reason."

If this policy is applied to medicine there is no limit to fees, and no limit to the advantage that may be taken of a man's misfortune. What one man would consider beyond reason might well be considered legitimate by another. It would be highly edifying for the public to read that one of our very rich men had been thrown from his automobile and had broken his leg;

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* Read at the Annual Meeting of the Seventh District Branch of the Medical Society of the State of New York, at Rochester, September 28, 1916.

that Dr. A had driven by, and before he would touch the injured man at all demanded some enormous fee because the victim was in agony and the fee could be had.

In reply to the question, "Is it good business policy for A to claim that his wares are superior to B's?" my friend said, "yes, if he is honest in his opinion." Dr. A might be perfectly honest in his opinion that his equipment and ability were superior to Dr. B's. We might then expect to read in the newspapers that Dr. A is the most expert operator in the city, the county, or perhaps in the State, and that patients with appendicitis would be committing a gross blunder to allow anyone else to operate on them. Or perhaps that Dr. B is the only man within a wide radius who can make a proper diagnosis in a case of kidney disease and that lives would be lost if his services were not obtained at the earliest possible moment. This particularly since it was considered good business policy to try to create a market for a commodity by advertising it. Then the advertisements of the patent medicine man are legitimate and it is perfectly legitimate for a physician to advertise his ability at his own estimate, which would always, of course, be honest. We might expect a man who honestly believed he could do a double oophorectomy better than anyone else to create a demand for oophorectomies by advertising, or one who believed, honestly, that he had a superior method for doing abortions to create a demand for those commodities. We might even see other business methods adopted; for instance, if a physician saw a pregnant woman on the street why should he not write to her and place a bid for the delivery? If one knew of a family in which there were two cases of measles, why not write and offer to care for, yes "cure," both at a discount? Furthermore, as we believe that it is a business axiom to supply the public with what it wants there can be no criticism of the man who furnishes the morphine habitue with morphine in whatever quantity he demands.

An acquaintance of mine, who had purchased a static electric machine, when asked why he had done so replied that he considered it a good way to "pick up easy money."

I remember that when the manufacturing pharmacists began to introduce tablets to the profession one of the arguments used to induce the physician to stock up with an outrageous quantity was that Dr. A dispensed his own medicine and that by purchasing tablets Dr. B could keep his patients coming to his office for medicine and that he could get the fees instead of having the corner druggist get paid for dispensing a prescription.

We appear to have forgotten the honorable past and the admirable traditions of our profession. Twenty-three hundred years ago young men entering upon a medical career were obliged to take the following oath:

"I swear by Apollo, the physician, by Aesculapius, by Hygieia, Panacea, and all the gods and goddesses, that according to my ability and judgment I will keep this oath and stipulation: to reckon him who teaches me this art equally dear with my parents: to share my substance with him and to relieve his necessities if required: to look upon his offspring upon the same footing as my own brothers: and to teach them this art if they shall wish to learn it, without fee or stipulation: and that by precept, lecture, and by every other mode of instruction I will impart a knowledge of this art to my own sons, to those of my teachers, and to disciples bound by a stipulation and oath, according to the law of medicine, but to no others. I will follow that system of regimen which, according to my best judgment, I consider best for my patients, and abstain from whatever is injurious. I will give no deadly medicine to any one if asked, nor suggest any such counsel. Furthermore, I will not give to a woman an instrument to procure abortion. With purity and holiness will I pass my life and practice my art. I will not cut a person who is suffering with stone, but will leave this to be done by those who are practitioners of such work. Into whatever houses I enter I will go for the advantage of the sick and will abstain from every voluntary act of mischief and corruption, and further, from the seduction of females or males, bond or free. Whatever, in connection with my professional practice, or not in connection with it, I may see or hear, I will not divulge, holding that all such things should be kept secret. While I continue to keep this oath inviolate, may it be granted to me to enjoy life and the practice of my art, respected always by all men; but should I break through and violate this oath, may the reverse be my lot."

Customs and opinions have changed since 450 B. C., but the underlying principles of the Hippocratic oath are as unchangeable as the mountains and as accurate as the compass. One man, or many men, may violate them for indefinite periods apparently with impunity; but ultimately there will be a reaction.

The Principles of Medical Ethics of the American Medical Association is the direct descendant of the oath I have just read you and from it I take the following paragraphs:

"A profession has for its prime object the service it can render to humanity; reward or financial gain should be a subordinate consideration. The practice of medicine is a profession. In choosing this profession an individual assumes an obligation to conduct himself in accord with its ideals.

"The confidences concerning individual or domestic life entrusted by a patient to a physician, and the defects of disposition or flaws of character observed in patients during medical attendance should be held as a trust and should never be revealed except when imperatively required by the laws of the state.

"The obligation assumed on entering the profession requires the physician to comport himself as a gentleman and demands that he use every honorable means to uphold the dignity and honor of his vocation, to exalt its standards and to extend its sphere of usefulness. A physician should not base his practice on an exclusive dogma or sectarian system, for 'sects are implacable despots; to accept their thraldom is to take away all liberty from one's actions and thought.'

"A physician should be 'an upright man, instructed in the art of healing.' Consequently, he must keep himself pure in character and conform to a high standard of morals, and must be diligent and conscientious in his studies.

"Solicitation of patients by circulars or advertisements, or by personal communications or interviews, not warranted by personal relations, is unprofessional. It is equally unprofessional to procure patients by indirection through solicitors or agents of any kind, or by indirect advertisement, or by furnishing or inspiring newspaper or magazine comments concerning cases in which the physician has been or is concerned. All other like self-laudations defy the traditions and lower the tone of any profession and so are intolerable."

A friend said, "Of course medicine is a business since we make our living by it." The school teacher makes his living by teaching school; but so soon as he teaches school from the business point of view his school deteriorates and his usefulness as a teacher is impaired if not abolished. The clergyman makes his living by preaching and performing the other duties of his profession, but we all know what is thought of the commercialized clergyman. The lawyer makes his living by practicing law; but the commercialized lawyer is usually called a "shyster."

The physician in the twentieth century is obliged by the nature of the civilization in which he finds himself to accept fees for his services. These fees should be adequate to allow him to support his family in comfortable circumstances, to provide himself with the apparatus and books necessary to keep himself abreast of the progress made by the branch or branches of medicine which he elects to cultivate, and to give himself the proper leisure to recuperate his mental and physical energy whenever they are impaired by the character of his work. The amount of the fee charged by the physician cannot possibly be fixed arbitrarily; but it is my conviction that a physician should make himself out a fee bill on which he indicates his maximum fees for the various services he is prepared to render his patients. It will frequently happen that the circumstances of a patient are such that a reduction of the fee is obligatory, even to its abandonment. Since "a profession has for its prime object the service it can render to humanity" this matter is easily adjusted by the conscientious man. The education of the physician today represents, at a low estimate, an investment of $9,000: A four year course in medical school at an actual outlay of $1,000 per year; two years hospital service at an actual expense of $500, and six years time calculated at sixty dollars a month. The recent graduate on this basis ought to expect to have an income of $900, which represents 10 per cent of his investment. But I venture to say that few men collect that much money during their first year in practice. Each year's experience should increase a man's value to the community, particularly if he looks upon his profession as an opportunity to lead and teach those of his fellow men (the laity) who have not had the advantage of his educational privileges, and if, in order to make his advice more valuable, he does not stop his studies coincident with the receipt of his license to practice.

I wish at this point to express my opinion that no man can become rich through the practice of medicine. It is a fairly well recognized fact that members of the medical profession who are rich have either inherited their wealth, married it, or made it by dividing their attention between scientific medicine and some form of business, to the detriment of their scientific attainments. I well remember a discussion at a semi-social gathering after a medical society meeting in one of the largest cities in the country, twenty years ago, in which one who was considered to know of what he spoke said there were not ten men in that city then who collected $10,000 a year from their practice. And yet $10,000 practices were and are supposed to be common.

There is one side of the fee question which I believe the profession itself must undertake to solve. Let us suppose that Mr. A is a clerk in a mercantile establishment at a salary of $1200 a year and that he has a wife and two children. Suppose his wife is taken ill with an indefinite complaint, and these are very numerous in spite of the cock-sure diagnostician, and requires blood examinations, urine examinations, X-ray examinations, and examinations by specialists of various kinds before a satisfactory diagnosis is reached. After that

she requires a rather prolonged course of treatment or a surgical operation before she gets well, or before the disease ends her life. The endeavor on the part of Mr. A to provide everything possible for the comfort and relief of the sufferings of the one he holds most dear may very readily put him in debt from which he can never emerge. This problem I believe we must settle ourselves and settle satisfactorily or an unfriendly legislature will settle it for us.

I am not sure but that some form of state medicine, based on the laws and regulations of the Medical Departments of our Army and Navy, will not be the solution of the problem.

There are business practices which we as professional men will do well to adopt. The accurate account of the work we do; both charitable and remunerative. The prompt presentation of bills for services rendered. The punctual keeping of appointments. The prompt settlement of debts and other responsibilities are a few that occur to me. Business men in general think physicians are lacking in good judgment because they so frequently do not know how their accounts stand. It is not much trouble for one to make a monthly and annual balance, so that he is able to tell how much cash he has received, how much has been charged, and how much work he has done for nothing or at a discount. In regard to advertising the very best form of advertising that a physician can have is to so study his cases and to keep such records that he shall have a "well-merited reputation for professional ability and fidelity. This cannot be forced, but must be the outcome of character and conduct."

In conclusion let me quote from a recent address by Professor Joseph McFarland and to again express my conviction that medicine is not and ought never to be considered a business.

"Business is often as exacting in the special character and extent of knowledge as any profession, but in business the knowledge and skill are used for the selfish purposes of the individual, the firm, the corporation or the syndicate concerned. In a profession the knowledge and skill are unselfishly used for the advantage of others. It is for this reason that the business man and the professional man so rarely understand one another. Their ethics are different. One is egoistic, the other altruistic.

"In our time, which some love to characterize as progressive, but which others call degenerate, there seems to be a tendency to identify profession with business. Through some fundamental error in the culture of the times, or as the result of our desire for the luxuries in a period in which the cost of living is high and ever higher—though the cost of high-living always has been great—professional men have turned away from their ideals to bow down to the popular idols. We hear of such and such a doctor or dentist, that he is an excellent business man, which commonly means that he is a good money-getter. Professional men are appraised rather by the size of the incomes that they make than by the services they can render. Professional work is carried on according to business methods, and the results balanced and satisfaction felt according to the state of the exchequer. This is unprofessional; it is selfish business. It dwarfs the doctor and justly calls down the opprobrium of self-interest upon him.

"One must live? Certainly he must, and to live he must have money, and to get money he must take fees; but he is entitled to fees proportioned to the services rendered, no more, no less. It is taking too much money for too little service that makes a man a quack."

USEFUL URINE ANALYSES.

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COMMERCIALLY, a very important consideration, which applies to every undertaking, is the measure or article of particular use to those who in the greatest number are expected to employ it.

In medicine the same considerations apply, only more strongly, to all procedures calculated to enlighten a diagnosis or to effect a cure. If, for instance, a given laboratory procedure be one the result of which, be it this or be it that, cannot affect either the treatment or the hope of relief to the patient, then the procedure will be rarely resorted to by the practical physician, no matter how much laboratory men laud it as a basis of exact diagnosis.

Urine analysis, however, is a laboratory measure which is in almost universal use, and of which the value is undisputed. The amplification of observations on the variation in the physical characteristics of the urine was really the beginning of clinical laboratory work, and the first worker who interested himself in its qualities was among the pioneer pathologists. In visiting the Bronx Zoological Gardens, recently, I was reminded of the way in which such observations began among our ancestors. Standing before the cage of one of our nearer relatives, a chimpanzee, I saw the old fellow, who was squatted on the floor, reach out and take up a handful of hay, which he proceeded to squeeze, and, as a few drops of what was evidently urine fell therefrom, he extended his

tongue and lower lip and caught them, and then went through the mouth motions necessary to excite taste. Truly, I thought, such was the primeval pathologist!

Notwithstanding the fact that urine analysis is in general use, and its main procedures among the simplest of laboratory methods, the fact remains that the vast majority of the so-called analyses made are so incomplete in elemental requirements as to be often worse than none. Even the most recent literature from high standard sources is full of quoted analyses showing albumin, but without mentioning microscopic findings which, needless to say, are absolutely necessary before the source of the albumin, and therefore its significance, can be determined. Similar serious errors are invited, and commonly fallen into, by reliance upon the copper tests (Fehling's and others) for the detection of sugar in urine, but of this later.

It seems that one of the main reasons for defective urine analysis is a prevailing opinion that anyone can do the work, often carried to such an extent that in this city recently it was brought out that a commercial laboratory, which boasted of having 300 physician subscribers, put a seventeen-year-old errand boy to examine specimens submitted to it to the extent of 500 per day! In this particular instance it was proven that one physician of extensive general practice had, under his contract to pay $100 per year, been supplied with some 3,000 "analyses," included with which was a daily visit, during the year, of a messenger to his office. So little was this same physician aware of what he was getting that he told me that he had tried to "catch" the laboratory in error by examining, himself, a portion of certain specimens submitted to it, but that he had always found the laboratory to be "correct"!! The, at least, negative value of such 3⅓-cent analyses is indicated when I add that one of the employees of the said laboratory testified that once, recently, when they had been swamped with specimens, they had "sink tested" in the neighborhood of 1,000, and that no complaint had been received concerning the reports "made up" and sent out to cover them. Of course, with such swindles and crudities, reputable and intelligent physicians are concerned only to know of their operation, and they are mentioned but as the extreme examples of worthless urine examinations.

In this article I shall endeavor to cover, somewhat systematically, the main elements of urine analysis, as understood and demanded by the practicing physician in so far as results may be affected by errors for which the technique or the inexperience of a good-intentioned examiner may be responsible. This, of course, covers either the failure to detect that which is present in a specimen, or the very common error of "finding" that which is not there.

A good clinical report of a urine analysis covers about the grounds indicated in the following form which is quoted to supply order to a detailed discussion:

Condition of Specimen.—Often very little care is exercised to see that nothing but what comes from the urethra is in the specimen. Besides any dust and cloth fibers that may be in the vessel in which the urine is collected, it is sometimes put into bottles that have contained substances similar to those for which we test, and which have not been entirely removed. "Fat" droplets, due to the use of an empty sewing machine or olive oil bottle, sugar remaining from a syrupy medicine are the most common contaminates from this source and, if allowed, may largely vitiate an analysis.

The longer the time that elapses between the passage of the urine and the examination, the less exact is the analysis apt to be. For instance, contaminating bacteria multiply, change the reaction and physical condition of the specimen and, through their own mass and that of the phosphates and urates thrown down, very much interfere with an accurate microscopical examination. Any effort to describe an organism present is, of course, almost useless with any but a fresh specimen. Again, any sugar that the urine may contain is often fermented, and lost to subsequent attempts to estimate it, through the action of such very common urine contaminants as the colon bacillus. I have seen specimens containing over 1 per cent sugar completely lose it all within twelve hours on a warm day. The *specific gravity* is, of course, correspondingly reduced.

Physical and Chemical Findings.

Quantity of 24 hours	c.c.
Specific Gravity (15°C)	Odor
Transparency	Sediment
Color	Reaction
Solids %	
Urea %	
Albumin %	Indican
Sugar—Copper Test	Fermentation Test %
Acetone	Diacetic Acid
Specials	
Laboratory Diagnosis	

Microscopical Findings.

Epithelial Cells	
Convoluted Tubules	Prostate
Straight Collecting Tubules	Bartholin's Glands
Pelvis of Kidney	Seminal
Ureter	Vagina
Bladder	Uterus
Urethra	Other
Casts—Narrow Tubules	Convoluted Tubules
Straight Collecting Tubules	Miscellaneous
Erythrocytes	Leucocytes
Crystals	Organisms

The presence of many crystals, such as calcium oxalate, uric acid, etc., often depends upon the period which has elapsed since the urine was passed, so that a diagnosis of "oxaluria," "uric acid excess," etc., often hangs upon the age of the specimen.

Quantity of Twenty-four Hours.—Very rarely is the sample examined taken from the mixed urine of the entire day, and while the advantages of employing such a specimen are usually outweighed by its inevitable staleness, still it should be used in cases where one wishes to gauge the output of such substances as urea and sugar.

Odor, Transparency, Sediment and Reaction are, of course, elements largely affected by the age of the specimen, and these points are particularly important in judging of the cause of an irritable bladder.

Urea.—The known crudity of the hypobromite method for urea estimation (the only practical clinical method for routine use) is commonly greatly enhanced by the use of ureometers, like the Doremus, that are so constructed that, as the gas collects at the top of the tube, more and more escapes measurement inasmuch as a corresponding volume of urine, from which gas is still rising, is forced into the open arm of the tube. Therefore such apparatus had best be substituted by some form of the gas tube. Other common sources of error with this method are the use of too little bromine (now $1.25 an ounce) or of too little alkali, by which either some of the urea is missed or some carbon dioxide is calculated as nitrogen.

Albumin.—The test for this substance is regarded by most physicians as the important, sometimes as the sole important, procedure in urine analysis. It should be pointed out, however, that unless the source of the albumin be determined the possibilities as to its origin are so numerous as to render the unqualified return, "albumin present," really worthless. Is it from the vagina, the urethra, the prostate, the seminal vesicles, the bladder, the pelvis of the kidney, the parenchyma of the kidney; from a hemorrhage or from a lymphatic fistula (as in "chyluria" due to filaria)—nothing but a *painstaking* microscopical examination can tell, and yet how often is this made?

I recall several instances, one the case of a physician, in which diagnosis of chronic nephritis had been made, and even corroborated, as a result of mistaking the albumin and cells from a chronically inflamed or a hypertrophied prostate for pathological renal manifestations. Even rejections by some of the insurance companies, on account of suspected kidney disease, have been noted, when the slight amount of albumin present in the urine was regularly accompanied by microscopical findings of a few spermatozoa and epithelia from the seminal vesicles and ducts, without either casts or kidney epithelia, which should have furnished evidence for different conclusions.

As for slips in the actual detection of small amounts of albumin, it may be mentioned that absolutely clear urine is essential, and that with fermented specimens this is impossible to obtain, by anything short of filtration through a stone filter—a process rarely to be thought of in urine analysis work.

Indican.—Physicians have a general idea that the determination of the extent to which this substance is present is useful, as an indicator of intestinal toxæmia. However, unless a series of tests over a number of days be made, and of specimens of the entire twenty-four hour urine, judgment cannot be based upon the indican findings, since the usual diet variations of a single day markedly affect the results. Thus the results are quite different during the digestion of a fried egg breakfast as compared to those to be got after a bread and milk luncheon.

Sugar.—All of the chemical tests have various drawbacks, but I shall mention only those applying to the most usual and popular of these tests, i. e., those depending upon the reduction of copper sulphate.* Absolute reliance upon one of these tests, such as Fehling's, is responsible for many a wrong diagnosis of glycosuria, or even of diabetes, as all of these tests are affected positively by large amounts of urates, although rarely to the extent of producing a red precipitate. Glycuronic acid, a substance which is said to occur in normal urine in slight traces but which appears in considerable amount after the administration of certain drugs, such as chloroform or chloral, and also in connection with certain liver disturbances, effects a complete reduction, as manifested by a typical red precipitate of the suboxide of copper. If mucus, which is so often present in large amounts in urine, has undergone decomposition, one of the products, a carbohydrate, effects a like reduction.

Though of minor importance, it should be mentioned in this connection that creatinin (commonly occurring in the average urine to an amount as great as 3 milligrams per c.c.) as well as undecomposed mucin, may mask, to the copper tests, any sugar present in not greater amount than ¼ per cent. The practical conclusion is that, while the copper tests can be relied upon to give positive re-

* It must be remembered, when considering the copper tests, that the results are largely influenced by the per cent of sugar present, the specific gravity of the urine, and the proportions of reagent and urine employed.

sults in the presence of sugar (in amounts greater than ¼ per cent) a further test must always be made to exclude the other substances which give like reactions, and for this there is none comparable to the yeast fermentation method. A special advantage of this test is that it may be made the basis of the most reliable clinical estimate of the quantity of sugar present. For this latter, however, a fermentation tube should not be used since it permits the escape of a large portion of any gas evolved (just as the ordinary ureometer does) and a consequent error in the estimate. In place of the fermentation tube a series of three small flasks may advantageously be used, so connected together that gas arising from fermenting urine in one displaces water from the middle flask into the third, which may be so graduated as to show the volume of the water forced over. All readings must be made with the apparatus at the same temperature that it was when set, else the small amount of air necessarily contained, and to a lesser extent the fluids, will, through expansion, lead to error. This is best attained by incubating the apparatus for a few minutes before adding the urine. Both urine flask and water flask should be completely filled with fluid. Furthermore, the specimens must be incubated in an incubator of uniform temperature and over uniform periods, else the varying degree of expansion of the gas produced, and the extent of its absorption by the fluid present, will give rise to error. The basis of the quantitative estimation that I use is the amount of gas at body temperature that I found would be produced by 50 c.c. of a 1 per cent solution of dextrose (c.p.) subjected to the action of about 500 milligrams of commercial yeast for twelve hours. This, at ordinary atmospheric pressure, equaled 135 c.c.

The sensitiveness and the accuracy of the fermentation test may be made to exceed that of any others, as any given margin of error is easily overcome by increasing the bulk of the urine fermented.

Since some have a general idea that the polariscope method of sugar estimation is desirable in urine analysis, it should be mentioned that besides dextrose, and the coloring matters that are, of necessity, first eliminated before employing the test, there are many other substances commonly occurring in urine, both normal and abnormal, besides various drugs, that affect polarized light. An important one of these substances is glycuronic acid, and to eliminate it, in considering a positive polariscope result, recourse has to be had to the fermentation test.

Microscopical Examination.—By far the most important part of a urine analysis is the microscopical examination. As previously explained, upon it depends the importance of a positive albumin test. Indeed, with the sole exception of the tests for sugar and other diabetic elements, the microscopical findings alone are conclusive as to the existence or the non-existence of disease of the urinary tract or its offshoots.

In order to make an accurate and useful urine analysis, then, the examiner must be able to recognize the various epithelia to be found in the urine, and, while this is usually simple enough, it demands equal skill and experience to that required in the examination of tissue sections. In acute infections, such as the exanthemata, respiratory tract inflammations, etc., one of the commonest of complications is enough inflammation of the pelvis of the kidney to show numerous pelvic epithelia and leucocytes, together with a slight amount of albumin. While such complications usually subside with the initial process, without attracting attention it is extremely desirable to watch and make sure that such resolution is prompt, as well as not to ascribe any symptoms arising therefrom to other causes. I recently had occasion to repeatedly examine the urine of a patient that showed marked signs of a pyelitis (pelvic cells, leucocytes, albumin, and the pneumococcus present) coincident with a severe bronchitis. The patient had, six weeks previously, been confined, and as she showed severe and repeated chills, and high fever (105 deg. F.) the attending physician had made a diagnosis of puerperal sepsis. A moderate leucocytosis was present. As the bronchitis cleared up so did the urinary manifestations and the accompanying symptoms.

The importance of the recognition of the epithelia appearing in the urine is further emphasized by the fact that frequently numerous cells from the convoluted and straight-collecting tubules may be found in the entire absence of casts, and I have noted that this condition seems to be frequent in chronic imbibers of considerable quantities of alcoholics. In pregnancy, in cases which may be considered to just fall short of distinct kidney inflammation, many kidney parenchyma cells may often be seen in the urine and are undoubtedly fore-warners (much in advance of the appearance of albumin, of the much dreaded eclampsia.

Frequently there occurs an ascending infectious process of the urinary tract, and this may be most distinctively diagnosed from one originating in the kidney by the nature, relative numbers and order of appearance, as the disease progresses, of the various epithelia involved. Thus, if one finds many bladder, few ureter and pelvic cells, and possibly some from the straight-collecting tubules—even a cast or so from the same—an ascending process is to be suspected, while if kidney parenchyma, or pelvic cells or

both, are prominent, the process must be regarded as originating in the kidney and to have been blood borne.

Another important consideration in connection with microscopical urinary examination is the forewarning to be found of oncoming cystitis in men subject to hypertrophying prostates, since, in such cases, long before acute symptoms arise, large numbers of prostate, urethral and bladder cells and leucocytes occur in the urine.

In several prominent articles on X-ray diagnosis and genito-urinary surgery in connection with urinary tract concretions published recently I have noted that beyond a consideration of the presence of blood and albumin no note was made of the other pertinent questions in urine analysis. What epithelia were present? How were the leucocytes represented? Were there crystals of uric acid or calcium oxalate, or other contributors to stone aggrandizement? It is very wrong to rush to new methods, such as skiagraphy, and neglect entirely the main features of old reliables, such as microscopical urine examination.

The chief of the medical department of one of the largest and best equipped dispensaries in this city told me recently that they had been compelled to force the resignation of their pathologist, who was paid a salary of $1,800, partly owing to the fact that the General Medical Room was furnished daily with from 10 to 20 urine analyses uniformly rubber-stamped "Trace of albumin and a few hyaline casts." This was evidently due to the erroneous notion that prevails with some that such elements are to be found in all urines, which, of course, is not true. One of the commonest errors in microscopical examinations of urinary sediments is to mistake mucus strands for hyaline casts; and, if such have a few leucocytes or prostate epithelia adhering to them, the misnomer of cellular casts may be applied. "Granular casts" found may likewise be nothing but mucus threads stuck over with urates, bacteria, etc.

If the refinements of bacteriology be applied to an examination of the urine there are many acute and chronic infectious processes during which the causus morbi may be isolated from the urine. In fact, the excretory function of the kidney necessarily leaves with it many of any organisms that may develop in or fall into the blood, so that it is to be expected that many would pass into the urine. In the use of the kidneys of freshly killed rabbits and guinea pigs, as additions to culture media, I have found that while it is easy to secure organs which remain sterile in blood serum or hydrocele, much greater difficulty is experienced if the excised kidneys be cultured in other ways suitable for the development of organisms not favored by the first method, so that the theory that germs would naturally lodge in the kidney is greatly assisted by experimental evidence.

Effect of Drugs.—As there are a good many drugs which affect, if appearing in the urine, the usual chemical tests, it would be well for a practitioner in submitting a specimen for analysis to state what medicine or medicines the patient is taking. As examples, some of the interferences of drugs with various tests are noted: *For albumin,* different tests—by cubebs copaiba, sandal wood oil, myrrh, turpentine, terpinhydrate, methylene blue, urotropine. *For sugar,* copper tests—methylene blue; fermentation test—large amounts of antiseptics, such as urotropine, the salicylates; polarization test—quinine, benzosol and other drugs affecting polarized light. If a sugar test should result positively, it is important to know whether the patient is taking any of the following drugs, since glycuronic acid (a substance which has been alluded to as reacting positively with all the ordinary tests except the fermentation) is much increased in the urine under their influence: chloral, chloroform, hydrochinon, cubebs, copaiba, curare, morphine, salicylic acid, tannic acid and turpentine. *For indican*—iodides. For *diacetic acid* (Gerhardt's test), salicylates, acetates, phenol, acetanilid, antipyrin, phenacetin. Determination of *uric acid* and allied substances is interfered with by iodides, caffein, theobromine or rhubarb, etc.

It is hoped that this short summary of some of the features of our old standby, urine analysis, and some of the dangers which threaten to discredit it, will be of some service to the general practitioner, who rarely gets time for individual investigation, and yet who cannot but be led, sometime, to exclaim: "The pitfalls of the laboratory are surely greater than those of the bedside." Generalizations from results obtained solely from one or the other are undoubtedly dangerous, and the motto of practitioners and laboratory men should be the same as that of the Blue Grass State, "United We Stand, Divided We Fall."

PRACTICAL EXPERIENCES WITH DUCTLESS GLANDS.

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THE object of this paper is to place before the readers not an ultra-scientific or theoretical paraphrase of what all journals and text-books are heralding as the latest discoveries in medicine, but to omit opinions of other writers and speak from actual fact what every-day practice reveals, not only to the neurologist but to all practitioners in medicine. It is wise to remember that these ductless glands are not panaceas for all ills as a few utra-enthusiasts imply. Their

worth is becoming more and more understood and their use more and more general among the profession at large. Fresh glands have been tried, hypodermic solutions of these extracts, stock tablets, and mixtures. Except in adrenaline and poteriorpituitary, where the solutions are the best and most reliable, and corpus-luteum, where capsules of the extract preparations have proven of the most worth, the regular stock tablets of recognized pharmaceutical houses are excellent.

The most common terms used in this work are:

Endocrinology—A study of the internal secretions.

Hormone Therapy—Treatment with hormones.

Hormone—A substance formed in one organ of the body acting as a courier travels to another organ of the same body through the blood and thus forms a correlation between the first and second organs. Example—The hormone of the pituitary gland goes through the blood and inhibits the ovarian secretion. Likewise the adrenals inhibit the pancreas.

Homadenology—A study of the blood glands, same as endocrinology.

Chromaffin—Staining with chromic acid, i. e., the adrenal system.

Estrus—The period of sexual activity in animals, the "heat" or "rut."

Enzyme or Zymase—Soluble ferment.

Zymogen—The product produced in the gland just before the ferment, a proferment, i. e., trypsinogen, pepsinogen.

Opotherapy means organotherapy. This is sometimes called sequardotherapy or animal therapy.

Lipoids are extracts of cells which like fats are soluble in ether and chloroform and act like many of the hormones. They cannot be saponified as fats.

Gonads, the sex glands, male and female.

Chalone, an hormone that restricts another hormone from action. An anti-hormone. As the hormones of the pancreas restricts the adrenals.

Enzymes, or Zymogens, are soluble animal ferments.

Epiphysis is the pineal gland.

Hypophysis is the pituitary gland.

Pineal Gland.

Pineal substance has been used for the treatment of certain types of feeble-minded children by Dana and Berkeley. The writer's experience is very different from those two observers. He has not found a single case where he could state positively that the improvement was due to this medication. This gland has also been used for a few cases of obesity. In one case a girl with excessive growth of hair, mental precosity, and increased sex-function, from the good result obtained the disorder was seemingly due to this gland. Not only did this patient have a choked disc on the right side, headaches and a shadow on the X-Ray plate, but with pituitary, the supposed antagonist, the symptoms cleared up so that the patient did not return for treatment.

The symptoms given as classical by most authors in hyperpineal cases are tallness, excessive growth of hair, mental precosity, sexual over-activity and premature senility. Except in the case cited above the writer has been unable to prove these statements.

Pituitary gland is supposed to act the part of a chalone to the pineal gland and in the case cited above it may have done so.

Pituitary Gland.

This gland has been studied very much in the past few years. It certainly is made up of two parts as far as its therapeutic value is concerned. Anatomically it is made up of two lobes and an "isthmus" or "pars intermedia" or "pars nervous." The anterior lobe is larger than the posterior, is made up of epithelial cells, and acts somewhat like the thyroid. Some writers think it is a part of the thyroid which has broken off in the process of development.

The posterior lobe is much smaller, looks something like the adrenal medulla. This lobe embryologically is developed from nerve tissue, the neural canal, while the anterior portion, as stated, is developed from the roof of the mouth.

The pars intermedia has a canal running through it which connects the other two parts. The main structure here is nerve fibers. All kinds of wonderful claims have been made for this "organ enigmatique."

The author is quite positive that the posterior lobe contracts unstripped muscular fibers by its hormones. For this its use in obstetrics is well known. In the cases where a little extra push will drive the head through the birth canal it often works like magic. It will not replace ergot as a hæmostatic for these organs. Ergot does not seem to wear off so quickly as this hormone. Ergot acts principally upon the center, while this hormone goes through the blood and acts directly on the musculature. In the same way it causes unstripped muscle fibers all through the body to contract. In the blood vessels this causes the blood pressure to rise. Hence it should not be given in confinement cases where there is a high blood pressure for fear of apoplexy. For similar reasons vegetations on the valves of the heart or degenerated arteries are absolute contraindications for this remedy.

Although so much like the adrenals the author has seen a case of Addison's disease where this gland had no effect in three months

treatment. A solution of this gland does not blanche mucous membranes and make bloodless operations possible as the adrenals. In cases where it is desired to raise the blood pressure it acts much longer than adrenaline.

The anterior lobe has to do with physical development very much like the thyroid. Tumors of this lobe produce giantism or acro megaly. Removal of a portion of this gland is done most frequently for this condition by way of the glabella going above the cribiform plate of the ethmoid. The one case the writer has seen attempted died two days after the operation from shock.

The characteristics of enlargement of the body due to excessive production of anterior pituitary secretion are coarse skin, looking something like an exaggerated condition of a laborer's skin who must work outside in all kinds of weather; the pores are large, the hair is profuse, but quite irregular in distribution, and a goodly amount of pigment is present. This pigment is often excessive at certain places and appears frequently as a group of freckles on the cheeks, backs of the hands, epigastric region or on the sternum. Constipation, which is so frequent in this condition, makes these discolorations more prominent. The long bones seem to be especially prone to overgrowth, hence the long arms, legs, thighs, toes and fingers. This explains the peculiar appearance of these people who are tall, broad and clumsy. with long arms and large feet and hands. The strength does not increase in proportion, hence these persons are always tired from carrying excessive weight. The whole manner of these people becomes sluggish; they are sleepy, slow talkers, dull mentally, and the increase of body substance craving for nourishment make them often veritable gourmands. Even mild cases eat excessively. The enlargement of the jaws and cheek bones cause a peculiar long face that is often characteristic.

Absence or diminished anterior lobe hormones in the economy cause the opposite condition. This is so common that it is worth describing. The skin is pale minus normal pigment; it is thin and transparent. The pores are very fine and hair is either absent or those hairs present are silky and fine. The whole body seems to be covered with a fine down of hair very much like that seen in weak, debilitated children. Of course, the stature is very small, the hands, arms, legs, fingers and toes are short and delicate. The nervous system is very irritable, dreamers, insomnia, rapid talkers, who often stammer or stutter to get the words of a too active mind out quickly, together with rapid eaters, and other indications of irritability are present. These patients are impatient, therefore cannot learn properly; they are unable to give strict attention for a prolonged period to a subject and cannot get on properly in business, or in the case of children they become deficient in school.

Sexually these cases are underdeveloped both in the size of the genitalia and in the functions of these organs. The secretion of milk is also diminished, in pregnant women.

Combinations of anterior and posterior lobe deficiency or excesses also exist. By careful working out of symptoms it is remarkable how many cases of so-called hysteria or neurasthenia are to be found with this disorder.

The parathyroids are two small glands near the thyroid. Their use has been more talked about lately in paralysis agitans and tetany than is warranted in the author's experience. In nine old persons with typical paralysis agitans absolutely no results could be attributed to this gland. No opportunity has presented itself to use it in a genuine case of tetany. It is known that removal of these glands in animals causes movements like Parkinson's disease.

To go thoroughly into the description of hyper and hyothyroidism would take a large volume. In a nutshell, too much of this hormone in the blood causes symptoms from a mere nervousness or rapidity of the pulse to a Grave's disease. The symptoms can be found in any good text-book on neurology or general medicine.

It is the mild degrees of hypothyroidism that cause so much trouble in cases of obesity. Small doses, especially of Faradicor galvanic currents and exercise are administered, at the same time, as much as one pound a day can be safely lost. The author has given as much as thirty grains a day with the Bergonie treatment for obesity. The blood pressure and heart must be carefully noted in these cases. Tachicardia or nervous irritability should be signs to stop a few days, then slowly start again.

The thyroid in some of its actions is said to act like the anterior lobe of the pituitary gland, and in other ways to be antagonistic. Hypothyroid symptoms vary from a grave case of cretinism or myxœdema to simply alopecia, alactia, or even ammenorrhœa.

The three cardinal symptoms of Grave's disease are tachicardia, exophthalmos, and nervous symptoms as tremors of the hands, an excited countenance, and sensations of fear or terror. In severe cases there is rapid breathing, dyspnœa and hoarseness of the voice. Some of the results are due to the tumor which can usually be felt in front of the trachia. In many cases extirpation partial or complete, or tying off some of the blood vessels to the gland are necessary before a cure or even amelioration of the condition can be made to appear.

In milder cases painting the tumor with iodine and taking fair-sized doses of iodides internally, good results may be expected. Other writers claim to have caused cures of this condition with large doses of pituitary. One case in our experience has entirely disappeared with adrenaline chloride solution 1/1,000, ten drops three times a day in water. In one week the size of the tumor had decreased appreciably. Ergot has given results in a few very mild cases when combined with iodides. Recurrences are very common.

Various combinations of hormones as ovary plus adrenal, or pituitary, adrenal, and ovary worked no better in our hands than the adrenals alone.

Beebe and others have been using the serum of animals from which the thyroid has been removed. This "thyroidectomized" serum has a number of followers. The rationale seems self-evident. "Thyroidectin" is the name used for the dried blood from these animals. It is supposed to combine with the extra thyroid secretion.

In hypothyroidism mild cases show a peculiar lack of delicacy to the skin. It becomes thickened and looks somewhat edematous. The hairs of the eyebrows and in the front border of the scalp begin to drop out. This may be preceded by a profuse dandruff. This was noted in some early cases, although it does not appear as a symptom in the literature. The thyroid hormone seems to be made up of several elements each acting on separate portions of the economy as the hair, sweat glands, mucous glands, heart, blood pressure, growth, mental activity, nerves, etc. Within the past few months at least one of these has been isolated. The thyroid is said to stimulate the adrenals, inhibit the pituitary and the gonads. The last we have also found to be true, Harrower among others claims that the pituitary enlarges when arthyroidism exists. Grave's disease cases usually have ammenorrhea, while the author has seen profuse menstruation in cases of myxœdema.

While in hyperthyroidism the patients become excitable and active in hypothyroids sluggish slow apathy is the rule. Even mild cases become dull mentally and are a very frequent cause for mental deficiency. In myxœdema, marked hypothyroidism, a peculiar exudation is present. This can best be noted under the skin. Does not pit on pressure, and is probably present in all the parts of the body, causing in the brain decrease of power mentally, in the joints poor movement, and in muscles loss of power. Even the hair gets coarse from this extra fluid. This condition may exist in a very mild degree. Certain cases of so-called rheumatism, chronic in character,

A. N., aged 17 years. Infantilism appearance between 7 and 10 years. No hair on any part of body except head; baby's voice. Height 41 inches, weight 67 lbs.

Rickets, hypothyroidism and dispituriasm.

B. S., Norwegian, aged 6 years, height 30 inches. Did not grow in three years. Cannot flex head, has rosary and wristlets. Fingers and toes stubby and short. Pot belly, hoarse voice.

After one year's treatment almost normal for his age.

A. B., aged 6 years. Infantilism. Mentally and physically appears about 2½ years. Face looks a *little* older, but actions and mannerisms not. (Thyroid and pituitary lacking.) Only 39 inches tall.

E. H., aged 10 years. Hypertrophy of thyroid case. (Moron and prostitute.) Note goitre. Quite pretty; cannot close jaw account of malformation at angle. Seems normal, but is below par on all mental examinations.

H. S., aged 11 years. Hypothyroidism. One sister 3 years old is taller than Helen. Voice small and peevish. Never promoted at school. Mentally less than 4 years. Very thin skin. Hair on head very thin. Height 43 inches, weight 30 lbs. Acts "babyish." Said "last night" or "last week" for "yesterday." Picture taken January 2, 1915.

July 2, 1915—Much brighter, skin thicker, profuse head of hair, 4 inches taller, and weighs 44 lbs.

F. N., aged 16 years. Ref., Dr. Reichers. Infantilism. Anterior pituitary lobe, secretion deficient. Genitalia like a child of eight. Size and strength of boy about 8 years; talks, acts and looks about 8 years. Voice not changed. Fingers short and effeminate. Took thyroid extract 4½ years without result. No hair on body, except head. Anterior pituitary in 5 weeks added 1 inch to his height.

which gets worse with rest and with more prostration than the temperature or appearance permit the observer to believe are due to this secretion. And small doses of thyroid for a long time will cure the condition. From what has been said one may judge why it can be used in some types of infantalism, mental deficiency, amenorrhœa, masturbation, etc.

When giving this drug soon as the patient gets fidgety, or the pulse gets too rapid, it must be interdicted for a few days. There is no doubt that iodine plays a big part in this hormone. In fact. some of the results can be obtained by internal and external administration of iodides. For hyperthyroidism calcium pituitary and the gonads. The last we have also chloride, ergot, neutral hydrobromate of quinine (Harrower), adrenaline and anterior pituitary are given. Other symptoms as nervousness, etc., should be treated by bromides, valerianates and arsenic. Many authorities state the thyroid medication is contraindicated in diabetes because it is supposed to interfere with the pancreatic secretion. In three cases we found the reverse to be true. Much has been stated about the action of thyroid on the blood pressure—small doses certainly lower the pressure, but long continued, especially if large doses are given, cause a rise in the pressure from direct action on the heart muscle.

The gonads, in the male the testicles and in the female the ovaries, besides the ovum and the speratozoa secrete hormones. The absence of which is well known. When the testicles are cut out of growing children these children get a build in stature like mature men and get stouter, broader, hairy faces, and less agile. Their actions also become more mature. In some cases the sexual characteristics following puberty do not appear. For instance the voice does not change and the boy looks quite effeminate. In the female ovariectomy brings on a premature menopause. Menstruation often stops, flushes come on, and obesity to some degree frequently is apparent. In addition like during the menopause general nervous irritability is present. Diseases of these organs produce these symptoms to a degree in proportion to the disease. In addition, of course, the local symptoms of inflammation and temperature and

pain are also to be found. Recent writers claim that a certain amount of female hormones exist in men and some of the ovarian hormones are kept in check in females by a certain quantity of testicular hormones which probably can be found in some of the ductless glands or lymph nodes of all normal girls and women. Even if this is theoretical there seems to be some justice in this thought on the assumption that an individual is properly balanced as to his or her masculinity or femininity. All women have some of the men's traits and all men have some of the sentiment, judgment, behavior, tastes, etc., of the gentler sex. Physically this also seems true—the hard-headed, rough highwayman contrasted with the lady-like man we have all met.

Hypo-oöphoroism is much like hyperthyrodism. Calcium elimination is increased by the ovaries and the extract is given in ostœmalacia for this reason. Menstruation is certainly increased by this extract while the corpus luteum, which is much stronger than whole ovary, by medication has been noticed in two cases to produce menorrhagia. In one of these cases what seemed to be a vicarious menstruation, a bloody nose resulted. In this case twenty grains were given per dose three times a day. It is supposed to act directly by irritation of the endometrium. The gonads increase sexual excitability, and it is possible that some of the perverts, home-sexualists, etc., have gonad disorder.

The chromoaffin system is made up of the adrenals and the ductless glands which assist these organs to work. The name is derived from the fact that there is a deeply staining substance present in all of these. Such glands as the thyroid, pituitary, and parathyroids form this system while the pancreas, gonads, and to some degree the pineal are antagonistic to it. Although these statements can be found in the writings of such men as Von Norden, Eppinger, Harrower, Okintshitz and Hertoghe, etc., the author believes most of the conclusions are theoretical. From practical experience it has proven a good plan to give diabetics thyroid, together with the other generally advised methods. This is an absolute contradiction to many experts, but in one marked case thirty grains of thyroid per day for several weeks has kept down the sugar in the urine and the woman seems well and surely has become stronger. This was a persistent affair of long standing, and all the subjective symptoms were decidedly in evidence.

The adrenals consist of a cortex and a medulla. Adrenaline is made from the medulla. It is claimed by some authorities that the cortex has to do with the development of secondary sexual characteristics. These men state that after castration the cortex becomes smaller. In maldevelopment of the genitalia or ovaries the cortex is also very small, while in the breeding season in certain animals this cortex is large. Varalde injected rabbits with adrenaline for a prolonged period and the ovaries atrophied, and in some of the rabbits of his series connective tissue replaced these glands.

Adrenaline, the medulla preparation, is the one most commonly used of all the internal secretions. Its one greatest function is to stop bleeding. It does this by acting on the muscular coats of the arteries and contracting them, thus making the lumen smaller or even obliterating it. This makes it so valuable in surgery. The fact that it contracts all unstriped muscular fibers causes the blood pressure to rise, the heart to beat stronger, and weak arteries to burst. It works much stronger than pituitary, but for a much shorter time. This contractile action has made it a favorite in weeping mucous membranes, as hay fever, mucous enteritis, etc. It is used also for cases of shock where there is a low blood pressure and a weak pulse.

It is absolutely contraindicated in diabetes. This gland acts as an antagonist to the pancreas which is the seat of disorder in most cases of glycosuria. Experimentally sugar can be made to appear in the urine by repeated injections of adrenaline, so definite is the proof that it is probably true that diabetes and hyperadrenalism are synonymous terms. The hormone balance between the pancreas and the adrenals is not normal in so-called pancreatic diabetes.

In Addison's disease, which is supposed to be a disease of the adrenal glands, the pigment ought to become absorbed by this therapy. The one case we have seen was not influenced at all. Some of the pronounced asthenia disappeared, but because good tonics and stimulants were used it is quite likely that they were as much responsible for the result as anything else. It is reasonable to believe as much at least as the specific impirical medication. The improved circulation may have resulted from this drug.

This extract is being used for every known malady to absorb tumors, infectious diseases; in the one to decrease nourishment to the abnormal growth, and in the second to contract the blood vessels so as to keep the bacteria out of the blood stream. In cholera it also stops the diarrhœa secretion, and helps the shock. In scarlet it decreases the hyperæmia; in measles ditto; in typhoid, for the prostration, weakened blood pressure, absorption of toxines and the diarrhœa it seems to be a remedy "par excellence." This drug has been used for vomiting of pregnancy, cyclic

vomiting of children, dwarfed growth—physical and mental. These cases do not seem to warrant such treatment in our experience. Some cases of hemorrhage, poisoning, edema, angioma, hemorrhoids, asthma, etc., might be helped with cautious adrenal medication. But the blood pressure, heart and kidneys should be investigated regularly for excessive action. It must be remembered that the blood vessels in the kidneys are very small in size, and liable to rupture or degeneration.

It is quite evident then that the most important contraindications to adrenaline are hypertension, tuberculosis with cavities, calcareous deposits in the arteries or heart, acute endocarditis, diabetes, and the opposite of shock, i. e., mania, intense pain, fear, or anxiety.

Because the thymus exists only in animals before puberty it has long been used as a developer of the body. We have easily obtained this gland some years ago from sheep, but could never get any results with it for medication. It has a great reputation in rickets, controling the calcium output in young children. To us calcium salts given by mouth seem more rational. The literature abounds in claims of its value in rheumatism, scurvy, even in carcinoma.

Extracts of almost every part of the body are now well under way of experimentation, the liver, spleen, brain substance, spinal fluid, peritoneal fluid, lymph glands, and others. Results differ and are unsatisfactory. Some good results have been claimed with pluriglandular therapy for carcinoma at Rochester. One case of mammary cancer in which life was probably prolonged was treated for three years with stock tablets of ovary, thyroid and adrenaline.

The future of this method of treatment promises more than the most sanguine would dare predict today, and doctors would be wise to help this movement both for the interest of science and for the welfare of suffering humanity.

EFFECTS OF TONSIL OPERATIONS IN SINGERS—AN ANALYSIS OF 5,000 CASES.*

By IRVING WILSON VOORHEES, M.S., M.D.,
NEW YORK CITY.

TOTAL or partial removal of the tonsils is one of the most frequently performed operations in the entire realm of surgery. So common has the operation become that nearly every person holding the degree of doctor of medicine performs it in the course of his yearly practice many times, no matter what his "specialty" may be.

Whatever may be said for or against tonsil removal in other persons, it is a matter of very vital importance to the professional singer. It is squarely up to the laryngologist whether the operation is justifiable in singers or not.

During the past five years I have been confronted many times by this question: "Doctor, if I have my tonsils out do you think it possible that I may lose my voice altogether?"

Then follows a story of some one who knew some one who had her tonsils removed and was never able to sing from that time on.

This statement became so trite that I determined to find out if it can be true. Many singers were questioned but none knew of any specific instance of lost voice, although almost every one had *heard* of such a case.

Since any one man's experience is quite worthless unless he has studied hundreds of cases, I determined to solicit the aid of my confreres, both rhinologists and vocal teachers. Accordingly a questionnaire was sent out by mail to 500 throat specialists and 500 vocal teachers, asking for information.

I shall present the evidence adduced *seriatim:*

To Physicians.

Question 1.—*How many singers approximately have you tonsillectomized?*

One hundred and eight men reported 3,427 tonsillectomies. Of these some could not spare the time to look up records, others kept no records and five were against operating on singers at all.

Question 2.—*Was there resultant cicatricial contraction of the pillars and soft palate in any case?*

Out of 341 cases only 46 showed cicatricial contractions, which is truly an excellent operative record. On the other hand one gentleman said he had "observed" two hundred cases operated on by other surgeons, "many" of which showed such contractions. Another surgeon had "treated" 100 post-operative cases, in 22 of which (22%) he found cicatricial contractions present in the fauces. It is fairly impossible to form any accurate judgment of this matter owing to the guesswork with which many reporters seem to be laboring. The words "many," "few," "several dozen," "great number," etc., show the mental haziness which descends on our horizon when we try to apprise facts for scientific purposes. However, in order to strike an average, one may say that cicatricial contractions seem to have been present in about one-sixth of the total number of reported cases.

Question 3.—*What were the effects of tonsil operations on the singing voice? (A), Good; (B), Bad; (C), No change.*

This is the salient question in the inquiry and yet it was frequently answered in slipshod fashion or overlooked entirely. One hundred men

* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 18, 1916.

reported good results in approximately 2,849 cases, while 29 men reported no change. Four reporters declared absolutely bad effects but did not go into particulars as they were specifically requested to do; therefore we are in the dark as to what these bad effects were. Two of these four men had never operated themselves and the other two had done "very few" cases. Both declared their observations based on a "large" number of post-operative cases sent to them for inspection.

Question 4.—*Were these effects temporary or permanent after one year?*

In all cases the *good* effects were permanent. In cases where untoward or bad effects were noted these disappeared within from one to three months after operation. No bad effects seem to have persisted after the third month. A great many men expressed dissatisfaction in not being able to follow up their cases in the proper manner, since pupil singers migrate to the larger towns and to Europe. In general singers as a class are fond of consulting many different specialists in the cities where they visit.

Questions 5 *and* 6.—*What bad effect, if any, was complained of, and what do you think was the cause of this bad effect?*

Ninety-five men reported no bad effects in a total of 2,904 cases. One holds the proud record of 300 tonsillectomies without a single bad effect of any kind. Thirty-eight men reported bad results in 172 cases. These were in outline about as follows:

"Vocal stiffness" for a few weeks. Decreased volume and impaired quality.

Difficulty with the flexibility of the top voice.

Voice lowered and range limited.

Difficulty in placement or loss of placement.

Loss of purity and sweetness of tone.

Metallic quality.

Vocal fatigue after vocalization.

Dryness of throat and sensation of a feather tickling the throat.

"Catch" in the voice.

The causes of these untoward symptoms as viewed by the specialist, were:

Faulty technique whereby the pillars and soft palate were injured; changes in the faucial contour due to cicatricial contractions; involvement of fibres of the glossopharyngeal nerve; temporary inco-ordination of vocal musculature; lost lubricating function of the tonsils; relaxed pillars, necessitating a rearrangement of the resonating influence of the pharynx and naso-pharynx, and using the voice too soon after operation.

One surgeon reports having done 3,500 tonsillectomies! Of these about fifty were singers and in none was there any difficulty except "stiffness of the throat" for a few weeks.

Question 7.—What type of tonsil (buried, small, hypertrophic, pedunculated, etc., in your opinion gives the best chance of voice improvement after removal?

All are practically agreed that the hypertrophic offers the best hope of improvement. The best answer probably is, any diseased tonsil whether large or small should be removed if such disease and resultant symptoms have been established beyond peradventure of a doubt. Some years ago Professor O. Chiari, of Vienna, showed that greatly hypertrophied tonsils may be removed with impunity only if we calculate beforehand how to prevent relaxation of the palato-glossus and palato-pharyngeus muscles. Removal of such a large mass of lymphoid tissue leaves a large fossa which must be filled in by granulation tissue and subsequent cicatrix. I have always felt it wiser in such a case to do a tonsillectomy and to treat the cryptic stumps with chronic acid or the electro-cautery after healing is fairly established.

This brings us to the crucial question:

Question 8.—*Do you know of any case in which the singing voice was apparently destroyed by a tonsil operation?*

Only fifteen men out of one hundred and thirty-three confessed a knowledge of any case in which the singing voice had been destroyed by operation. The inquiry was intended to apply to those who had been obliged to give up all effort to sing after tonsillectomy. One man replied, "Lots of them, as a result of injuring the pillars during radical extirpation. I consider enucleation with the capsule injurious to the voice because of resultant prolapse of the pillars, and I apply the old rule, only to remove diseased or hypertrophied tissue."

In one case "harm was done to the voice by a bungling operation."

Dr. ——— reports two cases "who claimed that they were never able to sing after tonsillectomy" and adds naively that he doubts whether they could sing before the operation, either!

Sifting down the "evidence" of these fifteen laryngologists who declare themselves against tonsil operations in singers, such evidence is intensely vague, uncertain and seems, after all, to be based mainly on hearsay.

Question 9.—*To what circumstance or technical fault do you attribute this destruction?*

There seems to be a unanimity of opinion that faulty technique is at the bottom of any post-operative difficulty. The phrase "faulty technique" occurs again and again, while injury to the pillars, laceration of uvula and soft palate, too extensive cutting or tearing of parts adjacent to tonsil, and ignorance of anatomy and function of the tonsils are other ways the reporters have of describing the causes of vocal destruction as they view it. A certain reporter complains of those "who operate without anesthetics in sensitive throats which patients cannot control during operation." Surely any

one who attempts without anesthesia, any kind of operation on the highly-strung, supersensitive singer is guilty of a serious offense.

Thus far we have considered only the reports coming out of the experience of the laryngologist. Let us now take up the replies to the questionnaire set for singing teachers only. There was a great deal of difficulty in reaching the teachers, because their national organization has few members, and there is no roster of the states such as the Americal Medical Directory affords. Nevertheless a goodly number of those addressed replied, but the writer regrets that he was unable to secure a longer list.

Question 1.—*How do diseased or enlarged tonsils affect the singing voice?*

The general opinion among singing teachers is that such tonsils muffle or deaden the voice, take up space needed for perfect vocalization, interfere decidedly with the amplification of tone, make the voice thick and throaty and limit its compass, diminish the pharyngeal and nasopharyngeal (head) resonance, affect the general health, cause liability to colds and weak throat, and prevent the expansion of the throat necessary for high voice.

Question 2.—*How many of your pupils approximately have had their tonsils removed?*

About ten to twenty per cent of vocal students some time in their career undergo tonsil operations. One teacher says that a large percentage of so-called throat trouble is caused by diseased tonsils, and he recommends all such persons to undergo the operation before beginning vocal work.

Question 3.—*Was the removal total or partial?*

The consensus of opinion is that total removal is preferable; for after partial removal "the tonsils grew again" and the pupil went through the same series of "sore throats every few days" as before. One teacher says that the question of total or partial removal depended in his experience on the skill of the operator.

Question 4.—*Was there any bad effect on the singing voice. If so, how manifested?*

Nearly all of the reporters say that no bad effect was noted. One teacher found it hard to bring into the voice any softness or color. Another thinks the operation does not benefit since it makes the focussing of tone impossible. "Natural conditions are changed," says one, "and the fine adjustment of the pharynx is interfered with." In some cases the voice was lowered; in others heightened from a half to a full tone. In at least one case lack of resonance was complained of, and in another the voice was weak and there was difficulty in focussing and holding the pitch.

Question 5.—*Do you know of any case in which the singing voice was apparently destroyed by tonsil operation? (If so, a detailed report would be most acceptable.)*

The majority of reporters answered *no* emphatically. One voice was damaged (not lost), "by cutting a pillar of the fauces." Another teacher complains of "careless cutting of ligaments" but does not say what was the result to the voice. Still another teacher finds that "in all cases emptiness of tone was the result, and in many cases the tonsils grew again, causing more operations." One reporter calls attention to the alleged fact that Campanini never sang again after removal of the tonsils.

Question 6.—*What percentage of good results have you found?*

Fourteen teachers have seen 100% of good results; a few only 50%. Some found no effect good or bad, and one thinks the operation "helpful in some cases, harmful in others." At least one is very enthusiastic about the results, and would have every pupil operated upon regardless of the indications.

Everywhere throughout the long list of answers there is evidence of ignorance which ought not to exist. The vocal teacher is often out of sympathy with the laryngologist, and the laryngologist quite as surely fails to understand what the teacher is driving at.

For example: "In all of my work as a teacher I have never had to send a student to a throat specialist. The tonsils, if there has been any difficulty, have, through correct usage of the throat, voice and breathing with the aid of proper systematic remedies, gone back to a natural, normal size," etc.

By contrast, a Chicago teacher writes: "If more singers would consult a skilled throat specialist we would have more real singers. No matter how perfect the method, it does not count unless throat and nose conditions are normal."

Another teacher thinks that "bad tonsils can be corrected by proper habits as applied to food, air, breathing exercises and sleep. They are an indication of a poisoned system. Removal does not touch the cause."

In a personal letter a physician writes his opinion that "much tonsil trouble is caused by bad teaching."

In my own experience twenty-five singers have been tonsillectomized with uniformly good results. That is, the range has been improved a half to a full tone, and there has been no difficulty in adjusting voice placement to the new conditions. Vocal power and resonance have both been increased. In one case, a very large man, hemorrhage occurred four hours after operation. This was controlled by grasping the bleeding point with a special kind of artery clamp. Recovery was uneventful. There was no contraction of the fauces in this case, and his teacher declared that the improvement in vocal work was very noticeable. However, in one baritone whose course of healing was uneventful there seemed to be a greater tendency

to bronchitis after operation. I cannot say if this was really so as I had to rely on the testimony of the patient, who, in spite of this alleged untoward effect, was glad that he had gone through the operation.

There is no doubt that in certain selected cases it is better to temporize than to do a radical operation. Special considerations which cannot be entered into at length here, afford the basis of such judgment. It is occasionally better to do a tonsillectomy and treat the cryptic stumps by introducing a bead of chronic acid or the electro-cautery point. This especially in the very large tonsil, which holds the two pillars in an apparent state of tension. The small, cheesy tonsil should be removed *en masse,* as nothing is to be gained by simply puttering with it. The sooner it is out the better. In conclusion:

(1) An analysis of 5,000 tonsil operations in singers shows that in the hands of skilled operators there need be no special fear of bad results.

(2) It is the consensus of opinion that bad results are most often due to cicatricial contractions occurring from careless dissection or from neglected after-treatment.

(3) Pain in the tonsillar region, neck and larynx is probably due to section of some of the larger branches of the glosso-pharyngeal nerve (Justus Matthews).

(4) Loss of singing voice occurs very rarely after tonsillectomy, if at all. Impaired voice is possible, but most cases show an increased range of from one-half to a full tone.

(5) Loss of singing voice after tonsillectomy might be due to a nerve lesion, but is probably due to adhesions and cicatricial formations in the fauces.

(6) The singer's problem is a very special one, and no laryngologist should undertake to operate on these patients unless he has some knowledge of the art of singing.

(7) At operation the greatest care and skill must be exercised in securing a clean, free dissection. Injury to the tissues surrounding the tonsil may prove disastrous.

(8) Post-operative care is of special importance. The patient should be seen daily until full healing ensues.

HEALTH INSURANCE FROM THE PUBLIC HEALTH VIEWPOINT.*

By ARTHUR KRIDA, M.D.,
SCHENECTADY, N. Y.

ONE of the interesting aspects of the proposed health insurance legislation is the one dealing with the constitutionality of such a measure under the federal and state constitutions. That portion of the Fourteenth Amendment which states "nor shall any state deprive any person of life, liberty or property without due process of law" is contained as a provision in all state constitutions. Prof. Joseph P. Chamberlain, of the Legislative Drafting Bureau of Columbia University, states in substance that such infringement of personal liberty and property which the proposed legislation would entail would be upheld by the courts as constituting part of the police power of the state. The extent of this police power has never been sharply defined, but that it certainly extends to matters involving the public health is shown by Art. 19 of the New York State Constitution, which reads as follows:

"Nothing contained in this constitution shall be construed to limit the power of the Legislature to enact laws for the protection of the lives, health or safety of employees."

This article furnishes justification for laws dealing with hours of labor, woman and child labor, factory inspection and workmen's compensation, all of which are without the province of our regularly constituted health departments. Mr. Freund, an authority on the subject of police power, states, in regard to compulsory health insurance, as follows: "In a large sense the community is certainly interested in averting sudden and unexpected losses as well as the destitution following from sickness and disease, and the distribution of these losses over large numbers through insurance is a legitimate end of governmental policy."

Now, since the question will be largely fought out on the basis of its being legislation tending to promote the public health, let us examine some of the facts which may be brought forward to support such a contention.

Untreated sickness certainly is a menace to the public health. When the occasion demands, we pride ourselves as a profession upon the fact that we minister to the poor without remuneration, and we point with pride to our charity wards, free dispensaries and our own individual charity work in our practices. Such statements enlarge one's ego, besides serving the beneficial purpose of eliciting contributions to hospitals and charity relief organizations. But does such a state of affairs meet the situation? Investigations made for the purpose of arriving at some determination on this point are emphatic in demonstrating that our present happy-go-lucky system comes a long way from meeting the situation. An investigation made in September, 1915, by the Metropolitan Life Insurance Company in the city of Rochester showed that 61% of all the cases of illness in the city at that time had a physician in attendance, and that only 45% of those sick but still able to work were receiving medical attention. Rochester is a rich and prosperous community which has more doctors per capita than any city in the state. This high percentage of uncared for illness would probably not be lowered in other portions of the state. That most

* Read before the Medical Society of the County of Schenectady, February, 1916.

of this sickness occurs among the poor is a presumption which is borne out by the survey made by the State Charities Aid Association in Dutchess County. It was shown that 81% of the well-to-do were receiving adequate medical care, while only 32% of the poor were receiving such service.

Coupled with this undoubted inadequacy of medical treatment of the poor is the very evident fact that illness is a much more common ocurrence among what may be called the wage earning population than it is in the ranks of the well-to-do. In the absence of extensive morbidity statistics in the United States we may take as indicators of this state of affairs: (1), the tuberculosis death rate; (2), the large increase in the deaths due to degenerative diseases of the vascular system; (3), the infant mortality rate, and (4), the variations in morbidity and mortality found in the various trades and callings.

(1) Tuberculosis, which is peculiarly a disease of overwork, malnutrition and insanitary surroundings, is a prevalent cause of death among the industrial population. A federal investigation in Fall River in 1907 showed that among cotton mill operatives ten years of age and over 32.8% of the 287 male deaths and 37.5% of the 299 female deaths studied were due to this disease. Among persons ten years old and over who were not cotton mill operatives, 13.9% of the 1,097 male deaths, and 8.5% of the 1,271 female deaths studied were due to the same cause. In other words, this means that cotton mill operatives are more than three times as liable to contract tuberculosis as is the rest of the population.

In 1914 in Massachusetts, where the Metropolitan Life Insurance Company insured one out of every six persons in the state, tuberculosis caused 13.4% of the total 7,273 deaths among this company's industrial policy holders, whereas among the general population over one year of age tuberculosis accounted for 9.6% of the total of 43,315 deaths of 1913. "This," says Louis I. Dublin, the statistician for the company, "is an important difference and may be directly charged to the greater life strain to which the industrial classes of the community are subjected. Tuberculosis mortality is especially significant because it affects the main working period of life, the average age of those dying from tuberculosis being thirty-seven years of age."

(2) *Degenerative Diseases of Middle Life.*—The New York State Health Department has pointed out that deaths from this cause have doubled in the past thirty years, and that these diseases constitute a menace to national vitality. The extensive experience of the Metropolitan Life Insurance Company among the industrial population shows that deaths from this cause are next in frequency to tuberculosis. That degenerative diseases are, in part, a result of the industrial strain imposed upon men is indicated by this experience. While the difference between the death rates of these workers who were not too sick to be insured at risk and of the general population as a whole is not great for the whole state, for individual industrial cities like Worcester it is very marked.

(3) *Infant Mortality.*—We have always considered this a sensitive index of the general health of the community. Statistics are unanimous in showing that the death rate is very materially higher among the poorer classes. The U. S. Bureau of Labor found that in Johnstown, Pa., the rate in a ward where resided largely unskilled laborers, was twice that of the city as a whole. In numerous similar investigations conducted elsewhere, it was shown that if the death rate of a "slum" ward be compared with that of a residential ward, it would be frequently found to be as much as five times as great in the "slum" ward.

(4) *Variations in Mortality and Morbidity in Various Trades.*—In dusty trades the mortality rate of tuberculosis is especially high, as the U. S. mortality statistics show: From 1897 to 1906 the percentage of deaths due to tuberculosis in individuals over fifteen is as follows:

All males, total registration area	14.8
Occupations exposed to vegetable fibre dust	24.8
Occupations exposed to mineral dust	28.6
Occupations exposed to animal and mixed fibre dust	32.1
Occupations exposed to metallic dust	36.9

Variations in the morbidity rate among the various trades are not available for the United States, but we may utilize the German experience in their regard. The average number of sick days per year in that country is ten, and we find variations from four sick days per year for clerks and bookkeepers to fourteen sick days per year for printers, paper workers and cigar makers. Therefore, under our present system of caring for illness the printer is penalized ten days of illness per year over the clerk, for the privilege of becoming a printer.

When we seek for the causes producing such a state of affairs we have to venture into the vast field of sociology and economics, a path which we are assured, "amateurs" are treading so ruthlessly in their crusade for health insurance. However, since law and usage have not yet defined who may or may not be a professional sociologist, we are in much the same position in judging as is the patient who is seeking a surgeon to perform a serious operation. The best that we can do is to use our judgment, and to consider those who by patient study and practical personal experience have achieved unto

a position in the community that their views carry weight with intelligent individuals. Usually their studies reach into the causes of human misery. Their friends call them sociologists. Those who do not stand to profit by their investigations, the smug, the conservative, call them amateurs and muckrakers. Their names are frequent in history. I need mention only one example. We read David Copperfield and marvel that only sixty or seventy years ago such flagrant abuses of prisons were prevalent in civilized England; yet had not Dickens held this unlovely thing up to the public gaze, the restitution that came would have been delayed for many years.

These amateur sociologists tell us, and prove it fairly well, too, that on the basis of extensive investigations, sickness and poverty form a vicious circle in the lives of a considerable percentage of poorly paid wage earners. The highest estimate of the average income of the American wage earner that I have been able to find places the figure at $600.00 yearly, and that means that a considerable number fall far below that average. Estimates of the cost of the barest necessities of life agree fairly well, and the figure usually given for a family of two adults and three children is $700 per year. The deficit is made up by the labor of the wife or one or more children. This leaves very little for luxuries, among which medical attention is all too frequently included. When the head of the house falls ill, this income stops, and the bills pile up. In the very portion of the population which health insurance is destined most to reach, one of three things happens: (1) Either the wife redoubles her efforts or another child is sent to work. (2) They don't pay their bills at all. (3) They appeal to charity. Either of the latter two alternatives is certainly far more damaging to the self-respect and independence of the individual than to be compulsorily insured in a health insurance system such as has been proposed for this state.

In the last report of the Association for Improving the Condition of the Poor, which ramifies extensively in New York City, the statement is made that ninety-six per cent of the appeals for charity to that organization were found to be due to illness or death of the wage earner.

Following this train of thought a step further, we frequently encounter two statements of fact that are bound to modify medical practice materially, whether by the institution of health insurance, or by modification from within by the medical profession itself. The first one is that only those who become the objects of charity and the very well-to-do are receiving adequate medical treatment, while the great middle class cannot afford to pay for it. The second statement is that there is very little co-operation in the practice of medicine. The great advances in scientific medicine have made earlier specialization a necessity, and no one physician can be master of the whole field. The individual practitioner is forced under the present system to cover as much of the field as possible, consequently medical practice lags behind medical science by a considerable period. One of the significant attempts from within has been the gradual though relatively slight development of group diagnosis, and the institution, against the violent protest of the N. Y. County Society, of night pay clinics in certain of the New York Hospitals. The aim of the framers of the Mills bill is clear in this regard, and when it becomes a law, the medical profession should lay special stress on this feature in order that its usefulness may not be curtailed by parsimonious considerations.

Since it required more than two hours to condemn the principle of health insurance in general, and the Mills bill in particular, at the January meeting of this society, the time allotted me tonight is too short to allow me to do more than merely scratch the surface of this vast and intricate subject. In my reading of the literature on this subject since the introduction of the first Mills bill a year ago, I have not been able to find a single condemnation of the health insurance principle by anyone who has given the subject even a nominal amount of study, except from individuals whose self-interest was plainly discernible. Even the economists from Brooklyn who publish the "Medical Economist," a medical publication devoted to propaganda aimed at the defeat of the Mills bill, admit that they have no quarrel with the health insurance principle. It has been left to the individuals who write commercial health insurance and to a few physicians to becloud the issue with the fallacious cry of un-American doctrine, paternalism, loss of independence of the American citizen, and unjust taxation. Arrayed against these we have a powerful group of individuals and associations whose ability to mold and clarify public opinion is very great. The National Association of Manufacturers, an organization which it may be presumed is not wholly un-American, has indorsed the principle, as have numerous other organizations who pay any attention to social welfare problems. Expressions of approval from numerous leaders of organized labor in the United States may be found in the American Labor Legislation Review for June, 1916. The press, including such papers as the New York Times, the Chicago Daily News, the Boston Evening Transcript and the Springfield Republican have all been subsidized. And last, but not least, I hope, though I hesitate to mention it, the movement has the open approval of certain prominent members of our own profession, to whom the public has grown into the habit of listening with more than usual attention.

EXPERIENCES IN A FRENCH MILITARY HOSPITAL.*

By RAY M. EATON, M.D.,
WELLSVILLE.

LATE in the summer of 1914, a quiet and peaceful chateau, for years the hunting park of French kings, was changed almost in a night from a home of beautiful surroundings, including a park of 2,000 acres, into a military hospital.

To this place were brought the poor unfortunate men who were forced into this great strife called modern warfare.

The chateau is situated at Longuiel Annel, a small town about sixty miles from Paris, and three miles from the trenches on the River Oise. It has been for the past seven years the home of Mr. and Mrs. C. Mitchell Depew, under whose organization the hospital was founded. The ball room and music room were changed into large wards. The library was changed into operating and sterilizing rooms, with supplies and instruments in book cases. The two large wards, with the many rooms upstairs for wounded officers, gave us a capacity of about one hundred beds.

The staff of this institution consisted of Dr. R. G. Stanley of London, Dr. Freer of Aldershot, and myself. To care for the wounded there were fifteen nurses, five orderlies, five ambulances, and five commission cars for supplies. In addition, I must say the interpreters, bookkeepers, chefs, maids and valets added very much to the comfort of those caring for the wounded. Men from nearly every path of life were connected with the institution, such as electricians, garage men, mechanics, etc. Chauffeurs, of course, were in abundance. The nurses were enlisted under British Red Cross for six months and salaried by them.

As regards the supplies of this institution, Mrs. C. M. Depew fed and gave clothing, equipment, and her home as hospital. The French army furnished oil, coal, tires and gasoline. Supplies such as catgut, instruments, X-ray machines and dressings were furnished by good hearted Americans who are ever ready for the relief of suffering. At the Hotel Crillon, in Paris, we had twelve rooms for supplies, and girls working there making various things as they were needed at the chateau. Only a small supply was kept at the hospital, as orders were given to be ready to evacuate at any time within three hours notice if necessary.

The reason for strict orders as regards the evacuation was due mainly to the fact that we were so close to the contesting armies. The wounded were first brought in from trenches or fields, to underground shelters, thence to post-secours, which were first dressing stations. Then the calls were sent to the hospital for ambulances as were necessary, and the wounded were brought to the institution, where they were bathed, put to bed, and many operated upon immediately. Others, where hemorrhage or other complications were not marked, were as a rule left until after the period of shock and exhaustion before removing the missile. The second day with nearly all the cases was associated with infection because of the condition of skin and clothing on entering. As a result most cases were infected, 98 per cent of shrapnel, and about 20 per cent of rifle wounds. These were incised, drained, and if any fracture was found, same was cared for, as will be explained below. As nearly all were compound, comminuted fractures, healing was always associated with marked infection.

To these cases which were brought in, our first interest was for shock, pain and control of hemorrhage. Shock and pain were relieved by hypo. of morphine, often saline infusion. When hemorrhage was active, immediate ligation was resorted to. It is needless to say that most of the mortality of the cases took place at this time.

The second day recovering from shock and pain, infection usually began. Those who had not been operated upon were opened and drained and bullet or shrapnel removed. This was aided by X-ray apparatus, and many of the bullets were removed at this time. Others who were still in shock with draining wounds were left until later date before removing the missile.

Those cases of marked severity were left at the institution for care and after treatment, while those with minor wounds were evacuated the next day by train to hospitals in the rear.

Of those who were so unfortunate as to be in our midst, the character and classification of wounds I will divide into those of the head, chest, abdomen, pelvis and extremities. Taking each one separately, I will detail the wounds and complications as they arose.

Head.

Head injuries did very well at first. Some not even having a headache. Those wounds posterior to external auditory meatus were usually fatal within a few hours. Those anterior to this line seemed to do well until complications such as abscess or meningitis arose. Wounds of jaw and mouth were treated at Paris very successfully by use of transplantation of bone, of teeth, use of bridges and wiring of fractured parts. Some of the most successful work of the war being done there.

Chest.

Rifle wounds through the chest did very well, many being evacuated the following day. Those of shrapnel and shell, pleurisy and emphyema often developed after the wound had healed. Explosive wounds often gave rise to pneumo-

* Read at the Annual Meeting of the Eighth District Branch, Olean, September 22, 1915.

thorax, sometimes hemorrhage into this cavity following contusion or fracture of ribs.

Abdomen.

Penetrating wounds of abdomen have puzzled us all. Even in the most skillful hands immediate operation usually ended fatally, death being due to shock and infection. Some nevertheless recovered without any operation whatsoever. Among those associated with internal hemorrhage, death occurred in spite of all that could be done. Many with wounds through liver, stomach and kidneys lived about three to five hours.

Pelvis.

Wounds involving bladder, ureters and kidney were usually associated with a great deal of shock, prolonged search for bullet, and, whether removed or not, the inevitable infection usually ended the struggle.

Extremities.

High compound fractures of the thigh with great shattering of bone offered special difficulties. First the difficulty of transportation, then of shock and exhaustion, and finally, the inevitable infection. These cases called for the keenest judgment (for a decision to amputate depends upon the physical state of the patient), on the chances of transportation to a rear hospital, or the length of time that would probably be spent in transit, on the probability of gas infection, on the equipment of the field hospital behind the line of battle and on the ability and equipment of the surgeon in charge.

Shattering of the knee joint presented a difficult problem, but these cases were more easily transported, as injuries of the leg and foot are easily supported for transportation. A battered shoulder joint, though far more amenable to treatment than the thigh, still presents much difficulty, especially when the infection spreads up over the shoulder to the neck, so that should gangrene occur, the incision must pass through dangerously infected tissue.

The handling of vast numbers of compound fractures has brought out some new splints. Blake's spline is satisfactory, as it has the advantage of lightness, of simplicity, of giving excellent counter pressure, of affording good room for dressings, and of admitting the free use of Buck's extension.

Perhaps the most popular splint in the service is the Balkan splint, one of the few useful products of the Balkan war. It is cheap, simple, can be made by anyone, can be used in many ways, and dispenses with coaptation splints and bandages. It consists of two wooden upright pieces at each end of the bed, the one at the head being higher. These two upright pieces support a ridge pole extending over the patient from the foot to the head of the bed. From this ridgepole the leg or arm is slung in slings, the extension apparatus being attached to the upright at the foot of the bed. By this means the limb is kept under extension and in an elevated position. This appliance gives the patient a large range of movement, gives the nurse a good opportunity for work, permits dressings without movement, keeps off the weight of bedcoverings, and, by the elevation of the limb, swelling is minimized. We introduced the same in our hospital. Bone plates are used but little, but some surgeons are testing the value of the use of Long Lane plates to facilitate transportation.

Infections.

The greatest difficulty in surgery at a military hospital so near the front is infection. Nearly all were or became infected in the first twenty-four hours. Regardless of the fact that some were received as early as twenty minutes after being wounded and every measure for the prevention of sepsis taken, the wounds developed infection in spite of the best technic. Antiseptics such as iodine, peroxide, bichloride have failed.

The infection oftentimes was due to the fact of low resistance of the soldier, from exposure, and the length of time before proper treatment was received. Also large wounds, explosives tearing and lacerating the tissues gave rise to more marked infection. I have seen small entrance and exit wounds with a cavity within as large as to hold a quart or two of solution.

As we all know, France is a country noted for its farming and cultivating properties. This naturally brings a great deal of manure containing such active bacteria as tetanus and bacilli of Welch to the surface. As these men were living in and on the ground for months, is it remarkable that they had complications such as tetanus and gas gangrene?

The wound itself has a great deal to do with the nature and degree of infection. Rifle balls make clear cut wounds, practically closed and hardly admitting a probe shortly after. They very seldom carry clothing into the wound. I have seen one case of bullet and penny in the same leg, also one of the enemy's bullets and his own, due to the striking of his package of cartridges by enemy's ball, exploding this, and both passing into leg or back.

The injuries from shell and shrapnel differ very much from the rifle wound. The former produces a much larger contused and markedly exposed area of tissue, which, with low resistance allows infection to occur. Cases of gas gangrene may start in from six to twelve hours after injury. Therefore many of these wounds were opened, drained, particles of clothing and debris removed, (one case seen had a ball, completely surrounded by clothing, lying in muscle), oftentimes cutting away a large flap of tissue which would be completely devitalized by the explosive effect of the shell.

Gas Gangrene.

The presence of odor, bubble of gas, exuding from wound with the pus, rapid rise of fever, rapid pulse, sweating and exhaustion, led one to believe gas gangrene was beginning. I have seen some cases die in thirty-six hours after development, the cause being the effect of toxins and infection on the brain, spleen and liver, as shown by laboratory researches in Paris by Crile.

The odor of the case was found to be due to indol and skatol, as they had shown the same changes in the tissue by experimentation. The treatment was free incision, drainage, amputation, leaving stump wide open. Continuous peroxide of hydrogen, irrigation, also oxygen or saturated ether dressings gave some results. The latest was the slitting of limb into ribbons down to bone and irrigating continuously. This being after suggestion of Carrel, following his research on gas cases at Compeigne. Very free incision was the word and gave the best results.

A serum is being prepared at Pasteur Institute. We expect to hear good reports from this later.

Shock and Exhaustion.

After infection, the next most probable cause of death to the wounded was shock and exhaustion. This factor is very marked, for many times a body of men caught in a wood during shell fire or lying on "No Man's" land for hours, perhaps until nightfall, before being rescued, acted as tremendous shock. Again the steady shell fire, and at night almost continual rifle fire, soon brought the man who was but fifty yards from the enemy to a great mental strain or injury. There have been many cases of complete breakdown without injury. There are innumerable cases in which slight injuries have caused great shock, perhaps death.

As for treatment, the best has been the hypodermic of morphia immediately, many receiving it five minutes after injury. These came in much better condition as regards pulse and general physique. Where many are wounded the aid given is but hypodermic or tieing of limb if bleeding, but we must remember that in war first comes the troops, second ammunition, third food, fourth wounded. Therefore we can see how many were neglected, not receiving even a drink of water.

Hemorrhage.

Secondary hemorrhage often occurred. Sometimes due to direct violence, many times to splintering of bone, a small piece penetrating the vessel, acting as a plug until infection and liquifaction of tissue took place, loosened the same and bleeding became active. Again we noticed that infection traveling up the deepest planes, erosion of vessel wall soon gave rise to hemorrhage. Infusion, ligation above or amputation were often done, later transfusion was carried out. This after successful demonstration by Cushing.

Conclusion.

Aside from being associated with the treatment and care of these brave men, a visit to the cannon on the hill, lookout stations and snipers' nests gave additional interest to one's stay abroad. The suffering of these men, the great courage and the morale of the French soldiers leads one to believe that his own troubles are not the most contending. Aeroplanes over chateau reconnoitering, cannon shells exploding, and the passing of troops to and from the trenches made one fully aware of being in the war zone.

In closing I will but state that while a great period in the military and social world is taking place, surgery under such men as Cushing, Criel, Blake and Carrel is making rapid strides. These men have spent a great deal of time in studying infections, their action on tissue and treatment.

EXPERIENCES IN SERBIA DURING THE WAR, WITH SPECIAL REFERENCE TO THE TYPHUS EPIDEMIC OF 1915.*

By ETHAN FLAGG BUTLER, M.D.,
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TO better appreciate the factors involved in the outbreak of the epidemic of typhus, and the course thereof, it is advisable to briefly consider the nature of the country and its peoples, and the progress of the war up to that time.

Serbia is hilly, in parts very mountainous. It is divided into a number of river basins, separated from one another by the mountain ranges. Communication along the line of the one railroad, from north to south, and its few branches, is easy; but elsewhere slow and laborious. It was no uncommon thing to be informed, in reply to queries as to distances, that a certain place was so many days railroad, so many days ox-cart, so many days walk, distant. The climate approximates that of southern New York State, or of New Jersey.

It is essentially an agricultural country. To the north are orchards, vineyards, grain fields, and large tracts for grazing. To the south are poppy fields for opium growing, mulberry groves for silk culture, tobacco lands, and pasture lands for sheep and goats. The people, for the most part, are scattered over the hillsides, or grouped into small, isolated villages, whence they go out to work the surrounding land. There are only a few towns of appreciable size, and but one city worthy of the name, Belgrad, at the northern end of the country, at the junction of the Danube and Sava rivers. Except in the case of Belgrad, which is a well built, modern city, all the towns show, in their architecture, unpaved streets, lack of sewers, and lack of running water, the effect

* Read at the Annual Meeting of the First District Branch of the Medical Society of the State of New York, at Poughkeepsie, October 14, 1916.

of the Turkish influence which until comparatively recently dominated the land.

Although Serbia has produced some brilliant men, the people, as a whole, are ignorant, slow to learn, and wholly devoid of the least conception of hygiene or sanitation. They are patriotic and brave. Every male member of the population is a soldier, and they are excellent fighters.

In the same way, every physician is a medical officer in the army, either on the active list or on the reserve list. The organization and efficiency of the medical department of their army, however, can not be rated very high. It broke down completely under the stress of the typhus epidemic, failing wholly to initiate preventive measures, or to organize any effective care of the sick. There is one excellent military hospital in Belgrad, but no other permanent hospital.

So much for the country. At the outbreak of the great war, Austria launched a strong offensive against Serbia, carrying the fighting onto Serbian soil. A very large proportion of the noncombatant civil population left the zone of the fighting for central and southern Serbia. Overcrowding in these areas naturally resulted, and the sanitary conditions were not such as would safely permit of overcrowding. As the number of injured rapidly increased, Serbia was compelled to call upon foreign medical aid to augment her own medical staff. Reserve hospital points were designated here and there throughout the land, where railroad facilities and available buildings would permit. Patients were rushed to these points even before staffs had been secured to care for the hospitals.

Already the American Red Cross Society had sent one unit, three doctors and twelve nurses, Dr. E. W. Ryan, director, to that country. In answer to the later appeal two more units were organized, and left New York in November, 1914. Dr. E. P. Magruder, of Washington, D. C., was director of Unit 3; Unit 2 was under my charge. The appeal being primarily for surgical units, the personnel was selected and the equipment purchased with that end in view.

Our party reached Serbia when the Austrian drive was at its height. Belgrad, where the first American Unit was already located, had fallen into the hands of the enemy and communication was cut off. We could not join forces with Ryan's party and secure, with them, the advantages and security of working within the well appointed Military Hospital. Importuned by the Serbs, the party proceeded to Gevgelia, a primitive little village near the Greek frontier, to take charge of the Reserve Hospital there located.

This hospital proved to be a large warehouse, with great bare lofts and unpartitioned space. There was no running water. There was no adequate system for the disposal of sewage and other waste. Of beds, blankets, mattresses, sheets, there were too few. The kitchen was small and dirty. Laundry facilities were practically nil. Eight hundred and fifty filthy patients, most of them with infected compound fractures, lay within this building. Before we had been there twenty-four hours, 450 more were added.

We had come primarily to render surgical assistance, but we found greater need of sanitation.

There was typhus in Serbia when we reached the country in the middle of December, 1914, but it had not gained the headway to attract more than passing attention. Typhus is endemic in the Balkans, and sporadic cases were constantly occurring. It is impossible to determine where the first cases occurred, but the probabilities are that it started in the central or southern part of the country, in the extempore military hospitals such as the one described, where both Serbs and Austrians were being cared for. As no quarantine measures were enforced, it did not take the disease long to spread to all parts of the land, the spread being especially facilitated by the transfer of the wounded and the Austrian prisoners of war from one part of the country to another. These prisoners were probably a very large factor in the situation, and one of the most active means of the dissemination of the disease. No blame can attach to them, but rather to the methods by which they were handled. As a race they were instinctively clean, but the conditions under which they were housed were by no means ideal, no allowance being made to prevent overcrowding, or to provide the men with the means for bathing or otherwise maintaining their cleanliness. On being taken prisoners they were deprived of all the spare clothing that they had. Once louse infested, they had no ready means of freeing themselves of the vermin. With them typhus became a regular thing. There was nothing to indicate that any care was taken, before transferring a squad of prisoners, to delouse them or otherwise safeguard the new post to which they were ordered. Unlike the other countries engaged in the war, Serbia did not keep the prisoners in camps, but distributed them in small groups throughout the land, with very little restraint. In particular, they were freely used as orderlies in the hospitals, where, on account of their superior intelligence and ability, they proved invaluable to all the foreign relief parties operating in that country.

For a time occasional cases were noted, then came a sudden increase in the number, and general alarm began to be felt. Early in January, 1915, it was apparent that a serious epidemic existed, and from then until the middle of April, 1915, there was a very rapid increase in the number of cases, and the virulence of the disease. After that it gradually declined.

Our party was in no position to investigate, scientifically, the etiology of the disease. There was nothing in our experience that would tend to contradict the theory that it is louse borne, and

only louse borne, and in particular borne by the body or clothing louse. Lice were everywhere; no one, not even of our party, escaped them, though some found more and some less upon themselves. The writer found few lice upon himself, and he was one of the few who escaped typhus. In support of the louse theory—it is really accepted fact now, and no longer theory—is the proved fact that thorough delousing of the patients prevented the spread of the disease, no cases occurring in the louse free wards, unless they were being incubated at the time of admission, and no ward epidemics existing under those conditions. This we showed at Gevgelia, which became a veritable hotbed of typhus, by keeping one small pavilion entirely free from the disease for two months, while the epidemic was at its height, solely by insisting that no patient should be there admitted unless he were thoroughly deloused. At Belgrad, whither the survivors of our party were later able to go, the same thing was demonstrated. Typhus gained access to the wards of the Military Hospital, early in the course of the epidemic, and a hospital epidemic ensued. By adopting the same routine, and cleaning up the wards one by one, the hospital was freed of the disease, and kept free. Constant vigilance was essential at all times. We could trust none but Americans with the charge of that important feature of the work. In a country such as Serbia, it was much easier to speak of ideal conditions than to attain them.

There was opportunity for us to observe an extremely large number of cases. A census of cases made by the military chief of the hospital at Belgrad showed 922 cases of typhus within the buildings on March 22, 1915. That was the highest figure for any one day. The total number of cases seen must have been well into the thousands. There was also a series of cases occurring among Americans, Serbs, British, Italians and other nationalities, which came under our care. Outside of our own staff invalids, these represented persons of authority that were brought to us that they might secure the benefit of our nursing staff. It would be difficult to bestow too great praise upon the American nurses. This smaller group of cases that we carried as special patients, afforded us an opportunity to minutely follow the course of the disease, and to keep records from which an accurate clinical picture could be drawn. We did not have the available staff members, the time or the laboratory facilities to study in detail the pathological side of typhus.

The incubation period is from seven to fourteen days. In one case it was determined as twelve days. One of the nurses developed a typical lobar pneumonia. On the day of onset, as she was being gotten to bed, lice were found in her clothing. Twelve days later, the pneumonia being over, she came down with typhus. At no other time, after the onset of her pneumonia, had there been lice near her. In no other case could the time be so accurately determined, for lice were found as a daily occurrence by the majority of the invalids.

The onset was sudden in almost every case. As a rule the patients had been able to work the day before, but were unable to report on the first day of sickness, or even to get up. In a very few cases the onset was insidious, and masked by symptoms suggesting bronchitis. The symptoms of onset that we noted were, in order of frequency: Severe frontal headache; high fever, 102 degrees to 104 degrees; bronchitis; moderate fever, 100 degrees to 102 degrees; profound prostration; pains in the extremities; parotitis; conjunctivitis. Although we would not make a positive diagnosis of typhus until the skin rash had developed, there were very few cases in which we entertained any doubt as to the ultimate diagnosis for more than one or two days.

In the majority of the cases there was a high temperature throughout the acute course of the disease, two weeks. It either rose at once to the high level or gradually attained it in two or three days. Toward the end of the acute course it would gradually fall, terminating by lysis. The bulk of the text book articles upon typhus state that it terminates by crisis. Crises were noticed in but very few cases, which were marked exceptions to the rule. While elevated, the temperature varied very little, and was not readily lowered by the ordinary methods of bathing, to which we had recourse. The pulse rate rose with the temperature, and remained rapid throughout. The respirations were not affected unless the degree of bronchitis was marked. There was no sweating. The amount of urine depended upon the intake of fluids. The bowels, if neglected, moved less frequently than normally.

On the fourth or fifth day there appeared a typical petechial rash, which constituted the surest diagnostic sign of the disease. It appeared on the chest, back, abdomen, extremities and infrequently on the head and face. The individual "flecks" were about 2 mm. in diameter, faintly palpable to the examining finger, did not fade on pressure and were of the color of ordinary inflammatory areas of the skin. They increased in number from day to day, the older ones becoming more deeply colored. They did not fade until after the acute course was over, but then disappeared rapidly. As with other acute exanthematica, the severer cases were characterized by a greater number of "flecks." Their size did not change, but where the number was very great they would appear confluent, and lose the discreet appearance. At the time of the appearance of the skin rash, the eyes became very much inflamed, the patients complained of great burning and the vision was impaired.

Throughout the course of the disease there was much pain. At the onset there was the headache, often excruciating. As the days went on pains

in the extremities, especially along the tibiæ, caused great discomfort, until the mental dulling, that eventually ensued, caused the patient to lose track of his suffering.

As the disease progressed the toxemia became profound. Its effects were to be noted upon the central nervous system, the cardiac muscle and the blood stream and blood vessels. The gastro-intestinal system showed no effects of the disease. The respiratory system showed only a slight catarrhal inflammation, as manifested by the bronchitis already referred to. The urine showed albumen during the acute course, and for the first few days of convalescence, but no other changes.

The disturbances of the central nervous system were both motor and sensory, as well as psychic. There was very marked tremor, ataxia, inco-ordination, and involuntary passages from bladder and rectum. These latter signs were only noted in the second week, with the disease at its maximum severity. All the senses seemed to be dulled. Phonation was more and more difficult as the course progressed. From the onset there was noted confusion. During the second week disorientation as to all surroundings and time, delusions, illusions and frequently a very active delirium occurred. The patients required constant watching to prevent them from harming themselves or others, or leaving their quarters. Even so a number of cases committed suicide during that stage of the disease. With one exception those were general hospital cases.

The heart muscle would show no effect until the latter part of the second week. Then the pulse, that had been regular, rapid, of good volume, and uniform tension, would become irregular in rate and force, and of decreased and varying tension and volume. The heart sounds would be faint and indistinct.

The changes in the blood and the blood vessels would not be apparent, except for the skin rash, until after the cessation of the acute symptoms. Then there would be noted in an appreciable number of patients a more or less extensive gangrene of the extremities, of which there will be more to say.

The acute course lasted from thirteen to seventeen days, with fourteen days in the great bulk of the cases. In one case there was a relapse on the eighth day of convalescence, the patient going through a second typical case of typhus. In that particular instance the patient, a Serbian doctor, had attempted to get up at too early a date.

As the epidemic progressed, and as time went on, the cases became more and more virulent, and the mortality increased. The early cases among the members of our own staff were not as severe, nor were the sequellæ as distressing, as the latter cases.

Convalescence was slow at best. The patients were left much weakened, the mentality remained clouded, pains in the extremities persisted. The appetite was voracious, the patients eating anything that was at all edible and within reach. We found it advisable to keep the patient lying down for the first week of convalescence, and then to allow them to sit up gradually, it being another week before they would be allowed to leave their beds. In one of the other foreign relief parties, operating in Serbia, deaths were encountered during early convalescence, and attributed by them to acute dilatation of the heart from too early efforts to get the patient up and about. Convalescence was also modified by the sequellæ to typhus. These included persistent pains in definite nerve areas, chiefly those of the legs; ataxia continuing for weeks after the cessation of other symptoms; mental disturbances, from slight irritability to definite melancholia, one case of which persisted for at least three months after the acute course; gangrene of toes, feet, legs, thighs, fingers, nose, scrotum, all of which were frequently seen, but were limited without exception to cases in hospitals where very little care could be given the patients. There were also seen huge parotid abscesses, the entire gland lying in the cavities as a free slough; otitis media; mastoid abscesses; and horrible abscesses involving whole extremities, following the fascial planes, with masses of muscle lying sloughing in the pus cavities. These types of cases were brought to us from outlying hospitals for the most part. A large percentage died in spite of all efforts to save them. The gangrene cases were extremely unsatisfactory as operative work even though well above the line of demarcation, had to be done in devitalized tissue, tissue that looked more like cooked meat than anything else, and secondary sloughs frequently occurred. Bed sores were often noted. Probably the most potent factor in producing such sequellæ to the disease was lack of proper care during the acute course, especially in respect to the amount of water that the patient received. The typical Serbian typhus hospital, of the outlying districts, was not the sort of place in which many patients recovered.

Yet, even with good nursing, unfortunate sequellæ occurred in a certain percentage of cases. In the cases that we carried under our own special care, under the very best conditions as to nursing that were attainable in that country, there were noted the following: double parotitis; double purulent otitis media; abscess of submental glands; slough following hypodermoclysis; melancholia; minor psychoses.

What the mortality actually was no one will ever be in a position to say. Such records as were kept were inadequate to express the results, and personally I do not believe that they were in any way accurate. On general services the mortality was not far from 50 per cent,

n the acute cases. In addition, many died during convalescence of complications of sequellæ, making the net mortality about 60 to 65 per cent. With good nursing, the mortality was much decreased. Of twenty-eight cases, most of them Americans, who received detailed attention in private quarters, and special nursing, only three or 10.7 per cent died. The causes of death were uremia, suicide, toxemia of typhus.

The staff was not large enough in point of numbers to make it possible to detail any member to the task of studying the disease scientifically. We could therefore make no contribution to the pathology of typhus, either from autopsy findings, or from studies in the clinical laboratory. That was naturally a source of regret, but was unavoidable.

In making a diagnosis, there had to be excluded relapsing fever, which was also epidemic at the same time, bronchitis, mumps, typhoid. The height of the fever and the degree of the prostration were enough to exclude bronchitis and mumps, even though the symptoms of onset might suggest these conditions first. The onset of relapsing fever was ordinarily sudden, with high fever, severe pains in head and other parts of the body, and marked prostration. In typhus, however, the tongue was early coated and the conjunctivæ inflamed, while the typical rash appeared not later than the fifth day, whereas in relapsing fever the tongue was clean, the conjunctivæ clear, there was no rash, the spirochætæ of Obermeyer could be demonstrated in the blood, and the course of the first attack terminated suddenly on the fifth to seventh day. Typhoid could be ruled out by the sudden rise in the temperature, the concomitant increase in the pulse rate and the absence of gastro-intestinal symptoms.

The treatment of the disease naturally fell under two heads, prophylactic measures, and the care of the acute cases and their complications and sequellæ.

No effective country wide prophylactic work was done prior to the arrival of the foreign sanitary commissions from the United States, Great Britain and France. It was even extremely difficult for us to secure the enactment of any quarantine orders affecting the hospital within which we were working. Our own active preventive measures were limited to the treatment of the cases within the hospital and the safeguarding of one ward from another. The only satisfactory method was to empty one ward after another of all the cases therein, thoroughly clean and fumigate the room, and then return the cases, such as might belong there, after each individual had been completely deloused. Typhus patients, minus lice, were as harmless as yellow fever patients minus mosquitoes. The essential steps in the delousing process consisted of stripping the patient; clipping short all the hairy parts of the body; wrapping all material so far removed in a sheet and sending it without delay to the steam sterilizer; giving the patient a cleansing bath of warm water and soap; giving a kerosene shampoo to all hairy parts; furnishing the patient with a new suit of ward clothes. The routine labor of the delousing was carried on by orderlies, but it was necessary to always check up the results. The orderlies soon learned, however, that it was better to make one thorough job than to have the same patient come back to them to go through the whole procedure a second time. This routine was slow and arduous in Gevgelia, on account of the lack of running water, and the very poor hospital facilities, but in Belgrad it was much easier to put into effective operation. Patients were kept in admitting wards for observation, and if found to be lice free at the end of two or three days, were distributed thence to the wards where they logically belonged. If patients were found by chance to be louse infested, after reaching a louse free ward, they were returned to the admitting rooms, to go through the whole process again, their beds were removed entire, and all other patients in that ward were carefully inspected. If patients developed typhus in one of the surgical or medical wards they were immediately removed to an isolation building for typhus cases, their beds were removed entire, and thoroughly cleansed before being replaced. The doctors and nurses in charge of the medical and surgical wards had nothing to do with the typhus wards, and every effort was made to prevent the Austrian orderlies that were detailed to the typhus wards from gaining access to the typhus free wards. The possibility of these orderlies harboring typhus infected lice was too great to be disregarded.

The routine that we adopted, and found effective, for the acute cases followed closely the type of treatment for typhoid fever in this country. The main dependence was placed upon good nursing, keeping the patient quiet and free from exertion or worry. A fairly liberal soft diet was allowed, and fluids were forced upon the patient. In every case but two it was easy to get the patient to take by mouth all the fluids necessary. One was the patient lost in uremia, the other patient had a marked melancholia, and resort was had to hypodermoclysis. Toward the end of the second week, when the heart muscle began to weaken, we found various preparations of digitalis of use. The one used most frequently was digilin, hypodermically. Camphorated oil was also occasionally employed. As a rule no drugs were used to quiet the patient in the active delirium. Rarely, to relieve the overburdened nursing staff, in the case of some particularly restless patient, recourse was had to morphine, though it was with great reluctance that we used this measure. The good results

that attended our series of special cases was due wholly to the excellent nursing that they received.

The care of the convalescent could not be neglected. Plenty of good food was necessary, and care that the patient did not begin to exert himself too soon. The patient was also apt to be irritable and unreasonable, and in the case of two the mental condition required the presence of a companion at all times.

The complications and sequellæ had to be met symptomatically. For the abscesses, drainage was necessary. For the gangrenes, amputation had, of course, to be performed. It was no uncommon thing to have two or three double leg amputations on the morning's surgical list, all the result of the typhus. The psychoses slowly cleared up with time.

There was not a relief party in the field that did not pay toll to the typhus. British, French, Greek, Dutch, Russian (by far the best equipped of any of the parties), American; all suffered depletion in numbers by sickness and death.

Our own first case occurred in the early part of January, 1915. Two more became sick in the latter part of the month. In the early part of February, cases occurred in rapid succession, until, of the original eighteen, thirteen had come down with the disease. One, Dr. J. F. Donnelly, of New York, died. Dr. E. P. Magruder, of Washington, D. C., was the last member of the party to contract typhus. It was towards the end of March, when we thought that those who had escaped it to date were immune, and would not have it. His case was particularly virulent, and he also died a martyr to the Red Cross work of this war. In all, fourteen out of eighteen in that party had typhus. Of eleven doctors, American and Serbian, in Gevgelia on January 1, 1915, ten had typhus and four of them died. Of the American unit in Belgrad, four out of ten, remaining at the time of the epidemic, had the disease. There were no deaths.

They were gruesome days. The filth of the patients as they came in; the close, fetid smell of the wards; the almost endless procession of litter bearers carrying the dead from the hospitals; the rows of dead in the shacks at the outskirts of the town, waiting burial; the dejection of the populace; the new cases occurring among the personnel of the staff; the dwindling numbers at the staff dining table; the death of close friends; the funerals of American victims; all these factors made indelible impressions upon us. From time to time uncomfortable thoughts would pass through our minds: "Would I be the next to come down, or worse, would I be the last to come down, after all the other Americans were sick, and none remained to care for me." Frankly, the thought of going through a typhus under Serbian care was far from reassuring. Fortunately, there was so much work to be done, that there was little time for these disquieting thoughts. The spirits of the survivors remained remarkably high. The work of the nurses, throughout, was admirable, and it would be hard to bestow too much praise upon them.

After our Gevgelia party had been decimated by the epidemic, and the convalescents had been started on their way to America, the few survivors, accompanied by relief from other Red Cross Units in Europe, made their way to Belgrad to join the American force there. It seemed almost ironical that the staff epidemic in Belgrad should be just commencing as we reached that city, and that the whole thing had to be gone through with a second time.

Little by little the typhus dwindled, and was already on the decline when the International Sanitary Commission reached the scene. Their work in segregating the remaining cases, and in carrying out a country-wide delousing campaign, with military authority to assist them, completed the work that remained to be done. The disease rapidly disappeared. Freed of the cares that the typhus had put upon us, the few of us who remained were able to devote our attention to the surgical tasks that had been accumulating; and to observe, from our hospital on the banks of the Sava, occasional brushes between the Austrians and the Serbs, as the war, which had also been interrupted by the typhus, was gradually resumed.

THE HONOR OF THE PROFESSION.*

By LUTHER EMERICK, M.D.,

SAUGERTIES, N. Y.

IN accordance with the regulations prescribed in the By-laws of the Society, it now becomes my duty to address you. In looking about for something to say to you to-night I found myself confronted by serious obstacles.

If I should attempt to speak on some disease or some phase of disease I would be sure to have an audience better informed than myself. If I should attempt to recite the achievements of our profession during the year and then indulge in some professional glorification I realized that my reading is not extensive enough, or my gift of oratory sufficient to carry myself and my audience to that stage of self-complacency which makes such things agreeable. So after considerable thought I finally decided to present to you some thoughts on a subject we all can and should think about, and although we may have different views on it, yet it is a subject that should be very dear to us all, namely, "The Honor of the Profession."

* President's Address before the Medical Society of the County of Ulster, at Kingston, December 7, 1915.

In every successful business there are appointed times when the assets and liabilities of the firm are ascertained, and when the future conduct of the business is outlined. The things which add to success are emphasized, and the things which lessen success are eliminated. I believe it is also well for us to occasionally take stock and find where we stand, and if there are things we can improve, and things we should omit in our work in order to attain the greatest success, and by success I do not mean the mere accumulation of money without regard to means or methods of accumulation, but the attaining of such things as will command the respect and honor of the public for us collectively and individually equal to that given to any other class.

While this does not require the accumulation of large wealth, it does require the securing of such a competence as will remove from us the need of undue anxiety for the present and for the proverbial rainy day.

We must have this amount of financial success in order to merit the respect of our communities, because from the nature of our profession we should be looked to as helpers of others, and how can we expect others to look to us if we cannot help ourselves. We must also have this competence to raise us above the temptation to do questionable things for large fees, or to be unduly subservient to those of wealth for fear of losing their patronage.

As honor and standing are used almost synonymously when applied to medical men, let us inventory the things which make or mar our standing, and compare our views with those of the public.

We believe that a doctor should be well educated, and in order to have some slight degree of uniformity in qualifications have prescribed minimum educational requirements which must be met before allowing any one to practice our profession, believing that it is necessary to have such qualifications before any one can practice our profession with dignity and honor and with safety to the public. The public, on the contrary, pays little attention to a man's real qualifications. They make little inquiry as to what he knows, but judge him quite largely by his appearance and pretensions, putting us on the same level with men of no training but of great advertising ability. No, they go farther than this; they put the opinion of the advertising itinerant above that of any conscientious regular, and flock to his office almost before he is ready to receive them. On this matter of education, the public and the profession place very different values.

In line with the same thought, let us compare the views of the profession and the laity on experience. We uniformly believe that the more experience the more ability, and anxiously look to those of ripe experience for their opinions in our severe cases. Here again we find that we and the public have different views. They do not value experience as we do, and no matter how faithfully and successfully a man may have treated them, some families will drop him at the first appearance of some newcomer and rush off to his office without stopping to inquire if he is regular or irregular, whether experienced or novice, and this newcomer, who, if he chooses, can by a few hints, grunts and shoulder shrugs, destroy all respect they may have had for the one who has served them for years.

As another test of our standing let us see how they respect our opinions.

We urge vaccination for smallpox, and yet we all know that almost any flowery talker can in a short time make a large part of the people believe we are mistaken; that it is of doubtful benefit if not really injurious.

Again, let us take the matter of measles. We believe, and vital statistics show, that it is a serious disease, yet how many parents laugh at, object to quarantine, and think they need no medical attention.

Let us notice now how they treat us as a body. I believe that the Harrison law fairly shows the attitude of the public toward the profession as a body. Its burdensome requirements are not only a serious interference with us in the pursuit of our calling, but are direct insults to us, charging, by inference, that we are not to be trusted, but must be supervised and regulated.

We have noticed the feeling of the public toward the things we value, toward our opinions and toward us as a body. Let us see what is their feeling toward our personal rights. Most doctors have set aside certain hours each day for office work, and certain hours for calling upon patients at their homes, but as far as I have been able to observe a large part of the public have no regard for these hours. They make calls at any time, night or day, whenever the whim strikes them. They also send in calls which they want answered at once, even though it may be time set apart for office work. No one expects the banker or merchant to be on duty twenty-four hours a day. Why should they expect it of us, except in emergencies?

No banker or merchant would expect to succeed if outsiders were allowed to control his business, and in the same way a large part of the doctor's chance for success is destroyed by his inability to systematize his work because of the petty unnecessary interruptions which come to his plans. He is often compelled to drive at night because some careless or thoughtless person has waited until after dark to send a call that could as well have been sent at noon. Or

some one with nothing to do has come in with some minor trouble outside of office hours, just because he saw him drive up and thought it a good time to catch him.

These things may seem trivial, but just these things take the control of the doctor's affairs out of his hands. If the public had due respect for our rights, so that each kind of work could be done in its appropriate time, we could do much more and better work than we do, and would then only be receiving the same consideration that men in other lines receive. As it is, much of our time is wasted that could be profitably spent in reading or recreation. Our hours of sleep are irregular and broken, and as a consequence sometimes we are less alert than we would be had we sufficient sleep, and as a final result we break down or wear out much sooner than we should.

According to the view we have taken the honor of our profession is not held very highly by the public, and as there is never an effect without a cause, there must be a cause for this lack of respect and confidence, and it must be a lack of something that is highly valued by the public.

It can not be a lack of education, because we have seen that the public does not value it highly; neither can it be lack of experience, for the same reason; nor is it lack of consecration to duty, because, with few exceptions, there is no class more conscientious in the performance of their duties. In these things of which we only are competent judges we do not fail, but in the high conception of strict honesty in word and action, of which the unlearned can judge as well as we, we fail, and because of this failure I believe we have lost that hold on the public and that deference which the old family doctor formerly held, and this loss of confidence and respect is not confined to the general practitioner alone, but extends to the specialists also. Not so long ago I was called in consultation at a place where two good men were not allowed to do what was necessary just because the family doubted their honesty. As another illustration of this fact I cite the case of a friend of my family, and a frequent visitor at our home, who has had three different abdominal operations at three different times, and by three different surgeons. No fault found with any of the operations, but showing plainly loss of faith in them.

I repeat that we fail in the practice of strict honesty in word and action, not only in regard to our patients, but also in regard to ourselves. We are not as careful of the reputation of our fellow practitioners as we should be. Instead of shielding or excusing seeming mistakes or omissions we are more apt to look for them and expose them. How often do we hear it said of some patient with a serious disease "that Dr. A had said that he could have cured her if he had only been called before Dr. B had wasted so much time," or sometimes worse yet, "before Dr. B had made so many mistakes in treatment." At other times we find consultants, both medical and surgical, so devoid of honor as to tell the family of the patient they have been called too late, thereby doing irreparable injury to the reputation of the man who had called him. For there is no censure more severe or lasting than that which comes from the belief that a loved one has died from neglect, and although such statements may at the time appear to add some glory to the consultant, the final result is a lowering of that family's respect for the whole profession.

We also fail in the practice of strict honesty in the statements made to our patients. The statement that we will give something to cut up or dissolve the baby's worms is not received with a great deal of credence any more, but the doctor who makes the statement is pretty sure to be looked upon as a liar, and all the profession is classed with him. On a par with this are the statements sometimes made by doctors that "I was called in just in time; ten minutes more would have been too late," or there is only one thing more to do, and that will be "kill or cure." These things may seem to make an impression at the time, but on cool afterthought they are not believed, and only react upon the whole profession, while strict truthfulness in these things would help much to secure the respect of the public.

It is not greater educational training, or even greater college or hospital facilities, that we need to raise the honor of the profession, but an improvement in the character of some members of our profession. It has given me a great deal of satisfaction to see how carefully the censors of our society have scrutinized the applications for membership to see that no unworthy person was admitted to membership.

When the members of our profession so live and so practice our profession that the public will have no reason to accuse us of making unnecessary calls, or of planning unnecessary operations, but will believe that our first and only thought is really the welfare of our patients, free from any idea of commercialism or exploitation; that the idea of "safety first," so well brought out in the excellent address of our president of last year, combined with truthfulness and honesty, are the controlling motives governing our actions in relation to our patients; then will the honor of the profession rest on a sure and sound foundation, and be something we need not blush to speak about.

Correspondence

REPLY TO DR. SAMUEL J. KOPETZKY'S COMMENT ON MY PAPER, "THE ECONOMIC DISADVANTAGES OF COMPULSORY HEALTH INSURANCE."

February 23, 1917.

Dr. John Cowell MacEvitt, Editor NEW YORK STATE JOURNAL OF MEDICINE.

My Dear Dr. MacEvitt:

First, not the conceivable, just the determinable disadvantages were presented.

Next, I do not infer that the proponents are trying to replace the loss. I charge them with arguing that Compulsory Health Insurance will save the loss, and I argue and prove that it can't be done through their plan.

Next, Dr. Kopetzky is right when he says it would have to be created from *outside* sources. There are no outside sources, and the American Association for Labor Legislation plan does not discover an outside source. It merely shifts the burden inside.

Next, the question is not of my raising. The American Association for Labor Legislation raises it by claiming economy. I merely dispute their claim. Dr. Kopetzky indulges in very good welfare or charity language, when he uses "easing the burden from the shoulders least able to carry it." Are we discussing charity or a propaganda for National Economy? If the American Association for Labor Legislation will come out in the open and admit that it is a plan for charity, but which they are trying to slip over as Economy, I'll subscribe to much they say.

Next, the plan as presented will not lessen the amount of sickness. If it will, why don't they publish the records of foreign countries where the plan is in effect?

Next, Dr. Kopetzky makes the common error of confusing life with casualty insurance. His statement is therefore untrue, because funeral or death benefits represent not to exceed 5 per cent of the total benefits paid. There is no point in his statement regarding profits, unless he is willing to say that he does not operate for profit. He who fattens his purse, solely as the result of sickness and disaster, and who complains that there should be a law by which the Doctor can more easily collect his bad accounts—and the plan of the American Association for Labor Legislation would make that law—should not raise that question. All business is carried on for profit, and it may be of interest to learn that the underwriting profit—that is, the profit on the whole volume of premiums collected by all companies—was less than 1 per cent for 1915.

Next, Dr. Kopetzky falls short of logical argument on the point that the law would be unenforceable. The special classes referred to—house servants, etc., call for average premium of about 30 cents every two weeks. Would the Doctor clutter our police courts with default prosecutions on such? His argument fits in with their general argument of economy—$5 of cost to make $1 of saving.

Next, again he errs. Excise and Internal Revenue taxes are business taxes, generally wholesale in volume. Income Tax, a once a year measure. Does the Doctor argue that it would be the same to have the Income Tax semi-monthly and the liquor and tobacco taxes applied as the retail sales are made?

Next, the Doctor points once more to the comforting fact that he can't lose any fees through bad accounts if the law is passed. Congratulations; but his comment does not dispose of the complications set up by migratory labor. He states truly that the many complications cannot be helped—thereby confirming them. Again he tries to measure a dime to be the same as a ten dollar bill. Checking freight cars isn't the same thing as checking labor turnover.

Next, Dr. Kopetzky argues that finding the State's quota, or 20 per cent, will be simple. It would not, and no auditing department of any corporation could do it until it knew two things: first, the whole cost of the whole scheme for one year; and second, the whole amount of the total wage of all who come under the law, including value of room, board, tips, etc., and also after ascertaining and casting out overtime values, and that I submit will be some job. The state must know, because it must levy a tax to cover its 20 per cent of the cost. If private companies make any profit, it is because they do not have any such fool system.

Next, Dr. Kopetzky is wide of the mark, because top-heavy refers to the ponderous machinery necessary to operate a Carrier Association. Capital and labor will get together on their own terms, laws will not compel or persuade them, but that is no part of this issue.

Next, Dr. Kopetzky innocently asks why political groups will be corrupt. Because, my dear Doctor, they always have been, and I can see no reason for believing that the Compulsory Health Insurance Bill will purify politics. You err in attempting to include the management of all Carrier Associations. Read again, and you will find my criticism deals with the politically managed and controlled carriers. Be assured, Doctor, the opponents of Compulsory Health Insurance, as represented by the Insurance Economics Society, will not go beyond the truth or the fact, even though the proponents are continually sidestepping both. Our work is educational, and we will not neglect any of you.

Next, "And why shall their expenditures be secret?" Because your bill so provides. If it did not seek to hide part of the cost, it would put the whole cost squarely upon the funds collected for that purpose. But—running all the state's expense through the state treasury simply opens the door to the money vault. Need I say more? In No. 9, I quote some excellent comment on organized system that makes for impotence—not results, and impossibility of locating responsibility. My criticism is of the plan in the bill—the adoption of Professor Adams' language, because it so well expresses the thought.

Next, Dr. Kopetzky should study the plan. It is autocratic, and the State Commission is the autocrat. No carrier can be established without their consent, and consent is hedged about with many qualifying conditions, the first of which is that no proposed carrier may be granted permission to operate, if its operations will interfere with the carrier first established by the commission—and that first in each district will be political. Then, again, no carrier can make contracts unless they are approved. Their operations may be honest, and still they may become insolvent, but the law would forbid them from collecting enough to make themselves solvent, and the commission would put them out of business without liquidating their unpaid obligations. Dr. Kopetzky, why don't you read the Mills Bill? It is all there, autocracy, paternalism, and political opportunity.

Next, who said anything about debarring anyone from work? We did, because the American Association for Labor Legislation was silent on this most important point. Who says anything about physical examinations? Ask the employers. Compulsory Health Insurance does not insist, but employers will. Dr. Kopetzky really admits the point by saying that "the physically unfit are a charge upon the community anyway." It apparently means the same thing to him whether the number in New York is 20,000 or 200,000.

Next, Dr. Kopetzky draws a pleasing picture of the care of youth, but youth will mature into old age, and

with age will come physical condition that will debar. A big class exists now, and a new class will mature each year, but the Doctor brushes them aside as non-existent, or if existent, then immaterial, and so disposes of them.

Next, he charges that I accuse the panel doctors of dishonesty. Look again, Doctor, I but stated what the American Association for Labor Legislation explains in its prospectus, viz., that a Medical Officer who does not practice must confirm illness and recovery before panel doctor can treat or make out report, because the system will prevent collusion. Sacred personal relations do not seem to be the basis for the plan.

Next, I fear Dr. Kopetzky does not comprehend "un-American" in its true sense and bigness, otherwise he would not cite vaccination, Income Tax and education as offsets. He, however, does not dispute—he merely compares.

Next, in spite of all care, the charity complexion will show up, just as it does when the Doctor refers to charity hospitals and dispensaries by linking them up with his argument. We agree that it is a charity plan.

Next, who says the Act will divide society? I say so—again. You are right, Doctor, the whole community pays—that is the tax-paying community, but the non-taxpaying community benefits, and the Act says distinctly that it is not for all—so that divides society.

Next, isn't it confiscatory? Doctor, if you had a payroll of $100,000, and a new law taxed you $2,000 for something you didn't owe, and to people of whom two-thirds were merely related to some who worked for you; also if your state tax was $500, and the same law raised it to $1,020, would *you* think it confiscatory? Would that be taking nothing from anyone in particular?

Next, political expediency due to wage poverty abroad is responsible.

Next, you complain bitterly of physician contract labor under Compensation. There will be ten times as much disability from illness. The bill does not forbid contracts. What would you do if you had to pay the bills?

Next, the National Civic Federation will have to answer.

Finally, I must remind Dr. Kopetzky that economy in application means to save money, time or material. The plan of the American Association for Labor Legislation wastes money and time and destroys material, and the criticisms offered by Dr. Kopetzky do not destroy or offset any of the objections raised.

William Gale Curtis,

Chairman, Educational Committee, Insurance Economics Society of America.

Buffalo, N. Y., February 18, 1917.

Dr. John Cowell Mac Evitt, *Editor New York State Journal of Medicine:*

My Dear Dr. Mac Evitt:

Dr. Guy L. Howe, of Rochester, a physician with the Eastman Company, contributed an article to your last issue under the heading of "Industrial Versus Private Practice," which contains statements so diametrically at variance with our present endeavors and trend of thought, that I feel it should not be allowed to go unanswered, particularly under the existing circumstances when the profession is divided in opinion on the Mills Bill, a measure directly in line with the proposition advanced by Dr. Howe, and which in the opinion of many members of the profession would be the direst calamity that could befall us, just as it has proven in European countries, instead of the acme of perfection as Dr. Howe would persuade us to think.

He tells us that industrial medicine, or contract practice, as it should be termed, is superior in *prophylaxis,* that cases are seen earlier, that the contract physician and employee are more on common ground, that drugs are prescribed only when needed, affording greater advantage to follow up the treatment, that the industrial physician has greater and more varied experience, is invested with unlimited equipment, that the industrial physician is stimulated to do a higher grade of work, and that therefore the status of industrial or contract practice is firmly established on a very high pinnacle from which it will continue to ascend. From the foregoing he draws some very remarkable conclusions.

It would seem that these statements are so directly at variance with conditions as they are seen in the large cities that it is almost like uselessly spending time to refute them, and it is only on account of the fact that they go before the physicians in small places whose influence and opinions they might change, that I am taking the time to answer them.

Let us examine the facts in relation to the statements made by the doctor in his paper. Contract industrial work is directly stimulated by the large syndicates for certain economic reasons and the shade of altruism entering into the matter is indeed very attenuated. I will state, however, as a matter of fact that employers vary as do their employees, some being altruistic and some being mercenary. In a general way it would be fair to state that pretty much all corporations submit their affairs to a detailed analysis of economic gain, and that they spend no money unless it comes back to them in one form or another. If any of them deem it expedient to hire a physician to work along preventive lines it is done usually from a point of economic gain. The principal reason for the present status of the contract syndicate physician and surgeon is that it conserves the interests of the corporations to keep a close eye upon the employees, especially when accidentally injured, for medico-legal advantages. It is also a direct advantage to know the physical condition of each individual employee. We know that from the great array of lawsuits filling the calendars of our courts a large percentage of them are claims for negligence against corporations. Lawyers and doctors for the plaintiff do all in their power to aid him. As a matter of protection the corporations began to employ their own physicians to treat employees for the double purpose of placating them by giving them something in the way of free medical services and keeping them under their own observation and care.

Some people think that since the compensation enactment came into being that all employees are insured by some common carrier. This is not true, as many of the large concerns carry their own risks and stand their own losses if a verdict is gained before the Compensation Commission. That the average corporation never pays a claim unless it is compelled to do so is a matter so well understood that it needs no argument to sustain the declaration. That the average corporation medical fee for treatment to employees is far below the average received by physicians not under contract with syndicates is believed. The syndicate doctor is working for the syndicate, just as the alienist hired by the plaintiff testifies for the plaintiff solely. When you can line up a dozen prominent specialists and have them differ diametrically in their conclusions it is simply proof that they are in part for or against the plaintiff. Each one is governed by the economic influences, just as are the lawyers in the case, and do what they can for their client. These statements may not meet with the approval of Dr. Howe's altruistic ideas,

gained in syndicate work, but nevertheless they are true. Business and altruism, at the present time, are not close partners, although closer together than in the past.

It is generally accepted that there are two fundamental principles underlying the practice of medicine that must be observed if the best results are obtained for the doctor and patient.

The first is unrestricted choice on the part of the patient regarding his medical attendant.

The second is payment by visitation and not by capitation.

Both of these principles have been striven for in Europe and the first was won in great part in Germany and England. The second was gained in part, but not to the extent of the first, chiefly due to the financial interests. These same financial interests are endeavoring to defeat the medical profession in this country, as they have in Europe, and establish payment by capitation, as is now done largely in corporation work.

If Dr. Howe is correct in his conclusions we had all better bow our heads to the yoke and accept the Mills Bill with universal acclaim, put science below financial autocracy and work night and day for a bare living as the doctors do in Germany and England. We are indebted to the great financiers for medical progress when they found institutions and let science govern matters; not when finances govern and science is the willing servant. Therefore, it is generally felt that we had better keep our independence and defeat the Mills Bill if we can.

The doctor says that in industrial work the physician and employee are on common ground. He is right. They are both owned by the corporation in most instances, body and soul, and there is no dispute on that point. He further claims that drugs are prescribed only when needed. This is probably true from the fact that economics are observed and no waste is tolerated and in this one particular we will concede that there might be a small economic gain. As for following up the treatment with greater advantage, it hardly seems true that a salaried physician's efforts will be increased when he receives no direct benefit (than one who does, unless the lodge and contract syndicate surgeon is higher morally in his aims, which we can hardly believe to be true from our knowledge of physicians in general). That the contract man has greater experience may be true in a sense, since he is given at once a large amount of work; in fact he generally has more work than he can attend to properly, and consequently gets into the habit of doing poorer work than his neighbor devoted to private practice. As to the equipment being better and greater, that may be true in small country places where syndicates establish hospitals, but in the cities they generally patronize the established hospitals where all that can be had in the way of equipment is provided. The large city institutions spend more dollars for scientific apparatus than syndicates spend cents, since charitable gifts here take the place of economy.

As to whether industrial syndicate work is here to stay is a question to be settled in the future. If the statement is correct that the inalienable right of the individual is choice of his physician. and if the best interests of the physician and patient depend upon payment by visitation, then the present form of contract work must give way to the mode formerly in vogue in this country and in Europe. If the mistaken views of the proponents of the Mills Bill predominate and we have to bow to a great political machine that will inevitably be built up in direct line with contract practice, then, for a time at least, industrial methods will be supreme. Let us hope that the mistaken ideas of the would-be reformers will not be adopted.

J. V. Woodruff.

Legislative Notes

Bills Introduced Into the Legislature.

In Senate.

January 3 to February 24, 1917.

Amending sections 250, 251, 252 and 253, and adding new section 254, Public Health Law, by providing for an advisory council to be appointed annually by the Regents to advise them regarding courses and standards in training schools for nurses, and rules for the examination of nurses, and changing the provisions relative to definition of the practicing of nurses, the board of examiners of nurses, waiver of examinations, and violations. By Mr. Mills. To Public Health Committee. Printed No. 317. Int. 309.

Amending sections 160, 173, Public Health Law, relative to the definition of the practice of medicine and providing that the article shall not be construed to affect the practice of the religious tenets of any church if no fee is accepted for such practice and treatment. It also makes certain changes relative to the practice of osteopathy. (Same as A. 683.) By Mr. Koenig. To Public Health Committee. Printed No. 497. Int. 454.

Amending section 278, Public Health Law, by providing that the Regents may endorse as a license to practice chiropody, a certificate issued by the State Pedic Society prior to September 1, 1912, notwithstanding holder's failure to register the same as required, provided application is made on or before August 1, 1917. (Same as A. 732.) By Mr. Wicks. To Public Health Committee. Printed No. 530. Int. 485.

In Assembly.

Amending section 1142, and adding new section 1141b, Penal Law, by permitting the publication and distribution of pamphlets and articles describing methods of birth control and permitting the sale and use of instruments for preventing conception. By Mr. Shiplacoff. To Codes Committee. Printed No. 328. Int. 321.

New Workmen's Insurance Law, providing for insurance benefits for injuries sustained or death incurred by employees engaged in the hazardous employments enumerated in section 2, Workmen's Compensation Law. An employee may not waive his rights to insurance under the act. The bill also regulates the payment into the State Insurance Fund and makes numerous other provisions. By Mr. Evans. To Judiciary Committee. Printed No. 406. Int. 390.

Amending section 13, Workmen's Compensation Law, by permitting an injured employee to choose his own physician, and giving such physician the right to recover in his own name without making the commission a party, such sum as the commission may award him against the employer or his insurance carrier. By Mr. Evans. To Judiciary Committee. Printed No. 405. Int. 389.

Amending sections 160, 173, Public Health Law, relative to the definition of the practice of medicine, providing that the article shall not be construed to affect the practice of the religious tenets of any church if no fee is accepted for such practice and treatment, and relative to the practice of osteopathy. (Same as S. 454.) By Mr. Mahony. To Public Health Committee. Printed No. 745. Int. 683.

Amending section 278, Public Health Law, by providing that the Regents may indorse as a license to practice chiropody, a certificate issued by the State Pedic Society prior to September 1, 1912, notwithstanding holder's failure to register the same as required, provided application is made on or before August 1, 1917. (Same as S. 485.) By Mr. Martin. To Public Health Committee. Printed No. 809. Int. 732.

Medical Society of the State of New York

17 West 43d Street, New York.
January 15, 1917.

The regular annual meeting of the Medical Society of the State of New York will be held April 24, 1917, at 8.15 P. M., in the First Presbyterian Church, Utica, N. Y.

MARTIN B. TINKER, M.D., *President.*
FLOYD M. CRANDALL, M.D., *Secretary.*

17 West 43d Street, New York.
January 15, 1917.

The regular annual meeting of the House of Delegates of the Medical Society of the State of New York will be held April 23, 1917, at 8 P. M., in the Ball Room of the Hotel Utica, Utica, N. Y.

MARTIN B. TINKER, M.D., *President.*
FLOYD M. CRANDALL, M.D., *Secretary.*

111th ANNUAL MEETING.

Tuesday, April 24th, 8.15 P. M.

First Presbyterian Church.

Calling the Society to order by the President.

Invocation by Rev. Ralph W. Brokaw, D.D.

Address of welcome by Thomas H. Farrell, M.D., Chairman Committee on Arrangements.

Reading of minutes of 110th Annual Meeting, by Floyd M. Crandall, M.D., Secretary.

Address of welcome, Hon. Elihu Root.

Oration, J. M. T. Finney, M.D., Prof. Clinical Surgery Johns Hopkins, Baltimore.

PRELIMINARY SCIENTIFIC PROGRAM.

ARRANGED BY THE COMMITTEE ON SCIENTIFIC WORK.

Samuel Lloyd, Chairman,
12 W. 50th Street, New York City.
Thomas H. Farrell, Utica.
Edward J. Wynkoop, Syracuse.
Robert L. Dickinson, Brooklyn.
Abram T. Kerr, Ithaca.
Thomas F. Laurie, Auburn.
John M. Swan, Rochester.
Linsly R. Williams, Albany.

The order of reading papers will be in accordance with the printed program.

SECTION ON MEDICINE.

Chairman, John M. Swan, M.D., Rochester.
Secretary, Arthur F. Chace, M.D., New York.
Place of Meeting, Park Baptist Church Chapel.

Tuesday, April 24th, 2 P. M.

Therapeutics.

"The Present Status of Vaccine Therapy," Warren B. Stone, M.D., Schenectady.

"The Present Status of Serum Therapy," Rufus I. Cole, M.D., New York.

"The Present Status of Drug Therapy," Warren Coleman, M.D., New York.

"The Present Status of Physiological Therapy," H. Burton Doust, M.D., Syracuse.

Wednesday, April 25th, 9.30 A. M.

"The Experiences in the 1916 Epidemic of Poliomyelitis," Simon Flexner, M.D., New York.

"The Treatment of Dysthyroidism by Roentgen Rays," Myron B. Palmer, M.D., Rochester.

"Arthritides Associated with Intestinal Disorders," G. Reese Satterlee, M.D., New York.

"The Early Diagnosis of Tabes and Its Treatment by the Subdural Use of Mercurialized-Salvarsanized Serum," Malcolm S. Woodbury, M.D., and S. T. Nicholson, M.D., Clifton Springs (by invitation).

Discussion opened by Malcolm S. Woodbury, M.D.

Wednesday, April 25th, 2 P. M.

The Treatment of Heart Disease.

"The Treatment of Heart Diseases in the Convalescent Institution," Frederick Brush, M.D., New York (by invitation).

"The Testing of the Heart's Functional Capacity and Its Relation to Graduated Exercises in Cardiac Insufficiency," Theodore B. Barringer, Jr., M.D., New York.

"The Treatment of Heart Disease by Drugs," W. Dewey Alsever, M.D., Syracuse.

"The Hydrotherapeutic Treatment of Heart Disease," Hubert Schoonmaker, M.D., Clifton Springs.

Discussion to be opened by Robert Abrahams, M.D., New York.

Thursday, April 26th, 9.30 A. M.

Joint Meeting with Section on Surgery.

Peptic Ulcer.

Honorary Chairman, Albert Vander Veer, M.D., Albany.

"The Symptomatology of Peptic Ulcer," George Roe Lockwood, M.D., New York.

"The Practical Pathology of Peptic Ulcer," James Ewing, M.D., New York.

"X-Ray in Peptic Ulcer," Lewis Gregory Cole, M.D., New York.

"The Medical Treatment," Ludwig Kast, M.D., New York.

"Surgical Treatment," John Blair Deaver, M.D., Philadelphia, Pa. (by invitation).

SECTION ON SURGERY.

Acting Chairman, Thomas F. Laurie, M.D., Auburn.
Place of Meeting, Park Baptist Chapel.

Tuesday, April 24th, 2 P. M.

"Complete Avulsion of the Scalp," Frederick H. Flaherty, M.D., Syracuse.

"Acute Hemorrhagic Pancreatitis," William Linder, M.D., Brooklyn.

Subject to be announced. Samuel Lloyd, M.D., New York.

"Cancer of the Bladder," James A. Gardner, M.D., Buffalo.

"Sarcoma Complicating Paget's Disease; Report of Case." Ledra Heazlit, M.D., Auburn.

Wednesday, April 25th, 9.30 A. M.

"Fracture of the Neck of the Femur in Children," Henry Ling Taylor, M.D., New York.

Subject to be announced. Parker Syms, M.D., New York.

"Carrel-Dakin Treatment of Infected Wounds," Charles Langdon Gibson, M.D., New York.

Discussion by Edward S. Van Duyn, M.D., Syracuse.

"Surgery of the Knee Joint," by Howard L. Prince, M.D., Rochester.

"The Hospital Surgeon, His Economics and the Standardization of His Work," Warren L. Duffield, M.D., Brooklyn.

Wednesday, April 25th, 2 P. M.

Joint Meeting with Sections on Pediatrics and Eye, Ear, Nose and Throat.

Symposium on the Glands of the Neck in Children.

"Differential Diagnosis of the Enlargement of the Cervical Glands in Children," Royal Storrs Haynes, M.D., New York.

"The Relation of the Nose and Throat to Cervical Adenitis," George Bacon Wood, M.D., Philadelphia, Pa. (by invitation).

"The Relation of Teeth and Enlarged Glands," Thomas B. Hartzell, D.M.D., M.D., Minneapolis (by invitation).

"The X-Ray Treatment of Enlarged Cervical Glands," George E. Pfahler, M.D., Philadelphia, Pa. (by invitation).

"The Indication for the Removal of the Enlarged Cervical Glands," Charles N. Dowd, M.D., New York.

Discussion by Thomas S. Southworth, M.D., Henry W. Frauenthal, M.D., New York, De Witt Halsey Sherman, M.D., Buffalo; Clement F. Theisen, M.D., Albany, and Thomas H. Halsted, M.D., Syracuse.

Thursday, April 26th, 9.30 A. M.

Joint Meeting with Section on Medicine.
Peptic Ulcer.

Honorary Chairman, Albert Vander Veer, M.D., Albany.

"Symptomatology of Peptic Ulcer," George Roe Lockwood, M.D., New York.

"The Practical Pathology of Peptic Ulcer," James Ewing, M.D., New York.

"X-Ray in Peptic Ulcer," Lewis Gregory Cole, D.D., New York.

"The Medical Treatment," Ludwig Kast, M.D., New York.

"The Surgical Treatment," John Blair Deaver, M.D., Philadelphia. (By invitation.)

SECTION ON OBSTETRICS AND GYNECOLOGY.

Chairman, Robert L. Dickinson, M.D., Brooklyn.
Secretary, Ross George Loop, M.D., Elmira
Place of Meeting, Auditorium, New Century Club.

Wednesday, April 25th, 9.30 A. M.

Symposium on Every Day Obstetrics.

"The Irreducible Minimum of Care and Asepsis in the Country District," Eugene W. Belknap, M.D., Syracuse.

"The Irreducible Minimum in the Tenement," James W. Markoe, M.D., New York.

"The Primapara Belongs to the Specialist; the Multipara to the Family Doctor and the Home," Ralph H. Pomeroy, M.D., Brooklyn.

"The Training of the General Practitioner for Obstetrics."

"The Fifth Year in Medicine and Its Obstetric Course; the Ten Dollar Fee in Practice; the Free Maternity, and the Midwife." Pennsylvania's plan. J. W. Baldy, M.D., Member Bureau Medical Education and Licensure, Commonwealth of Pennsylvania (by invitation).

"The Post-Graduate City Course vs. College Extension Courses," by Travelling Instructors from State Medical Society or Medical Colleges. Watson S. Rankin, M.D., Secretary State Board of Health, North Carolina (by invitation).

The Combination of Obstetrics and Gynecology:

"As One Department in Hospital or College," John Whitridge Williams, M.D., Prof. Obstetrics Johns Hopkins, Baltimore, Md. (by invitation).

Wednesday, April 25th, 2 P. M.

Symposium on Every Day Gynecology.

"Routine Diagnostic Methods in General Office Practice," "Conditions Proper for Office Treatment," "Recent Developments in Gynecology That Every Practitioner Should Know," John Goodrich Clark, M.D., Prof. Gynecology, University of Pa., Philadelphia (by invitation), and Walter William Chipman, M.D., Prof. Obstetrics and Gynecology, McGill University, Montreal, Canada (by invitation); George Gray Ward, Jr., M.D., Prof. Gynecology, Cornell, New York.

"The Reason for a Gynecological Department in a General Hospital," Eliot Bishop, M.D., Brooklyn.

"Preliminary General Surgical Training Should Be Required of Every Specialist in every Sub-Department of Surgery," Howard L. Prince, M.D., Rochester.

"Motion Pictures of Surgeons at Work Proving the Grievous Need of Drill and of Time Saving Methods," Frank B. Gilbreth, Efficiency Engineer, Providence, R. I. (by invitation).

Thursday, April 26th, 9.30 A. M.

"The Choice of Operation for Retroversion" (lantern slides), Edward E. Montgomery, M.D., Prof. Gynecology, Jefferson Med. Coll., Philadelphia (by invitation).

"The Necessity and Usefulness of Follow-up Methods in Ward and Dispensary Cases in Bellevue Hospital," William E. Studdiford, M.D., New York.

"Rectal Examination in Obscure Pelvic Pain," Dwight H. Murray, M.D., Syracuse.

"The Irritable Bladder in Women," George W. Stark, M.D., Syracuse.

SECTION ON EYE, EAR, NOSE AND THROAT.

Chairman, Thomas Henry Farrell, M.D., Utica.
Secretary, Arthur J. Bedell, M.D., Albany.
Place of Meeting, Coke Memorial Church.

Tuesday, April 24th, 2 P. M.

Symposium on the "Luetic Lesions of the Eye, Ear, Nose and Throat."

"Of the Eye," William Campbell Posey, M.D., Philadelphia, Pa. (by invitation).

Discussion opened by Percy Fridenberg, M.D., New York City and Albert C. Snell, M.D., Rochester.

"Of the Ear," Bradford A. Richards, M.D., Rochester.

Discussion opened by Edward B. Dench, N.D., New York.

"Of the Nose and Throat," Joseph C. Beck, M.D., Chicago, Ill. (by invitation).

Discussion opened by Joseph H. Abraham, M.D., New York.

"Some of the General Skin Diseases with Ocular Manifestations," Walter B. Weidler, M.D., New York.

Discussion opened by George Miller MacKee, M.D., New York.

Wednesday, April 25th, 9.30 A. M.

Demonstrations on Bronchoscopy and Esophagoscopy, John Wesley Murphy, M.D., Cincinnati, O.

"Value of Routine Examination of the Labyrinth," illustrated by moving pictures, Isaac H. Jones, M.D., Philadelphia, Pa. (by invitation).

Discussion opened by Isidore Friesner, M.D., New York.

"Elliot's Operation: Complications and Unfavorable Results." W. Gordon M. Byers, M.D., Montreal (by invitation).

Discussion opened by Arnold Knopp, M.D., New York.

"Noma," Eugene E. Hinman, M.D., Albany.

Wednesday, April 25th, 2 P. M.

Joint Meeting with Sections on Surgery and Pediatrics.

Symposium on the "Glands of the Neck in Children."

"Differential Diagnosis of the Enlargement of the Cervical Glands in Children," Royal S. Haynes, M.D., New York.

"The Relation of the Nose and Throat to Cervical Adenitis," George Bacon Wood, M.D., Philadelphia, Pa. (by invitation).

"The Relation of Teeth and Enlarged Glands," Thomas B. Hartzell, D.M.D., M.D., Minneapolis (by invitation).

"The X-Ray Treatment of Enlarged Cervical Glands," George E. Pfahler, M.D., Philadelphia (by invitation).

"The Indications for the Removal of the Enlarged Cervical Glands," Charles N. Dowd, M.D., New York.

Discussion by Thomas S. Southworth, M.D., Henry W. Frauenthal, M.D., New York; De Witt Halsey Sherman, M.D., Buffalo; Clement E. Theisen, M.D., Albany, and Thomas H. Halsted, M.D., Syracuse.

Thursday, April 26th, 9.30 A. M.

"Intra-cranial Treatment for Optic Nerve Affections of Syphilitic Nature." Mark J. Schoenberg, M.D., New York City.

Title to be announced, John Wesley Murphy, M.D., Cincinnati, O.

SECTION ON PEDIATRICS.

Chairman, Edward J. Wynkoop, M.D., Syracuse.
Secretary, T. Wood Clarke, M.D., Utica.
Place of Meeting, State Armory.

Tuesday Afternoon, April 24th.

"Some Aspects of Internal Hydrocephalus," Carl G. Leo-Wolf, M.D., Buffalo.

"Practical Infant Feeding," J. Roberts Johnson, M.D., Syracuse.

"Indicanuria in Children," William J. Schuyler, M.D., Utica.

"The Mechanism of Intestinal Atony in Children; Etiology and Treatment," Fenton B. Turck, M.D., New York.

Wednesday, April 25th, 9.30 A. M.

"Pertussis Vaccine," Henry L. K. Shaw, M.D., Albany.

"The Nature of Food Idiosyncrasies in Children," Oscar M. Schloss, M.D., New York.

"The Rôle of Idiosyncrasies in Practice," Fritz Bradley Talbot, M.D., Boston, Mass. (by invitation).

"Early Diagnosis of Poliomyelitis," Wardner D. Ayer, M.D., Syracuse.

"Management of Defective Nutrition in Children," Elias H. Bartley, M.D., Brooklyn.

Wednesday, April 25th, 2 P. M.

Joint Meeting with Sections on Eye, Ear, Nose and Throat and Surgery.

Symposium on the Glands of the Neck in Children.

Place of Meeting, Tabernacle Baptist Church.

"The Differential Diagnosis of the Enlargement of the Cervical Glands in Children," Royal Storrs Haynes, M.D., New York.

"The Relation of the Nose and Throat to Cervical Adenitis," George Bacon Wood, M.D., Philadelphia (by invitation).

"The Relation of Teeth and Enlarged Glands," Thomas B. Hartzell, D.M.D., M.D., Minneapolis (by invitation).

"The X-Ray Treatment of Enlarged Cervical Glands," George E. Pfahler, M.D., Philadelphia, Pa. (by invitation).

"The Indications for the Removal of the Enlarged Cervical Glands," Charles N. Dowd, M.D., New York.

Discussion by Thomas S. Southworth, M.D., Henry W. Frauenthal, M.D., New York; De Witt Halsey Sherman, M.D., Buffalo; Clement F. Theisen, M.D., Albany, and Thomas H. Halsted, M.D., Syracuse.

Thursday, April 26th, 9.00 A. M.

Automobile trip to the State Custodial Asylum at Rome, leaving Armory, 9 A. M., arriving at Rome, 10 A.M.

10.00—10.20. "The Difference between Insanity and Feeblemindedness and the Stigmata of Degeneration, Physical Types, etc." Charles Bernstein, M.D., Rome.

11.00—12.00. General Inspection of the Asylum.

12.30. Luncheon at the Asylum.

1.30—1.50. "Psychiatry vs. Psychology in Diagnosing Feeblemindedness." W. B. Cornell, M.D. (By invitation).

2.00—3.00. Clinic—Laboratory Tests of Mentality. E. W. Fuller, M.D., Rome.

3.00—3.30. Clinic—Types of Juvenile Psychosis. W. W. Millias, M.D., Rome.

3.30—3.50. "Safeguarding the Child against Mental Disease," Miss Jessie Taft, New York Mental Hygiene Committee. (By invitation.)

4.00—4.20. "Discussion of Mental Defects as a Social Problem." Mr. James P. Heaton, Secretary New York Committee on the Feebleminded. (By invitation.)

SECTION ON PUBLIC HEALTH, HYGIENE AND SANITATION.

Chairman, Linsly Rudd Williams, M.D., Albany.
Secretary, William G. Bissell, M.D., Buffalo.
Place of Meeting, State Armory.

Tuesday, April 24th, 2 P. M.

"The Problem of Soil Pollution," illustrated by lantern slides. Victor G. Heiser, M.D., New York, International Health Board (by invitation).

"The Development of the Health Centers in the Department of Health," Walter S. Goodale, M.D., Buffalo.

"Serum Diagnosis of Tuberculosis," Hans Zinsser, M.D., New York (by invitation).

"Diagnosis of Pulmonary Tuberculosis by Roentgen Rays," Frederick H. C. Heise, M.D., Trudeau, New York.

Wednesday, April 25th, 9.30 A. M.

"Para-typhoid Fever," Major J. F. Siler, Medical Corps, U. S. A., Fort Sam Houston, Texas (by invitation).

"The Bacteriology of Para-typhoid Fever," Charles Krumwiede, M.D., New York.

"Report of an Epidemic of Para-typhoid Fever," Charles W. Berry, M.D., Brooklyn.

"Study of an Epidemic of Para-typhoid Among the Troops," Augustus B. Wadsworth, M.D., Albany.

Wednesday, April 25th, 2 P. M.

"An Epidemic of Bacillary Dysentery," John A. Smith, M.D., Albany.

"Results Obtained from the Use of Pertussis Vaccine," George W. Goler, M.D., Rochester.

"Diphtheria in New York State," Fred M. Meader, M.D., Albany (by invitation).

"An Outbreak of Diphtheria in Binghamton," Paul B. Brooks, M.D., Norwich.

Thursday, April 26th, 9.30 A. M.

"The Epidemic of Poliomyelitis in New York State," Matthias Nicoll, Jr., M.D., New York.

"Epidemiology of Poliomyelitis," J. S. Conway, M.D., Hornell.

"Diagnosis of Poliomyelitis," Albert Bowen, M.D., Rochester.

"Treatment of Poliomyelitis with Immune Serum," Harold L. Amoss, M.D., Allan Chesney, M.D., New York (by invitation).

"Treatment of Poliomyelitis with Immune Serum," Edward Taylor, M.D., Burlington, Vermont (by invitation).

"Poliomyelitis as a Public Problem," Armitage Whitman, M.D., New York.

ENTERTAINMENTS.

Wednesday Evening, April 25th,
Cabaret.

HOTELS.

Baggs Hotel, European plan:
125 rooms. $2 to $5.
Hotel Utica, European plan:
200 rooms. $2 to $8.
Yates Hotel, European plan:
80 rooms. $1 to $1.50.
St. James Hotel, American plan:
About 125 rooms. $2.50 and up per day.
Hotel Martin, European plan:
200 rooms. $1.50 to $3.50.
Hotel Williams, American plan:
Temperance Hotel. 40 rooms. $1.75 per day.
Metropolitan Hotel, European plan:
75 cents to $1.50.
St. James Hotel, American plan:
$2.50 to $3.50.

Medical Society of the State of New York

NOTES BY THE SECRETARY.

A Message to the Members and County Society Officers.

In the November number of the Journal I spoke of the importance of following the Constitution and By-laws in taking official action. I wish, this month, to draw particular attention to certain paragraphs which occur in the By-Laws of every County Society, which read substantially as follows: "Members whose dues or assessments for the current year are unpaid on May first, or who are under suspension, shall not be eligible for nomination, election, or appointment to any official position in the Society."

Every year a half-dozen or more members are elected to office in violation of the terms of this paragraph of the County Constitutions. In some cases members who have been long dropped for non-payment of dues have been elected to high office. The terms of this section in the By-laws are so clear that they cannot be mistaken by anyone capable of reading the English language. In writing these notes I have taken additional precaution to secure legal advice. That advice, in accordance with the terms of the By-laws, is clear and positive: namely, that members elected to office who have not paid their dues and assessments are not legally elected and cannot legally hold office.

It should be remembered that the State Society and County Societies are not private bodies. Under the law of 1806 they received special privileges and became an integral part of the State government. They are public societies in the fullest sense of that term. Action which they may take is not infrequently reviewed by courts of law. It is particularly important, therefore, that they do not lay themselves liable by non-compliance with the laws of the State under which they are chartered. It is for this reason that I am urging more circumspection and greater caution by the County Societies in electing officers who are ineligible for office.

Let us briefly review the record of the past year. In one county a Vice-President was elected on November 9 who had not paid his dues and was dropped for non-payment of dues on December 31. He paid his dues and was reinstated some time in January, 1917.

In another county a Vice-President was elected on December 14, who had been dropped for non-payment of dues on December 31, 1915, and had, therefore, not been eligible for office for a year and a half before his election.

In another county a member was elected a Delegate to the State Society who had allowed himself to be dropped for non-payment of dues on December 31, 1916. This election, however, was legal, as it occurred on January 10, 1917, and the member was reinstated on January 3. The whole affair, however, showed a lack of regard for the interests of his County Society, for a society cannot do its work without funds.

In another county a man was elected President on December 15, 1916, who did not pay his dues until some days after his election and was therefore not dropped from the list on December 31. He was, however, not eligible to election on December 15 under the By-laws of his Society.

In another county an Alternate Delegate was elected on December 5, who was dropped for non-payment of dues on December 31, and at the present writing has not been reinstated.

Under the clear reading of the By-laws of these Societies, and according to legal opinion, these members were not legally elected and are not now officers of the Societies which elected them. There is no provision by which the payment of dues after election can make legal the illegality of the election in controversion of the Constitution. It has been legally held that the reinstatement of a member thus illegally elected does not make his election legal. The only way in which these men can hold their offices is by the action of the Comitia Minora. That body must hold a meeting and elect an officer to fill the vacancy which exists through illegal election.

It is not right that County Societies should thus ignore the fundamental law upon which they are based. Neither is it right that physicians who accept office should be so regardless of the well-being of their Societies as to have denied them financial support.

F. M. C

AMENDMENTS TO THE CONSTITUTION AND BY-LAWS WHICH WILL BE PRESENTED FOR ACTION AT THE NEXT ANNUAL MEETING.

Amend the Constitution, Article IV, by striking out the words "each county society shall be entitled to elect to the House of Delegates as many delegates as there shall be state assembly districts in that county at the time of the election; except that each county society shall be entitled to elect at least one delegates and except that whenever at the time of election the membership of a county society shall include members from an adjoining county or counties in which there shall be no county society in affiliation with this society, such county society shall be entitled to elect; from among such members, as many additional delegates as there are assembly districts in the county or counties so represented in its membership."

And inserting the words: "The delegates shall be apportioned among the constituent societies in proportion to their actual active membership, except that each constituent society shall be entitled to elect at least one delegate. The House of Delegates may from time to time fix the ratio of apportionment."

Amend Chapter VII, Section 4, of the By-Laws by striking out the words "three members, including the Chairman," and inserting the words "a Chairman to be elected by the House of Delegates and of the Chairmen of the Legislative Committees of the constituent county societies." The Section will then read:

"The Committee on Legislation shall consist of a Chairman to be elected by the House of Delegates and of the Chairmen of the Legislative Committees of the constituent county societies."

Amend Chapter X of the By-Laws by adding a new Section 3: "All legally qualified graduates in medicine, licensed to practice in the State of New York in conformity with the law and the requirements of the Board of Regents, are eligible to membership, except those admitted by special enactment of the Legislature, with evasion of the educational requirements either preliminary or professional."

The present Section 3 then becomes Section 4; 4 becomes 5; 5 becomes 6; 6 becomes 7; 7 becomes 8; 8 becomes 9; 9 becomes 10.

Amend Chapter XII of the By-Laws by striking out Section 1 and substituting the following: "No article of these By-Laws shall be amended except by a majority vote of the delegates present and voting at any annual meeting, nor unless notice of the proposed amendment shall have been given at a previous annual meeting and shall have been published twice during the year in the official bulletin or journal of the society, or sent by order of the House of Delegates to each county society in affiliation with the society at least two months before the meeting at which final action shall be taken thereon.

County Societies

MEDICAL SOCIETY OF THE COUNTY OF ERIE.

REGULAR MEETING, BUFFALO, N. Y.

Monday, February 19, 1917.

The meeting was devoted to the subject of Compulsory Health Insurance, especially as presented in the Mill's bill now before the State Legislature.

By direction of the Council the Secretary sent a copy of the bill and a return postal card to every member with the request that he familiarize himself with the provisions of the bill and then record his vote for or against it on the card. To date, out of 700 cards sent out, 12 have been received in favor of the bill and 378 opposed to it.

In the discussion which took place both sides were represented, Mr. Frederick Almy, for many years Secretary of the Charity Organization Society, and Dr. McClellan, Superintendent of Welcome Hall, perhaps the largest philanthropic association of its kind in this part of the State, spoke in favor of it.

After a thorough discussion the following resolution was unanimously adopted:

Resolved, That the Medical Society of the County of Erie, after due and careful consideration, is diametrically opposed to the passage of the proposed Compulsory Health Insurance Act on the ground that the said proposed measure is decidedly inimical to the best interests of the public at large and the medical profession.

The Secretary was directed to send a copy of this resolution to the Secretary of every County Society in the State and also to every Senator and Member of Assembly in the State.

The following resolution was also adopted:

Resolved, That the Medical Society of the County of Erie most emphatically disapproves and condemns the extra legal, if not illegal endorsement by the Council of the Medical Society of the State of New York of a measure not fully approved by the body of the profession, either in principal or in policy, and while it is still under consideration and discussion by those most vitally affected by its provisions.

A resolution passed by the Council on February 6th recommending that the Chairman of the Committee on Legislation, or his representative, appear before the proper legislative committee when a hearing is held on the Compulsory Health Insurance Bill and that he act as instructed by our County Society, was approved by the Society.

The reason for this action by the Council and the Society was due to the understanding that the Chairman of the State Committee on Legislation was prohibited by the action of the State Council from appearing before the legislative committee when the hearing is held.

At a joint meeting of the Council and delegates to the State Society, held February 28th, a resolution was adopted that the Chairman of the Committee on Legislation of our Society be instructed when attending the hearing on the Mills' bill to support a substitute resolution, sending the entire question of Compulsory Health Insurance to a legislative committee, who shall have power to investigate the question from all sides, hold hearings, and report at a subsequent session of the Legislature, preferably in three or four years.

RICHMOND COUNTY MEDICAL SOCIETY.

REGULAR MEETING, ST. GEORGE, N. Y.

Wednesday, February 14, 1917.

The meeting was called to order by the President, Dr. Max Krueger, at 8.30 P. M.

The proposed Compulsory Health Insurance Bill was considered, and after full discussion the following resolution was adopted:

Resolved, That the Richmond County Medical Society is opposed to the proposed Health Insurance Bill in its present form, for the following reasons:

1. That the medical profession, which is devoting itself to the great advances in preventive medicine and is whole-heartedly in favor of any measure that provides more scientific medicinal care for the self-respecting middle class workman, should be permitted a much longer time to thoroughly discuss a measure of such vital importance to the public and the profession itself.
2. That there will be continuous friction between the panel physician and the local health committee.
3. That the hospital physician must be a panel physician.
4. That the administration of funds is a local matter.
5. That no provision is made for the designation of specialists.
6. That the additional insurance for the workman's family is an unjust burden to the employer and the final adjustment of the cost will fall unequally upon the workman himself.
7. That the medical fee and hospital compensation is not definitely stipulated, and it was further

Resolved, That a copy of the above resolution be sent to the Representatives of Richmond County in the State Legislature, the Secretary of the State Medical Society, Senator Mills and Dr. Alexander Lambert.

In regard to the new Medical Practice Act, the following resolutions were, on motion, adopted:

WHEREAS, A new medical practice law will be introduced during the present session of the Legislature, which requires the annual re-registration of practitioners of medicine, the Richmond County Medical Society, at its regular meeting, February 14, 1917, desires to put itself on record as opposed to the proposed bill; therefore be it

Resolved, That the Richmond County Medical Society opposes the bill on the following grounds:

1. It offers no additional means of detection of illegal practitioners than are at present available.
2. The proposal to tax practitioners of medicine to pay for prosecution of practitioners violating the laws of the State of New York is vicious class legislation; and further be it

Resolved, That a copy of these resolutions be sent to the Committee on Legislation of the State Medical Society and the Representatives in the State Legislature.

The meeting then adjourned to the Staten Island Club, where a collation was served.

DUTCHESS-PUTNAM MEDICAL SOCIETY.

SPECIAL MEETING, POUGHKEEPSIE.

Monday, February 12, 1917.

At the special meeting of the Dutchess-Putnam Society called to consider Compulsory Health Insurance the following resolution was adopted:

WHEREAS, the members of the Dutchess-Putnam Medical Society are not in favor of the Health Insurance Act as at present planned and are opposed to the action taken by the Council of the Medical Society of the State of New York on December 9, 1916, when it endorsed and approved of the medical provisions of thetentative draft of the Health Insurance Act. We believe in so doing without consulting the medical profession of the State of New York they exceeded their powers and are justly entitled to censure.

THEREFORE, we respectfully request the Council of the Medical Society of the State of New York to rescind the action of December 9, 1916, with reference to the Health Insurance Act, and furthermore, we ask that the Council instruct the Legislative Committee of the Medical Society of the State of New York to use every proper means to prevent the Health Insurance Bill from becoming a law.

MEDICAL SOCIETY OF THE COUNTY OF ROCKLAND.

ANNUAL MEETING, December 13, 1916.

The following officers were elected: President, Orville N. Lewis, Haverstraw; Vice-President, Dean Miltmore, Nyack; Secretary, Henry I. Berlowe, Pearl River; Treasurer, Arthur K. Doig, Nyack.

Dr. Lewis, though present at the meeting, left before the election of officers and was not present when his name was offered for election and he was duly elected. On being notified of his election he declined to accept the office. The Vice-President, Dr. Miltmore, is therefore acting President.

The Society at this meeting, moved, seconded and carried a protest at the inactivity and procrastination of the County Supervisors to purchase a site for the Tuberculosis Hospital which had been voted for by the County. There was also a motion carried for a committee to appear before the Supervisors and fix one set price for autopsy work.

MEDICAL SOCIETY OF THE COUNTY OF ST. LAWRENCE.

SPECIAL MEETING, OGDENSBURG, N. Y.
February 13, 1917.

The meeting was held at the Century Club, and the following resolutions were unanimously adopted:

Resolved. That the Medical Society of the County of St. Lawrence is of the opinion that the proposed "Health Insurance Act," Senate Bill No. 69, should be subjected to further study by the medical profession before such act becomes a law, and it is opposed to the passage of such a law at this session of the legislature.

Resolved, That the Secretary of the Society be instructed to write to the Senator from this Senate District, and to the Assemblymen from this County, enclosing a copy of these resolutions and ask their aid in causing postponement of action on the Mills Bill—Senate Bill No. 69—for another year.

Upon motion duly seconded and unanimously carried, the Secretary was instructed to send a copy of the above resolutions to the individual members of the Society, and request that each member write their Senator and Assemblyman to oppose the passage of the bill.

MEDICAL SOCIETY OF THE COUNTY OF WASHINGTON.

SPECIAL MEETING, GREENWICH, N. Y.
January 4, 1917, at 2 P. M.

The meeting was called to order in the office of Dr. Millington, for the purpose of taking action on the proposed "Health Insurance Legislation."

Members present: Drs. Munson, Paris, Pashley, Stillman, Rogers, Millington, Budlong, Fryer, Banker.

The President stated the object of the meeting, and the subject was discussed by all present. Dr. Park sent word that he was not in favor of the proposition. A letter was read from Dr. Rooney, also a letter from the Flatbush Medical Society.

The following resolution was unanimously adopted:

WHEREAS, This Society has been informed of the proposed legislation regarding "Health Insurance," and

WHEREAS, At this special meeting this subject has been thoroughly discussed by the members present, be it

Resolved, That we decidedly oppose any such legislation in its present form, and urge our representatives to act accordingly.

A telephone message was received from Dr. Rooney, and the questions on the blank sent by Dr. Rooney were answered by the society.

The Secretary was requested to write the President of the Fourth District Branch, requesting him to call a meeting of the Executive Committee, to discuss this subject, and to urge the calling of a special meeting of the House of Delegates.

MEDICAL SOCIETY OF THE COUNTY OF NIAGARA.

REGULAR MEETING, LOCKPORT.
Saturday, January 21, 1917.

The Annual Banquet of the Niagara County Medical Society was held at the Hotel Kenmore, Lockport, at 8.30 P. M.

After the banquet the regular bi-monthly meeting was called to order by Dr. John Corman, President.

The minutes of the last meeting were read and approved.

Moved, seconded and carried that all further regular business of the society be postponed until next meeting.

Dr. Lydle was called upon and read a paper explaining the various parts of the proposed compulsory Insurance Law. A general discussion followed the reading of the paper.

Assemblyman William Bewley and Senator George Thompson gave short talks in reference to the Insurance Bill.

MEDICAL SOCIETY OF THE COUNTY OF SCHENECTADY.

REGULAR MEETING, SCHENECTADY.
January 16, 1917.

The following resolutions were adopted:

WHEREAS, This Society has considered the subject of Compulsory Health Insurance in its various phases, and with especial reference to the draft of the bill proposing to establish such a system in the State of New York, emanating from the American Association for Labor Legislation, and has carefully considered the effect of this legislation in other countries, both upon the general public and the medical profession, and finds that there is no evidence of general demand for the institution of such a system of Compulsiry Health Insurance in this State or country; and,

WHEREAS, In the opinion of this Society there is no evidence that the institution of Compulsory Health Insurance in this country will prove to be any more an effective factor in either the diminution or abolition of poverty, as claimed by the proponents of this measure, than has been effected in Germany, Austria, Sweden, Norway, Italy or any other of the countries in which such legislation has been in existence for a length of time sufficient to allow of sufficient deduction from observed facts; and,

WHEREAS, The effect upon the medical profession in those countries in which such legislation is in effect has been uniformly bad, and has only to a slight degree been offset by the fact that in these countries, also, medical education is controlled and furnished in institutions which are financed completely by the State, which facts are not true of the United States; and,

WHEREAS, In the opinion of this Society, this legislation is an immediate institution of State socialism, and an abrogation of the rights of the individual to the control of his own life and property; and,

WHEREAS, All the citizens of the State will be taxed for the benefit of only a part of them; and,

WHEREAS, The contribution of the State alone, as required under the proposed measure, will amount to a sum which will be nearly or quite the half of its present total expenditure per annum, that is, a sum which will approximate a total of $40,000,000, which will necessitate a rise in the tax rate of at least fifty per cent. of its present figure; and,

WHEREAS, An annual expense of over five millions of dollars will be needed to administer the act, a large part of which will be paid in salaries to the various officials constituted by the act; and,

WHEREAS, The act will be administered by a Commission of three, to be appointed by the Governor, and responsible to him alone, and not to the Legislature; and,

WHEREAS, Under this plan the opportunity of using the act in furtherance of political purposes may be seen to be great; and,

WHEREAS, The fees of physicians employed under the act will be fixed finally by this Commission, of whom only one will be a physician; and,

WHEREAS, The medical profession of the State has had no opportunity sufficiently long to properly determine its final position, therefore be it

Resolved, That for the present this Society condemns the enactment into law of an act to establish a system of Compulsory Health Insurance in this State and country; and furthermore, be it

Resolved, That this Society does not accept the plan for medical service under an act for Compulsory Health Insurance as proposed in the tentative draft of the bill as given by the American Association for Labor Legislation; and be it further

Resolved, That this Society inform the proper officers of the Medical Society of the State of New York of these resolutions through its accredited representatives on the Council of that Society and in the House of Delegates; and be it further

Resolved, That the Secretary of this Society be directed to communicate with all the other County Societies of this State in regard to this matter and to forward to each of them a copy of this preamble and resolutions; and be it further

Resolved, That the delegate of this Society to the State Society, when the proper time comes, sign a call for a meeting of the House of Delegates at Albany; and be it further

Resolved, That a copy of these resolutions be sent to our local Senator and Representative.

MEDICAL SOCIETY OF THE COUNTY OF CAYUGA.

REGULAR MEETING, AUBURN, N. Y.

Thursday, February 9, 1917.

The meeting was called to order at 8.30 P.M. in the Women's Union Building, the first paper of the evening being *Paranoia*, Robert M. Elliott, M.D., Superintendent Willard State Hospital, Willard.

Another paper was *Pre-Natal Influences*, and presentation of specimen fœtus, by Howard D. Chapman, M.D., Auburn.

After a full discussion of the proposed Compulsory Health Insurance Bill the Society went on record as unanimously opposed to the plan and to all such legislation, and considered that any immediate action in this connection would be ill-advised.

The following resolution was passed: "That the Cayuga County Medical Society believes in as much as there is but one attorney who is adequately familiar with the special form of legal practice, malpractice defense, that additional revenues should be provided for the State Society by the increase of the annual dues to four dollars, so that the efficiency of the legal department of the State Society shall thereby be increased."

BROOME COUNTY MEDICAL SOCIETY.

SPECIAL MEETING, BINGHAMTON, N. Y.

January 9, 1917.

At a special meeting of the Society, called to consider the question of Compulsory Health Insurance, after careful consideration, the society went on record as feeling that, as some such insurance was inevitable, the two things to be asked for were:

1st. That the medical body be represented by a medical man in the commission, and

2nd. That the patient be allowed to exercise his choice in the employment of physicians.

Books Received

A LABORATORY GUIDE IN PHARMACOLOGY, by TORALD SOLLMAN, M.D., Prof. of Pharmacology and Materia Medica, Western Reserve University, Cleveland, Octavo of 355 pages, illustrated. Philadelphia and London: W. B. Saunders Co., 1917. Cloth, $2.50 net.

A MANUAL OF PHARMACOLOGY, and Its Applications to Therapeutics and Toxicology, by TORALD SOLLMAN, M.D., Prof. of Pharmacology and Materia Medica, Western Reserve University, Cleveland, Ohio. Octavo of 901 pages, illustrated. Philadelphia and London: W. B. Saunders Co., 1917. Cloth, $4.50 net.

THE SURGICAL CLINICS OF CHICAGO, Vol. I, No. 1 February, 1917). Octavo of 221 pages, 83 illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Published Bi-monthly. Price per year: Paper, $10; cloth, $14.

MICROBIOLOGY: A Text Book of Microorganisms, General and Applied. Edited by CHARLES E. MARSHALL, Prof. Microbiology and Director graduate school Mass. Agricultural College. 2nd edition, revised and enlarged; 186 illustrations. P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia, Pa. Price, $3.00 net.

THE BREAST: ITS ANOMALIES, ITS DISEASES AND THEIR TREATMENT, by JOHN B. DEAVOR, M.D., LL.D., Sc.D., Prof. Practice of Surgery, Univ. Pennsylvania, Surgeon-in-Chief, German Hosp., Counsulting Surgeon Germantown Hosp., Philadelphia General, etc.; and JOSEPH MCFARLAND, M.D., Sc.D., Prof. Pathology and Bacteriology Medical Department University Pennsylvania; Pathologist Philadelphia General Hosp.; J. LEON HERMAN, B.S., M.D., Assistant Surgeon Methodist Hosp., Philadelphia. Eight colored plates, 277 illustrations in text. Price, $9.00 net. P. Blakiston's Son & Co., 1912 Walnut St., Philadelphia, Pa.

MILITARY SURGERY, by Dunlap Pearce Penhallow, S.B., M.D. (Harv.), Chief Surgeon American Women's War Hospital, Paignton, England; Director of Unit, American Red Cross European Relief Expedition. With introduction by Sir Alfred Keough, K.G.B., Director-General Army Medical Service. Original drawings by author. London; Henry Frowde, Hodder & Stoughton, Oxford Univ. Press. Warwick Sq., E. C., 1916. Oxford Univ. Press, 35 W. 32nd St., N. Y. City. Price, $5.00.

THE GROWTH OF MEDICINE FROM THE EARLIEST TIMES TO ABOUT 1800, by ALBERT H. BUCK, B.A., M.D., Consulting Aural Surgeon, N. Y. Eye and Ear Infirmary. Price, $5.00. New Haven: Yale Univ. Press. London: Humphrey Milford, Oxford Univ. Press, 1917.

MATERIA MEDICA AND THERAPEUTICS: Including Pharmacy and Pharmacology, by Reynold Webb Wilcox, M.A., M.D., LL.D., D.C.L., Consulting Physician St. Mark's, Nassau, Ossining and Eastern Long Island Hospitals. Ninth edition; revised in accordance with U. S. Pharmacopeia IX, with index of symptoms and diseases. Price, $3.50. P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia, Pa., 1917.

SURGERY, WITH SPECIAL REFERENCE TO PODIATRY. By MAXIMILIAN STERN, M.D., and EDWARD ADAMS, M.D., Professor of Surgery at the School of Chiropody of New York. Edited by MAURICE J. LEWI, M.D., President of the School of Chiropody of New York.

Deaths

WILLIAM BANCROFT ANDERTON, M.D., New York City, died February 23, 1917.

MORRIS WEIL BRINKMAN, M.D., New York City, died February 14, 1917.

FRED J. HARTER, M.D., Herkimer, died January 20, 1917.

JOHN A. HOFFMEYER, M.D., Buffalo, died January 26, 1917.

ROBERT A. KOEMPEL, M.D., New York City, died February 14, 1917.

WILLIAM MABON, M.D., New York City, died February 9, 1917.

GEORGE MEYERS, M.D., New York City, died February 14, 1917.

WILLARD H. ROGERS, M.D., New York City, died February 9, 1917.

WILLIAM SHEPARD SEAMANS, M.D., New York City, died February 6, 1917.

NEW YORK STATE JOURNAL OF MEDICINE

A Journal Devoted to the Interests of the Medical Society of the State of New York

JOHN COWELL MAC EVITT, M.D., Editor
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EDITORIAL DEPARTMENT

OUR MEETING AT UTICA.

HOW reminiscent is the name Utica! It carries us back to the bespectacled professor of ancient history with learned look listening to our depiction of the glories of Phœnicia, of Cadmus and the development of the alphabet, of Carthage the metropolis and how its destruction in the Punic war made Utica the emporium of Roman trade and the chief city of the province. We depicted also the close relationship existing between Egypt and Phœnicia, their many legends most interesting of all, that of Phœnix arising from the ashes of his consumed body to take flight for hundreds of years to die again and be again reanimated. Has Phœnix flown from Heliopolis to Oneida County in the course of one of his life cycles? We do not know, but the Phœnicians at present living in Utica say, that Utica is a "bird," the brilliancy of whose plumage will be dazzling on the 24th, 25th and 26th, of April. Pardon this melange of history and fiction in an attempt to enlist your Interest in what ought to be an event of importance to you and to every member of the medical profession in the State of New York—the Annual Meeting of the State Medical Society. We annually foregather from all sections of the state for an interchange of views on matters of moment to us. Personal relationship gives freer vent to expression, misunderstandings are more easily corrected and sectionalism destroyed. These are troublous times to us in more ways than one. Can you recall a year since the exciting one of amalgamation in which the vital interests of the profession had more at stake than has the present one? Is Social Health Insurance which now confronts us a hydra-headed monster before which we should gird our loins and smite with a double-edged sword, or is it a catholicon which will cure all ills mental, physical and material. Have you heard the resonant notes from the trumpets of some of our constituent societies? Have you listened to the oratory of our legislative halls? Have you sat bewildered over the tentative plans advocated for its administration by some members of the profession and the anathemas of others against them? If so you must know that the wide divergence of opinions regarding its malignant and benignant features are irreconcilable. Why?—Because the scheme is so complicated in

its ramifications that it seems almost impossible to evolve a system of administration just to all concerned. The promoters who have worked over the elucidation of an acceptable plan admit that what they have so far devised are but tentative laws of administration and that the whole scheme in this country is experimental.

The domination of the profession by the Workmen's Compensation Act has made us wary of entering blindly into any agreement without due study of its possible end results. The insurance companies with a keen insight into the future, under the guidance of legal talent well versed in the technicalities of the law, in drafting the fee bill, in our opinion took advantage of the medical men representing the Society who, viewing the act more from a humanitarian than commercial aspect, failed to see the kinky wool of the African in the legal fence.

With every section of the state represented this subject—Social Health Insurance—should be thoroughly threshed out and a line of action explicitly defined. The committees on Legislation and Medical Economics working in harmony and with the active participation of the president we can feel assured that the voice of the Society will be obeyed.

Preparedness for the threatened war is another subject of vital importance that should occupy our attention. Red Cross units, hospital units, volunteer service, are all admirable; but the united voice of the medical profession of the state should be heard in support of the administrative power in Washington. Practical plans should be devised to organize into shape the acceptable medical personnel (age, mental and physical fitness) of the state into a utilizable force.

Neither of the two subjects has been given a place on the program but it is the opinion of the Journal that by resolution or otherwise, both subjects should be given recognition at our meeting.

The Committee on Scientific Work, under the chairmanship of Dr. Samuel Lloyd have arranged a program of great excellence. In the diversity of subjects to be presented the followers of any branch of medicine and surgery must find an attractive theme.* Symposiums have been arranged with special care in the selection of subjects to enlist general interest. Modesty will not permit us to allude to our home talent, but courtesy demands and pleasure waits upon the mention of the following guests from abroad who will honor us with their presence and contributions:

John Blair Deaver, M.D., Philadelphia, Pa.

George Bacon Wood, M.D., Philadelphia, Pa.

George E. Pfahler, M.D., Philadelphia, Pa.

Watson S. Rankin, M.D., Raleigh, N. C.

Walter William Chipman, M.D., Montreal, Canada.

Frank B. Gilbreth, Efficiency Engineer, Providence, R. I.

Edward E. Montgomery, M.D., Philadelphia, Pa.

William Campbell Posey, M.D., Philadelphia, Pa.

Joseph C. Beck, M.D., Chicago, Ill.

John Wesley Murphy, M.D., Cincinnati, Ohio.

Isaac H. Jones, M.D., Philadelphia, Pa.

W. Gordon M. Byers, M.D., Montreal, Canada.

Fritz Bradley Talbot, M.D., Boston, Mass.

Major J. F. Siler, Medical Corps, U. S. A.

In addition the Address of Welcome will be given by the Honorable William Ross Lee.

The Oration, by Dr. J. M. T. Finney of Johns Hopkins Hospital, Baltimore, will be an exposition of medical knowledge gained from his long association and personal experiences in the wards of that institution from which emanate the results of the highest efforts of men in the pursuit of knowledge in medicine and surgery.

"The Modern Hospital, Its Form, Function and Work," will be the subject of an oration by Dr. Henry A. Christian, Harvard Medical School.

* See page 197.

"A COMPENSATION LAW WHICH DOES NOT COMPENSATE."

AS an example of a "class distinction" law, we desire to call your attention to the iniquity through which the insurance carriers by their interpretation and insistence on its observance have converted the Workmen's Compensation Law into that category. Physicians with their easy going, pacific inclinations are subjected to every form of invasion of their legal and moral rights by unprincipled marauders. We endeavor to combat the excursions of these guerrillas and sometimes, after long and desultory fighting, win out.

The apathy exhibited by the profession at large to itself and individual interests is not only astonishing, but culpable. Were it not for the active members of the State Society who with a broad vision survey the general good, and who strive with untiring energy to maintain the honor of their calling every nefarious bush-whacking cult would be able to foist their fallacious doctrines upon the community. We believe the Workmen's Compensation Law a good law, beneficial to both the employee and the employer, but an unjust law to the medical profession *as administered*. It is particularly prejudicial to the maintenance of medical ethics. It corrupts the younger men of the profession by its installation of commercialism. It attempts to lower the standard of the profession by causing its members to compete for contract work. The lowest bid and not the skill of the suppliant is the basis upon which his services are accepted. It encourages its medical staff to boldfacedly visit the homes of injured employees and steal them from attending physicians of the patient's own choice. It intimidates employers to employ physicians of the carrier's own selection, and sets its own value upon services rendered. We make these statements against the Workmen's Compensation Law for the reason that the insurance carriers are an integral part of its administrative power and are responsible for these objectionable practices. The duplicity of the insurance carriers cannot be better shown, than by their publication and distribution at the present time of the tentative fee bill agreed upon by the carriers and the State Medical Society which terminated in 1915,—an agreement which was repudiated by the House of Delegates of the Medical Society of the State of New York. Furthermore they not only published *this null and void tentative fee bill* but have attached to it the following: "Approved by the Medical Society of the State of New York, by Alexander Lambert, M.D., Chairman Workmen's Compensation Committee, for the Committee." This is a rank injustice to Dr. Lambert and a fraud upon the public.

EXPLANATORY.

FROM the resolutions adopted by various constituent societies and from letters received from individual members of the State Medical Society, residing in different sections of the state, it is apparent that a misunderstanding exists over the attitude taken by the Council of the State Society, and a misconception exists regarding the purpose and extent of the labor of the Committee on Medical Economics, in its endeavor to safeguard "the public interest, the public health and *the welfare of the medical profession*" in a proposed Social Health Insurance Law.

Let it here be unequivocally understood that the Council at no time accepted, endorsed or advocated the enactment of what is popularly known as the Mills Bill, an act to establish a system of compulsory health insurance. The text of the bill was published in the February issue of the Journal. We wonder how many physicians gave time and thought to the study of the intricacies of its numerous provisions, for without a knowledge of what it proposed to enact it would be hard to realize the task that devolved upon the Committee on Medical Economics to even tentatively formulate provisions that would, should the bill be passed, leave the medical profession in any other position than one dominated by the economies of antagonistic forces.

Those who did study the bill recognized at once how woefully lax was its consideration of the medical profession. Protests against the medical attendance provisions, or lack of provisions, were vehement and general. The two medical men, members of the Committee on Social In-

surance of the American Association of Labor Legislation, Drs. Lambert and Goldwater, were among the first to recognize the inadequacy of the bill as drafted. Conferences were then arranged between the Committee on Social Insurance of the Labor Legislation and the Committee on Medical Economics of the State Medical Society and the Committee on Health Insurance of the Medical Society of the County of New York, for the purpose of drafting tentative provisions for the participation of the medical profession in the proposed Health Insurance organization before the bill would again be presented to the Legislature. Credit without stint should be given to the members of each of these committees for the time, labor and care they devoted to these conferences, in an effort to solve vexatious problems. It is here unnecessary to name the members of these two committees; suffice it to say that they were men of high attainments, free from socialistic tendencies, having in view but one object, "safeguarding the rights, privileges and honor of the profession." We do not believe that more representative committees could have been selected.

The Council, the delegated authority to represent the State Medical Society, acted within its rights in accepting the report of the Committee on Medical Economics as the best the committee could accomplish, at that time, under the adverse conditions under which it labored. Accepting this report in no wise bound the Council to advocate its enactment nor did it in any way commit the State Society into favoring its adoption as an acceptable solution of the problems involved. It was plainly evident in the discussion following the report of the committee to the Council that members of the Council and of the committee were strongly antagonistic to the Mills Bill, which through a misunderstanding many believed it favored. The Mills Bill proper was at no time under consideration. The subject under consideration was the endorsement of the committee's report. This endorsement was given—a tentative acceptance of a tentative draft.

Those who criticize the Council for its action should at least concede to it enough common sense not to advise the Legislative Committee to endeavor to secure the passage of a bill so incomplete in its provisions that after its enactment we could only repeat the classic sentence of the Texan statesman, "Where are we at?"

DR. MARTIN B. TINKER, PRESIDENT.

IT has been the custom of the Journal upon the election of a member of the State Medical Society to the presidential chair to briefly refer to his professional attainments and personal qualities in order that other members could feel better acquainted with the man. The protracted absence of the Editor caused this omission upon the election of Dr. Martin B. Tinker. The Journal would have regretted this silence were it not that a knowledge of the splendid work performed by Dr. Tinker gives it an opportunity of saying something of his work during the interim.

By correspondence and personal appeal to the up-state county societies he developed marked enthusiasm in the propaganda for new members, the results of which will appear during the regimé of his successor. There has been no subject relating to the Society in which he has not taken an active part. He has attended every meeting of the Council and by his presence has acted in an advisory and mediatory capacity.

The following information obtained from "Who's Who" is an epitome of his many activities in the line of his professional work.

Dr. Martin Buel Tinker was born, Granville, Mass., 1869. Harvard, B.S., 1895; Jefferson Medical Coll., 1893; University of Berlin, 1899; Asst. in Physiology and Hygiene, Harvard, 1894-96; Demonstrator of Anatomy and Surgery, Jefferson Medical Coll., 1897-1910; Resident Surgeon, Johns Hopkins Hosp., 1900-03; Lecturer of Surgery, 1907-08; Prof. Surgery, Cornell University, 1908-10; Member A. M. A., Am. Academy of Medicine, New York State Medical Society, Member Deutsche Gesellschaft fur Chirurgie, Editor Surgical Section of Howard A. Kelly's Cyclo. of American Medical Biography, Asst. Editor Sajous Cyclo. of Practical Medicine, Joint Author with W. W. Keen of Surgery of the Kidney and Ureters.

Original Articles

EXPERT MEDICAL TESTIMONY IN CRIMINAL CASES.

By PEARCE BAILEY, M.D.,
NEW YORK CITY.

ALIENISTS, the courts, and especially the public, are ruthlessly frank in expressing their dissatisfaction of expert medical testimony in criminal cases, the results of which, they say, oftentimes defeat justice instead of securing it. After every notorious trial the whole community suffers in its sense of abstract justice, but it is the alienists who suffer most, as they suffer in reputation.

It is not surprising that they do. Their views as voiced in court are counted on in advance to show disagreement, and there are few trials in which their personal integrity escapes being directly assailed. As a result, the branch of medicine which they stand for wins disrepute for itself, through its representatives, whenever it becomes an instrument of trial law. To the general public the word "alienist" brings up associations, not of a scientist who perhaps better than anyone else understands human nature, but of a venial man who stands ready to shape his views in accordance with the wishes of his employer. This cripples the usefulness of psychiatry in many ways, but especially in this way, that people generally, from what they read and hear of trials at which experts were partisans, become deaf to arguments which, under other circumstances, might convince them that there is a science which explains behavior, which can and should contribute to the principles of education and to the amelioration of the disorders of society. The matter has come to a point where it merits the closest attention from all who believe in the usefulness of psychiatry. There is slight chance that things will right themselves—on the contrary they get worse and it may safely be said that a psychiatrical opinion has never been held in such low esteem as it is today. Neither the public nor the courts can be looked to for help, at least not in the first instance. Every reform movement must be initiated by those most interested, and in this case these are the alienists themselves.

The difficulties in righting all this are enormous. Whoever doubts it has only to run over the history of expert testimony in criminal cases since 1843, the year of the McNaughton case, as a result of which the present test for responsibility became so generally operative in English speaking countries. A review of this history reveals so many remedies proposed for the evils which everyone recognizes that one is reminded of the fact that it is for the incurable diseases that the largest number of medicines is recommended. Of the remedies proposed for the better co-operation between psychiatry, medicine and law, none has been effective. They have come from both physicians and lawyers, from medical and legal associations, and have resulted in general in two concrete proposals, neither of which gets at the real issue. One of these proposals is the state control of experts, which has too little probability of success to merit discussion. Another is the state observation law, such as exists in six states, under which a person charged with crime and in whose behalf a defense of insanity is raised, shall be placed for varying periods of observation in a state hospital. This method, as Dr. Stedman has frequently emphasized, has worked well in Massachusetts, and is by far the best of the remedies so far proposed. It provides opportunities of observing the behavior of prisoners over long periods of time, guarantees more thorough and less hampered examinations and makes shamming more difficult. But it is at best a compromise. It fails to reach the fundamental defects of the present system and gives neither latitude nor finality to the opinions of the experts, and does not eliminate bias from their views. If, after the observation period, there is a trial, there are still experts employed by different interests opposed to each other.

The real stumbling block is not overcome by either of the foregoing proposals and there is no natural and satisfactory means of overcoming it, as long as the test of insanity, as incorporated in the code of criminal procedure, still exists.

The rule of our statute is that "a person is not excused from criminal liability as an idiot, imbecile, lunatic or insane person except upon proof that at the time of committing the alleged criminal act he was laboring under such a defect of reason as (1) not to know the nature and quality of the act he was doing and (2) not to know that the act was wrong." This test, coming to us from England and now operative in our state, was the outcome of the legal point of view, and whatever the medical profession may have thought of it, at the time the answers to the question submitted by the House of Lords to the judge were given by the judges, no alienist can be found today who believes that it is either a fair or reasonable means of determining insanity, or that, in shaping answers to fit it, he can express his true opinion. It may very well be that no better single test could have been or may now be invented. The point is that no single test can be comprehensive enough to embrace all the varieties of abnormal behavior, and to reconcile them with the swift illogical changes of viewpoint, the hallucinations of memory with their consequent misinterpretations of evidence, the shifting content of consciousness which at one moment may be clear and at the next exclusive of all ideas save one, the hairspring reactions to outside stimuli, all of which may occur under given circumstances in a so-called normal person

and all of which also are included under the stiff legal terms of lunacy and imbecility.

During the seventy-five years that the English test has been operative, the old term of lunacy has ceased to be an entity, and has become merely a particular result or outcome of a great many different mental disorders, just as hemiplegia may be an outcome of a dozen varieties of organic diseases of the brain. Psychiatry has changed and enlarged its viewpoint. Today, when general somatic symptoms, or certain deviations from usual mental action prove a man to be suffering from any one of these disorders, he must be regarded as not accountable for acts some chance circumstances may cause him to commit, and to be in this sense, an insane person, even if at the time of any given examination no single test can prove him insane as the law has it. Leaving out of account the many borderland instances of variations from normal conduct which result from different psychological causes, we must regard general paresis, dementia præcox, paranoia, and the maniac depressive psychosis to mention only the more distinct types, as mental diseases of definite character. They have established their identity by a more or less consistent mental symptomatology and course, and by the way each one alters the attitude of the individual toward reality. These symptoms are not necessarily continuously present, but even in their absence if any one of the disorders which causes them can be reasonably inferred to exist at the time of the commission of some crime, the delinquent cannot with reason be held responsible for the crime, even though at the time of its commission it might be assumed that he was legally sane. The existence of the mental disease itself postulates that the individual's conduct cannot be adjudicated by the methods which apply to sane people.

The morons, or high grade imbeciles, a class of mental defect differentiated in the past few years, has enlarged the category of the psychiatrically irresponsible, who can be shown to be responsible by the legal test, and has complicated the situation immensely. These people, whatever their age is, have a mentality of or below that of children of twelve. They have passed current, and do yet, for persons of not grossly inferior intelligence until under the fillip of some special stress, or temptation, or excitement, they exhibit abnormal suggestibility, or lack of self-control, which result in murder, lust crimes, theft, or disturbances of the peace. Up to the time of the commission of the act, they have been regarded as lazy, disorderly, or quick-tempered, generally dull, although some have occasional flashes of witty brilliancy, and it is only when some one of them reacts to some slight temptation by committing a brutal crime, that the public exclaims, "Why, he must be crazy." But he cannot be shown to be crazy. Specific investigations reveal a mental state of imbecility, but not of insanity, in the ordinary acceptance of that term. This class of individuals looms up as of enormous importance in coming medico-legal investigations, with a renewed and embittered conflict between psychological medicine and justice. Alienists, on the one hand, will deny full responsibility to the moron, as has been recently shown in Dr. Goddard's book on the "Criminal Imbecile," and justice, on the other hand, will be very loth to grant immunity from punishment to enemies of society who are not insane, in whose acts ordinary human motives can be clearly shown, and in whom the only definite proof of irresponsibility consists in special psychological tests which the mass of the medical profession know little or nothing about. Trials of such cases are destined to be bitterly contested, with a growing disfavor of medical testimony in public opinion.

The clinical differentiations and new discoveries of the past few years have made it utterly impossible for alienists to accept the test of 1843. We have learned that the manifest content of an insane delusion or of the idea back of an insane act is superficial and a matter of a rather casual importance. The real questions to be answered in relation to any act, are, did a mental disease exist at the time and what was the nature and quality of the emotional disturbance which led to the action. For with the existence of the disease, the criminal act which flows from it may take one of many different forms, the particular form of the act being largely a matter of chance determined by the most trivial circumstances. Jean Chatel, who attempted the life of Henry IV of France, set out to kill himself; it was only by chance that he changed this intention to that of killing the king. The one variety of pure monomania, insane jealousy, especially when complicated by alcoholism, is a psychosis of unparalleled ferocity. Under the driving force of it, a man may kill his wife, but in his madness and insane oblivion to evidence, he may just as well kill some innocent person who does not know his wife. The real motive of the act is not to be sought in the circumstances which may seem to determine its form. It is the mental disease which "pulls the trigger in the brain." This point of view posits the state of consciousness with the actual or potential emotional upheaval, as the true test of responsibility. It repudiates the legal conception and disagrees with those jurists who believe that delusion is the point about which insanity revolves. It is not there that the real test of insanity lies. The motive force of insane acts is not intellectual, but is to be found in the abnormal emotional state that disorders consciousness and which has been brought about by mental disease. At one moment an insane man may be oblivious of everything except one purpose, while at the next he

may comprehend much outside of his immediate preoccupation. Even at the moment that his emotion flooded his reason, it cannot be said that he did not possess a knowledge of right and wrong. It is a question of feeling rather than of knowing. He may have thought nothing about it, the emotional disturbance of his consciousness having rendered him unmindful and oblivious to everything except one purpose, and this unmindfulness and obliviousness, while they may not have deprived him of an intellectual knowledge of right and wrong, paralyzed his ability to keep them in full consciousness and to control his actions. In any individual case, it is not possible to be precise about such fleeting forces. It may be determined that an imbecile is too intellectually inferior to be held fully responsible. But it is impossible to say that in this or that man, flooding emotions had so submerged consciousness that no general concepts were left on the surface. They may or may not be there. No one knows. The most that an alienist can be expected to decide in regard to consciousness and responsibility at a given moment, is that an individual is suffering from this, that or the other type of disease which disorders him mentally. The diagnosis of the particular type of disease should be arrived at, not in a court room under the impelling force of contest, but from a quiet study of the whole individual as he is, and of his whole life history; and under certain circumstances, as in the moron, the fact of irresponsibility may be reached with great certainty in spite of the fact that at the time of the examination the patient exhibits no symptoms of insanity whatsoever.

It has seemed necessary to go to this length into the old question as to why the legal test for insanity is so unsound, in order to state the issue between the conception of insanity as seen from the legal or the psychological angle. For the divergence of views between jurists and alienists as to the means for the determination of responsibility is the real stumbling block in the problem. Concerning it, alienists and jurists do not speak the same language. Yet these different points of view must be reconciled in some way before any legislation can effect a change really constructive. Alienists will get nowhere as long as the judges disagree with them fundamentally. There is no difficulty in citing examples to show the diametrically opposite views at present held by the most learned judges on this subject and the views of psychology. I will only quote two.

In his exhaustive and learned opinion in the case of Hans Schmidt, Judge Cordozo, of the New York Court of Appeals (N. Y. Law Journal, Dec. 9, 1915) differentiates responsibility on the basis of the content of the delusion itself. He states that "a delusion that some supposed grievance or injury will be redressed, or some public benefit attained, has no such effect in obscuring moral abstractions as the delusion that God himself has issued a command. The one delusion is consistent with knowledge that the act is a moral wrong, the other is not." Judge Cordozo in this opinion loses sight of the fact that what a mental disease does is to destroy self-control so that a man's power to restrain himself is weakened, whatever his ideas of right and wrong may be at the time of the action. The chains that hold others and used to hold him, are rusted through. Judge Cordozo further loses sight of the fact that the standard of right and wrong is not fixed and that the beliefs and actions of the insane change with the times. What was done by enthusiasts for God's sake, when religion was well-nigh universal, is now done with the same fervor and conviction by the same class of unbalanced people with no more rational reason, for the advancement of mankind independently of any religion whatever. The same devotion to an ideal which actuated the Crusaders, or those who burnt heretics, exists to-day in certain fanatics for whom mankind has become God. The insane anarchist who flouts the idea of any deity is just as forcibly impelled today to sacrifice himself in fulfilling his mission to kill some ruler and thus free society from being ruled, as the religious maniac used to be when he murdered some innocent person at the dictate of the Almighty. The acts of such people are determined not as Judge Cordozo believes, by their apparent mental content which is a superficial reflection of times and environment, but by the fundamental unsoundness of their minds.

Another example of the divergence of attitude between jurists and alienists may be found in the ruling of the late Judge Gray, often cited in will cases which shows very clearly the gap which separates the legal attitude, especially as to how delusions are built up, from the teachings of psychology.

He says, "Delusion is insanity when one persistently believes supposed facts which have no existence except in his perverted imagination. But if there are facts, however insufficient, they may in reality be, from which a prejudiced or bigoted mind might derive a particular idea or belief, it cannot be said that the mind is diseased in that respect. The belief is illogical or preposterous, but it is not, therefore, evidence of insanity in the person."

Exception may be taken to both parts of this opinion, but if the second part were true, asylum superintendents would be obliged to offer apologies and discharges to many of their patients. For a delusion creates no facts, but is a fantastic twisting of the same facts which the man of balance accepts more or less uniformly, but which the insane man recognizes and builds on and reacts to in a way peculiar to himself. Delusion is not a denial of everyday actuality, but

a personal interpretation of it. That the originating facts are not immediately accessible to judge, jury, or even to alienists, especially when the latter are not allowed the means of continuous observation, does not prove that they are not there. They are there although they may not become evident to anybody until some isolated insane acts give the first clue to them.

It is, perhaps, beyond my province to speak of the way that the present test of insanity is interpreted by the courts, but before leaving this part of the subject, it may be interesting to note that there seems to be some failure in agreement of opinion among jurists themselves, even after all these years of practice, as to what this test means. The issue, of course, centers about the question of right and wrong. The most learned judges differ as to whether the right and wrong referred to are to be interpreted as knowledge that the act is wrong inasmuch as it is contrary to the law of the state, or that it is wrong in the sense of good and evil. In the Schmidt case before quoted, the trial judge said to the jury that "wrong in this definition means contrary to the law of the state." "The jury (I am quoting Judge Cordozo) was instructed in pointed and impressive terms that even if defendant believed in good faith that God had appeared to him and commanded the sacrifice of Anna Aumiller and this belief was a delusion, the result of a refective reasoning, the defendant must none the less answer to the law for he knew the nature and quality of the act and knew that it was wrong in the sense that it was forbidden by the law of the State." Judge Cordozo held that this opinion of the trial judge was error, as he says that there are times and circumstances in which the word "wrong" as used in the statutory test of responsibility ought to be limited to legal wrong. Thus judges themselves do not agree as to what the very simple wording of this test should mean, being in this respect less united than the alienists who agree that it means nothing.

It would seem, then, that we had reached an impasse and that any remedy to be effective would have to be radical. The one I would propose was operative in England several hundred years ago, when insanity did not exist as a defence for crime, although an insane person who was convicted of crime could obtain a pardon from the King. He was entitled to a pardon, but he had to get it. It is a confession at the outset that it is impossible to determine a person's responsibility at any given moment by reason of insanity as defined in set terms or by any single test. The way such a plan would work out is something as follows, as indicated briefly in "The New Republic," issue of August 14, 1915. The question of responsibility would not be raised until after main issue had been settled and would then be decided by the court, helped by a commission of three alienists appointed by the court to advise its conscience. If the convicted person were found insane at the time of the commission of the act he could be pardoned by the Governor or by a pardoning board and under these circumstances he would at once be transferred to a hospital. But even if he should recover from the insanity, he should still be held in some place of detention for a period of months or years, the length of time being proportionate to the offense against public safety. So that, even if he recovered, society would be protected for a reasonable length of time from the chance of his having a relapse. To avoid injustice in those rare instances in which insanity is one epoch only in a lifetime, there would always be the possibility of pardon by the Governor or by a Board of Pardons. By these means there would cease to be any absolute and immediate immunity for criminal behavior, and the insanity dodge would make its final bow. The result of such a plan would effect a very substantial saving to the State in the expense of trials. A still greater economic advantage that would result to the state would be that the trials themselves would lose their gruesome features, as a result of which much of the suggestion and example which now make potential criminality actual, would dissolve in air. When murder trials cease to be a game between experts and attorneys, with a violent death the stake, public interest in them will largely disappear; and with the suppression of that interest and publicity, would also be suppressed potent incitants to outbursts of insanity and crime. Few realize how many unstable persons there are who only need such thrills as are furnished by the lurid tales told in court and published everywhere to become criminals themselves. Perhaps more realize this fact now than did before Thaw was received by the acclamations of the ten thousand people who betrayed, by their clamoring enthusiasm, that they too despised justice and cherished somewhere the same desires and ideals which gave courage to the slayer of Stanford White.

It seems certain that this proposed procedure would result in a reduction in criminality. But in addition to the economy to the state to be affected by it, there would be an enormous gain in justice in all cases where alienists are needed; and alienists themselves, at last furnished with the opportunity to state their opinions in their own language and freed from every hint of bias, would truly serve the cause of justice and rehabilitate their own reputations. Such an overturning of criminal procedure would be hardly possible as long as capital punishment exists. No jury would send an insane man to his death, and, consequently, the plan proposed would run

hand in hand with the abolition of the death penalty.

It would seem that these arguments should be added to those which favor the abolition of that form of state revenge, of which Voltaire said, "Why ask the people to hate homicide when the magistrates are homicides themselves." Many of our prominent statesmen have advocated abolition of the death penalty.

A message of Governor Clinton to the Legislature of New York, January 7, 1794, called attention to the fact that the gravest offences occurred most frequently in those countries which have been remarkable for the severity of their punishment, and begged for greater leniency in the criminal code.

In the message of Gov. Morgan Lewis, November 6, 1804, he doubted the wisdom of policy of capital punishment.

Gov. Daniel D. Tompkins, in 1808, said, "The spirit of freedom, the dictates of humanity and the principles of Christianity require that the penalty of death be inflicted as seldom as possible."

Gov. William H. Seward, January, 1841, in a message says, "We all agree that the too great frequency of capital punishment operates as an encouragement rather than a preventive of crime."

In Assembly Document 249, dated 1841, being the report of a committee, the following conclusion was reached by the committee, namely, that the punishment of death by law ought to be forthwith and forever abolished by the State of New York.

It may further be stated that Russia in 1753, abolished capital punishment for all crimes except those of a political nature. This example was followed in 1867 by Portugal, in 1870 by Holland, in 1888 by Italy, in 1905 by Norway, and in the last two decades the most of the Swiss Cantons, Roumania, Costa Rica, Brazil, Ecuador, Guatemala and Venezuela have followed suit. France abolished it in 1906. Belgium and Finland suppressed it in practice, though not in law. Germany retains it, although a very small number of those convicted receive the death penalty. Austria and Spain retain it, as does England. The United States gives individual states full jurisdiction in the matter, but Maine, Michigan, Kansas, Rhode Island and Wisconsin do not retain the death penalty.

In reference to the practicability of the plan here proposed, namely, the doing away altogether with insanity as a defence for crime, Mr. Clarence Blair Mitchell, of the New York Bar, has kindly informed me that the difficulties are those concerned with an interpretation of individual rights and any effort to obviate them would have to begin by considering the constitution, not only of the state in which the plan was to be made effective, but also the Constitution of the United States.

The plan proposed here would violate our State Constitution in that if the plea of insanity were waived it might happen that a person would be deprived of liberty or property without due process of law, which would contravene the bill of rights, section 6. The "due process of law" under this caption would not be complied with, inasmuch as if an indicted person could not raise the plea of insanity, he could not show that he was without motive in performing the act for which he was being tried. Even if the Constitution were changed in this respect, there still would be the conflict with the federal constitution. The fourteenth amendment to the Federal Constitution reads in part as follows:

"No state shall abridge the privileges or immunity, nor shall any state deprive any person of life, liberty or property without due process of law." The United States Supreme Court has repeatedly refused to definitely define the term "due process of law." The nearest acceptable definition is that it means the law of the land as it is existing and generally understood in England and the United States. So the question naturally arises, if any state should incorporate in its constitution that insanity should cease to be a defence for crime, whether the Federal Supreme Court would decide that this state had no right to do so under the Federal Constitution.

This very question was raised by the Supreme Court of the State of California in the fall of 1910, in the case of State vs. Strassburg, 110 Pacific, Rep. 1020. In 1909 the Washington Legislature passed an act providing that insanity should be no defense to a charge of crime and that whenever in the judgment of the court any person convicted of a crime and shall have been by reason of his insanity unable to comprehend the nature of the act, the court may in its discretion direct such person to be confined in one of the state hospitals for treatment. In construing this statute, the majority of the court held that in attemping to eliminate the defence of insanity, the legislature had contravened section 3 of the State Constitution. It would seem, therefore, that, had this matter been treated in the State of Washington by a change in the Constitution rather than by a legislative enactment, the state might have followed out its purpose, but the question would still have arisen whether even then this purpose would be permitted to the state by the Federal Supreme Court. On this question there are various opinions.

Mr. Mitchell is inclined to believe that the Supreme Court would hold that by such a constitutional enactment the individual state would deprive a United States citizen of an inalienable right. Other attorneys take an opposite view, inasmuch as they believe that if any state wished

to create a constitutional provision for dealing with criminals in its own way, the United States Supreme Court would not interfere. In any event this plan would seem worthy of agitation and full discussion. Whether it should turn out to be feasible or not, alienists should co-operate for the establishment of their own position in the matter of expert testimony and should co-operate to the end of establishing some fixed policy. They should proclaim everywhere, in their meetings, in the public press, when called to court, in consultation with attorneys, that psychiatry has long since outgrown present laws and that they cannot be expected to render full service under these laws. It is perhaps now impossible to draw up any specific program which shall be at once constructive and final, but any program should avoid the errors of former ones, which were that they did not face the real issue. It is now time that the real issue was faced, which is that the methods of present criminal procedure can never be used in psychology. Psychiatry teaches that it cannot be defined, yet an alienist when called to aid justice is forced to define it and held to a method which he knows does not lead to truth.

It must be recognized that a medico-psychological opinion is, and always must be, in part at least, an interpretation and that it never can be made to comply with the precise requirements of a written definition. It must be recognized that the point between normal and abnormal mentality is too fluid to be fixed by a set phraseology. All alienists believe this. If they are unanimous in voicing this in their publications, in the transactions of their meetings, whenever they are called to express themselves on public questions, they will some day perhaps be able to awaken the public to a realization of the need of reform in the present methods of criminal procedure as it affects insanity as a defence.

THE CELL COUNT OF SPINAL FLUIDS.*

By JOSEPH ROBY, M.D.,

ROCHESTER, N. Y.

THE purpose of presenting this paper has been threefold.

First: To more or less defend a statement made in an article in the *Journal of the American Medical Association.*

Second: To mildly criticize Abramson, DuBois and Neil for their technique in estimating the cells.

Third: To repeat the detail of making a cell count of spinal fluid and to demonstrate the apparatus used in searching for tubercle bacilli and to show some preparations of tubercle bacilli actually found.

At times all signs fail, and the only sure way to demonstrate the absence or presence of meningitis is to make a lumbar puncture.

For this purpose the patient should be on their sides well over to the edge of the bed, and their backs should be bowed as much as possible. The thighs and neck should be well fixed so that if possible the knees touch the chin. A point opposite or about opposite the crest of the ileum should be chosen and midway between two spinous processes. There is considerable safe latitude here and one can often take a space two, or even three inches above the line connecting the crests. The skin is cleaned with tincture of iodine and alcohol and cocainized with 1 per cent solution injected first into or just under the skin so as to form a wheal, and then injected along the course of the spinal needle. This injection should be exactly in the middle line and straight in. A needle with an obturator should be used, and it is passed exactly at right angles to the spine and exactly parallel to the floor, providing the back has been trued up so as to be exactly at right angles to the floor. The operator can generally feel, and even hear a little pop when the needle enters the subarachnoid space. The first few drops are discarded, as they may contain blood. A deceiving thing is to get a little blood in the needle—just a trace makes the fluid look hazy and not red, and on some occasions this has been mistaken for cloudy fluid. If possible it would be well for the operator to have this examined under the microscope right at the bedside unless he is quite familiar with this appearance.

The fluid removed will be one of four kinds macroscopically:

1. Distinctly cloudy, and even pussy.
2. Slightly hazy.
3. Bloody.
4. Perfectly clear: with possibly some flakes in it when examined by transmitted light.

1. A cloudy fluid means a meningitis caused by:
   a. The meningococcus.
   b. The pneumococcus.
   c. The influenza bacillus.
   d. One of the pus producing organisms, usually a streptococcus.

When the fluid is distinctly cloudy and the disease is at all acute, anti-meningitis serum should be injected at once by gravity (never by a syringe), and the diagnosis of the kind of infecting organism made later. This fluid if allowed to stand a short time will generally clot, or at least a marked sediment will form at the bottom. This clot or sediment should be smeared thinly on slides, dried and stained first, by Loeffler's and then if the diplococcus is found by Gram's stain or even a capsular stain if the

* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

organism looks like a pneumococcus. It is not necessary to count this sort of fluid.

2. A slightly hazy fluid may mean:

a. The early or late stage of one of the groups already mentioned.

b. The admixture to a perfectly clear fluid of a trace of blood.

c. Tuberculous meningitis.

It is here that the count will be of value. It is well to examine a drop of this fluid under the high power for red cells first. If there are quite a good many red cells and few white ones it surely rules out a meningitis due to the first set of organisms, and we should proceed as if the fluid were perfectly clear.

3. With a distinctly bloody fluid we should also proceed as with a perfectly clear fluid.

4. A perfectly clear fluid or one containing a few flakes may be:

a. Normal cerebro-spinal fluid.

b. Meningismus.

c. Functional nervous diseases, epilepsy, chorea, tetany, spasms, etc.

d. Hydrocephalus.

e. Serous meningitis.

f. A brain tumor.

g. Brain abscess.

h. Poliomyelitis.

i. Syphilis.

j. Tuberculous meningitis.

With the bloody fluid it is well to get an idea from the number of both red and white cells to the cubic millimeter by counting the cells directly without adding any staining fluid. There is usually no difficulty in telling red from white cells. Often bloody fluid is rejected by the examiner for counting purposes, but it need not be, for all one has to do is to substract from the white count one white for every thousand reds counted. Then for a second count of this bloody fluid, for the slightly hazy fluid and for the clear fluid a white cell pipette and a staining fluid are used. The staining fluid recommended by Swift and Ellis and used by the author consist of two-tenths of a gram methyl violet, four-tenths acetic acid and 100 c.c. distilled water. This dissolves the red cells and stains all other cells a bluish purple. The stain is sucked up to the one mark and the fluid to the eleven mark. This should be done immediately before the cells have a chance to settle: but if this is impossible the fluid should be thoroughly shaken before any of it is drawn into the pipette. It is well to use a counting chamber with the additional rulings so that nine-tenths of a cubic millimeter are counted. This chamber contains eight other squares of the same size as the four hundred small squares. The number of cells in the whole of nine-tenths of a cubic millimeter is then multiplied by eleven-ninths. The result represents the number of cells to a full cubic millimeter of undiluted cerebro-spinal fluid.

What conclusion can be drawn from this cell count? Swift and Ellis give the normal cell count as from zero to five: doubtful as five to ten, and anything above ten as distinctly abnormal.

b. Meningisms—some books give this as causing slightly increased lymphocytes. In the reader's experience this has not been so, although Dr. Curtiss on the pediatric service at the General Hospital found 22 cells in a child with a temperature of 107, apparently from an intestinal intoxication, and Dr. Minkel 200 cells in a case of eclampsia. I am inclined to think it is very rare for meningismus to give an increased number of cells.

c. Functional nervous diseases. Pfaundler and Schlossman state that these cause an increase in the number of cells. The writer has had no experience with spinal puncture in any of these conditions, except chorea and spasms where there has been no increase.

d. Hydrocephalus. No increase of cells.

e. Serous meningitis. This is usually described in the older text-books, but I am beginning to doubt whether any such condition ever exists, although last year in connection with Dr. Snell I described what I thought to be a subacute inflammation of the ventricles and ependymitis with a cell count of ten. At any rate if there is any such disease as serous meningitis not due to the tubercle bacillus it is rare.

f. Brain tumor. Pfaundler and Schlossman state that the cells here are frequently increased. In the writer's experience with at least six cases of brain tumor all proved by autopsy there was no increase of cells.

g. Brain abscess. Holt says: "Lumbar puncture gives negative results in abscess uncomplicated by meningitis." This is what one would expect, but the writer has never had an opportunity to examine the cerebro-spinal fluid from a case of brain abscess since he has known how to make these counts.

h. Poliomyelitis. The writer's experience is limited to three cases, counting in one acute case with the onset of paralysis 154 cells, in a case with an exacerbation of fever on the tenth day 62 cells, and in a case of facial paralysis alone ten days after the onset 10 cells. Peabody, Draper and Dochez give the average as 125 in 54 counts of 43 cases in the first week of the disease. The highest as 1,221, the lowest 7; calling five cells normal every case showed an increase when examined in the first week of the disease.

i. Syphilis. The writer has never found more than one hundred cells and usually 30 to 50 in cases of tabes and paresis, but in secondary syphilitic meningitis Swift and Ellis give seven out of eight cases above one hundred and one count over one thousand

j. Tuberculous meningitis. The limits in the writer's experience have been 45 and 454, but the vast majority run between one hundred and three hundred. In 105 cases of the Massachusetts General Hospital Dr. Meyers found the average to be 198.

Therefore to conclude:

In distinctly cloudy fluids it is not necessary to do a cell count. Smears should be made, cultures made and the organism searched for. In treating a case of epidemic meningitis a cell count from day to day would probably show the progress of the treatment.

It is the reader's opinion that cell counts above five are abnormal, and certainly those above ten are abnormal.

The cells should be counted accurately by a blood counter, not centrifuged and estimated. A clear fluid having a cell count of five or below might be:

1. Meningismus.
2. Functional diseases.
   a. Epilepsy.
   b. Chorea.
   c. Tetany.
   d. Spasms.
3. Hydrocephalus.
4. Brain tumor or brain abscess.

The cell count will not absolutely differentiate syphilis, poliomyelitis and tuberculous meningitis, but a cell count between five and fifty would probably be syphilis or poliomyelitis; a cell count between 100 and 300 would in the majority of cases be tuberculous meningitis.

A Wassermann of course differentiates syphilis.

Taken in connection with the onset of the disease and the clinical symptoms it ought not to be difficult to make a diagnosis of tuberculous meningitis by the cell count alone, even if tubercle bacilli are not found. In searching for tubercle bacilli the film method modified by the glass cylinder and cover slip has been most satisfactory, and tubercle bacilli have been found in practically 100 per cent of the cases.

The cylinder is used in the following manner:

A glass cylinder 20 mm. in diameter by 60 mm. in height is cleaned and sterilized, together with a glass coverslip 18 mm. in diameter. The coverslip is dropped into the glass cylinder. At the bedside the fluid is received directly into this cylinder (or if sent, as stated above, the fluid is poured into it); then a sterile cork is inserted, and the specimen is left quiet for twenty-four hours after the last disturbing (often it can be examined in a shorter time.) The supernatant fluid is then carefully pipetted off, and the film, if one has formed, is allowed to spread itself over the coverslip. If a distinct film has not formed, it seems to work equally well. The coverslip is then removed by a platinum loop and forceps, dried in the air and fixed in a Bunson flame. The staining is by carbol-fuchsin and heat, care being taken not to decolorize too much with the acid, and the decolorization is completed by 95 per cent alcohol and counterstained by Löffler's methylene blue.

Discussion.

Dr. Josephine B. Neal (from Research Laboratory, Department of Health, City of New York): While all quantitative examinations of spinal fluids are interesting and instructive, the counting of cells has never seemed to us of sufficient value to warrant our doing it, in as much as, except perhaps in luetic conditions, it is not of definite diagnostic or prognostic value. The most difficult differentiation to make in clear fluids is between tuberculosis meningitis and anterior poliomyelitis. While the cell count is usually higher in tuberculous meningitis, averaging between 100 and 200, while that of anterior poliomyelitis averages 100 or under, there is such a wide range where they overlap that very little reliance can be placed upon the count. Peabody, Draper and Dochez of the Rockefeller Institute, in their "Clinical Study of Anterior Poliomyelitis," give counts ranging from just above normal to 990. Lucas of Boston gives counts ranging from 20 to 580 in various types of anterior poliomyelitis. In the tuberculous meningitis, Lucas gives counts of 248 cases ranging from 14 to 920, and Myers of San Francisco, in 105 cases ranging from 24 to 960.

We can tell in a general way from the sediment of a centrifuged specimen whether the cells are slightly, moderately or much increased, and from the wide range in counts as given above we see no advantage in knowing the exact number. In epidemic meningitis, it occasionally happens in very early cases that the organisms are present with slight, if any, increase in cells. If too much reliance is placed on cytology, the bacteriology may be missed. I have known this to happen in one case.

The cell count is sometimes relied upon for treatment. This may lead to very grave errors as it occasionally happens that the number of cells decreases practically to normal while the organisms are still present. The complete disappearance of the organisms is the only trustworthy indication for ceasing to vigorously push the serum treatment.

The type of cells is of importance. There is almost always a high percentage, over 90 per cent, of mononuclears in cases of tuberculous meningitis and of anterior poliomyelitis except in certain cases of the latter. It occasionally happens, however, in rather acute cases of tuberculous meningitis that the number of polymorphonuclears is in excess. In the purulent meningitides the polynuclears are in excess except sometimes late in recovering cases of epidemic meningitis.

In our experience with the examination of over 1,900 fluids, we have found the bacteriology, of course, to be of the first importance in diag-

nosis. We rely a good deal on the roughly estimated quantitative chemistry, albumin, globulin and the reduction of Fehling's. In a general way, the albumin and globulin are less increased and the Fehling's better reduced in anterior poliomyelitis than in tuberculous meningitis, but there are exceptions to this. Fluids in certain cases of polioencephalitis show a high albumin and globulin content and a poor reduction of Fehling's. This has been pointed out by Dr. H. L. Abramson of the Meningitis Division who has made a careful analysis of the fluids in cases of anterior poliomyelitis.

The reduction of Fehling's is also of considerable prognostic value in cases of epidemic meningitis as we have found that it tends to return to normal as the cases recover.

We have had very little experience with fluids from luetic conditions.

From our experience, we feel that the cell count has been too much emphasized often at the expense of other and more important factors. In hospitals, we frequently find that the internes spend considerable time and energy in making careful cell counts quite disregarding the chemistry and even the bacteriology, both for diagnosis and treatment.

Dr. William A. Groat, Syracuse: I think Dr. Roby is to be congratulated. His methods are sound and his conclusions are well-drawn. I am strictly a laboratory man, yet I do not like to see hard and fast rules for the interpretation of laboratory results any more than do you clinical men believe in closely drawn limits in your clinical findings. I would agree with Dr. Roby that any count above five is abnormal, but I cannot agree that a slight increase is an evident sign of inflammatory change.

A positive globulin test pretty surely means definite inflammatory change; but like all negatives, of course, the absence of that reaction does not absolutely exclude inflammation.

As to bloody fluids, I think it is possible to make successful counts in bloody spinal fluids by some such method as the doctor described, but I don't believe we should draw conclusions from one in which our count is near normal. The first thing leukocytes tend to do is to clump, and when you are dealing with counts of six, eight, ten or twelve leukocytes, it is very easy to understand, I think, how a few leukocytes from the blood count come together and get into your fields and vitiate your result. If the count is reasonably high, some such calculation as the doctor described is perfectly proper; but not in borderland cases. Of course, it is the borderland case which is hardest to differentiate. Any one can make a diagnosis of inflammation from a cloudy fluid. It is in low count cases that the differentiation of true inflammation from a meningism should rest more on the globulin content than on cell increase.

Dr. T. Wood Clarke, Utica: I want to congratulate Dr. Roby on the little device.

This method of Dr. Roby's is one of the best that I have ever seen. I haven't had occasion to use it but I am perfectly sure that when the first opportunity to do so presents itself I am going to make use of it. I think it is going to help that proposition, particularly among the men who are not doing the work under ideal conditions. Where you are in a hospital and you can take the fluid and immediately put it in the thermostat and let it clot, it is an easy thing to get the tubercle bacilli, but it is hard where you have got to travel a good many miles and have to do the laboratory work in your office. I think this scheme of Dr. Roby's of putting the slide in and gathering all the tubercle bacilli on it is a very good thing.

EXTRACTION OF CATARACT FROM THE VITREOUS.*

By EDGAR S. THOMSON, M.D.,
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LUXATION of the crystalline lens occurs as the result of a blow upon the eyeball or the orbit, or upon some other part of the head; as a spontaneous phenomenon due to the shrinkage of the fibers of the zonula as the result of some associated pathological condition, or it occurs congenitally as the result of prenatal changes. Luxation as the result of a blow may be accompanied by rupture of one or more of the coats of the eyeball so that the lens may be driven through the sclera and lie under the conjunctiva. Luxation without rupture of the coats of the eyeball, the so-called spontaneous luxation, subluxation, or congenital luxation, all present similar problems in surgical treatment and may be conveniently included in a common group in the present discussion. Where no rupture of the sclera or cornea exists, the lens may lie partially or wholly in position, with rupture of a limited number of the zonula fibers, or it may lie in the anterior chamber, or in various parts of the vitreous, either on the ciliary body or deep within the vitreous upon the retina. Subluxation presents problems of varying difficulty, depending on how much the zonula still holds, how far out of position the lens may be, and how much it tends to encroach on the ciliary body—a wide range of conditions varying from comparatively mild to very severe, and from conditions requiring no surgical interference to those requiring immediate interference. From the visual standpoint even a moderate subluxation is apt to constitute a serious disability as accommodation is seriously reduced, the refraction of the eye is apt to be changed, or the lens may become cataractous. In greater degrees, as where the lens is half displaced, congenital cases may remain in statu quo, probably on account of fibrous ad-

* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

hesions, and proper correction with lenses may be all that is required. Traumatic cases, however, are very apt to progress either through the luxation becoming total or through pressure on the ciliary body giving rise to a peculiarly irritable and dangerous form of cyclitis. It is probable that the lens acts by mechanical irritation in such cases and that finally a small amount of plastic exudate is thrown out from the ciliary body, which binds the lens fast. This exudate continually contracts and produces traction on the ciliary processes and finally causes a form of secondary glaucoma, which is apt to be severe and intractable as the cause cannot be removed. In such cases a moderately severe form of sympathetic iridocyclitis may be set up in the fellow eye, necessitating an immediate enucleation of the exciting eye. These complications are more apt to occur as the lens lies in greater degree on the ciliary body and they constitute the more serious dangers to be apprehended. Cyclitis is more to be feared on account of the fact that the greater number of totally dislocated lenses, and a large proportion of those partially dislocated, eventually come to rest wholly or in part, upon the ciliary body. This is perhaps caused by the blending of the fibers of the hyaloid with the suspensory ligament, which forms in this situation a sort of net in which the lens may become entangled. If the lens passes through the hyaloid and entirely enters the vitreous body, the dangers while similar are much less in degree. Many such lenses remain floating freely in the vitreous or come to rest on the retina where they finally become adherent through plastic exudation, leading ultimately to retinal detachment through contraction of the exudates. Luxation of the lens into the anterior chamber is perhaps the form most speedily followed by disastrous consequences to the injured eye. The lens comes to rest on the iris and rapidly becomes adherent and secondary glaucoma supervenes, most probably through blocking of the channels of egress at the filtration angle. Naturally in anterior chamber luxation cyclitis does not occur, at least not as severe a form, and sympathetic iridocylitis is not to be apprehended.

As a matter of convenience, if not of strict accuracy of expression, all cataractous lenses back of the iris that are partially or wholly displaced may be included in the present discussion of the method of extraction of the cataract from the vitreous. Congenital cases oftentimes require no surgical interference, and as a rule should be let alone unless cyclitis or secondary glaucoma appears. In uncomplicated cases, that is where simple congenital luxation exists, it is usual to find the eye quiet, without any inflammatory tendency. It seems reasonable to fear in such cases that any undue violence might further detach the lens from its moorings, so that it is best to caution such patients against any severe jolt or jar. When the lens lies in greater part on the ciliary body as the result of a trauma, it is imperative to remove it to avoid the complications above mentioned. The earlier the removal is attempted the better, as the difficulties and dangers are enormously increased by the presence of adhesions to the ciliary body or any degree of cyclitis—the glaucoma is probably merely a phase or further development of the cyclitis. Besides, as Callan points out (Casey Wood's System of Ophthalmic Operations, Vol. 2, page 1310), after adhesion has occurred, removal of the lens besides being very difficult does not stop the cyclitis, and enucleation becomes necessary. Cyclitis comes on with considerable rapidity—sometimes in a few days after the injury, and is almost inevitable when the lens is displaced so that only the margin can be seen in the pupil. For the operation general anæsthesia will often be required. A section is made with a von Graefe cataract knife, including a conjunctival flap. Vitreous immediately issues from the wound and the greatest care is necessary to avoid extensive loss. It is seldom necessary to perform an iridectomy as the pupil is apt to be widely dilated. If there is any tendency to contraction of the pupil, of course an iridectomy should be done, though this will usually be quite difficult on account of the interference of the vitreous, which will at once gush forth in front of the iris at the completion of the section. The manipulations necessary in the performance of the iridectomy are apt to cause further loss of vitreous, if not a certain amount of bleeding into the vitreous substance, which obscures the view of the lens and leaves a cloudy vitreous which clears up with difficulty later. Moreover in the course of healing, the vitreous retracts into the eyeball, dragging with it the iris, which is folded back upon itself so that prolapse of the iris into the wound is very unlikely to occur. Where the lens lies near the ciliary body, it is never necessary to fix it with a needle or bident, as it is held by the fibers of the zonula, or perhaps by adhesions. At the same time great care is requisite in extracting the lens to avoid displacing it more deeply into the vitreous. A wire loop is introduced while the globe is held down with fixation forceps, and the end of the loop is passed well back of the lens. The handle of the loop is then depressed so as to throw the end well up in contact with the farther side of the lens and in this position the lens is gently withdrawn with as little violence to the ciliary body and as careful a detachment of the adhesions as may be. Particular care should be exercised that the end of the loop is kept well up so that no escape of the lens is possible, as if the loop slips the lens will usually sink into the vitreous in a situation more difficult for extraction than was originally the case. Extruding vitreous is carefully cut away with scissors and never wiped, as this would only drag out more; the

conjunctival flap is placed in position so that it may not be caught in the wound, or it may be sutured in place, if necessary, and the eye bandaged. This operation while technically not especially difficult of performance is nevertheless usually followed by sharp reaction, and must be considered a very serious one. A cyclitis of greater or less degree following it is the rule, and it is indeed fortunate if this does not attain severity. The vitreous body is apt to become infiltrated and later liquefy, leading to vitreous opacities or detachment of the retina. There is danger that the retracting vitreous may drag infection from the conjunctiva into the interior of the globe, though this disaster is fortunately not as frequently seen now as in former times. As is well known, if much vitreous is actually lost, it is replaced by serum and later complications may be anticipated. Certainly the seriousness of an extensive disturbance of the vitreous cannot be denied and it follows that the operation must be technically smooth and accompanied by as little disturbance as possible.

If the lens enters the vitreous body at the time of the original injury and comes to rest on the retina well back of the ciliary body, the problem is a totally different one. Many such cases go on for months or even years without complications other than liquefaction of the vitreous, and the lens remains freely movable, appearing in the anterior chamber from time to time and disappearing again when the patient lies on his back. The dangers here are rather from the remote complications than the immediate ones, and consist chiefly in adhesions of the lens to the retina, causing late detachment, or even adhesion to the ciliary body—which last is rather unlikely to occur. There is, as a rule, no need to hasten the operation in such cases, and it is better to wait until the eye has entirely recovered from the original injury. Recognizing the dangers of vitreous disturbances, it was formerly the custom to resort to various expedients to hold the lens in a superficial position. Turning the patient on the face until the lens appeared in the anterior chamber, the pupil was contracted with eserine so that the lens could be retained in the anterior chamber for removal. The late Dr. C. R. Agnew (*Tr. Am. Oph. Soc.*, 1885, page 69), used a bident to transfix the lens and then extract it with a loop after the corneal section had been made. The bident is probably no longer used, but the fixation of such lenses with some form of needle must remain a valuable surgical expedient, though the occasion for its use be rare. It will occasionally happen, however, that the operator must choose between leaving the lens at the bottom of the vitreous and the attempt at its removal by the wire loop. Pain, of Glens Falls (*Annals of Ophthalmology*, July, 1915), has recently reported good results by focusing a beam of light on the lens as it lies deeply in the vitreous, and removing the lens with a loop. It is difficult to find fault with this method of procedure, and it is undoubtedly at times practicable (always assuming that the vitreous is clear enough to obtain a view), but requires a careful technic with the minimum of vitreous disturbance. It will probably be generally conceded that an eye in which a fixed or movable luxated lens exists is doomed sooner or later, in the vast majority of cases, and judicious surgical interference seems imperative save in exceptional instances. It was formerly advised by the late Dr. Hermann Knapp (*Archiv für Angenhlk.*, 1883), to make pressure on the globe with the lower lid after a corneal section and thus to force out the lens. However, it seems as if only one class of case would respond to this technic—namely, those in which the lens lies entangled in the fibers of the suspensory ligament. Even in these a much greater loss of vitreous would seem likely to occur than where the lens was "spooned" out with the loop in the manner already described. Where the lens has entered the vitreous, it is difficult to see why this method should be effective. At times, owing to cloudiness of the media, the lens cannot be seen and efforts at extraction with the loop may fail. In a few such cases, the writer has seen the lens spontaneously deliver itself the following day. Most probably it was entangled in the suspensory ligament, and as the sclera and other tissues retracted after the operative section, the lens was gradually forced out before complete closure of the wound in the lines of least resistance. However, this fortunate result must be looked upon as altogether exceptional, and it is rather a good rule not to attempt the extraction of a lens luxated into the vitreous unless a clear view can be obtained.

Discussion.

Dr. Howard S. Paine, Glens Falls: There are means of removing dislocated lenses, totally dislocated lenses, that are entirely new. I have removed them and used the "Paine Method for the Extraction of Lenses Fully Dislocated (lost) in the Vitreous," and the results have been successful. Now, gentlemen, I will tell you in a very few words how. In the first place, the "expectant treatment," in my opinion, is bad. Another thing is in regard to the cycletis—the longer you leave a dislocated lens in the eye, the worse it will be for the eye, and the more difficult to extract. Another thing is what Doctor Lieutenant-Colonel Smith says, that in his experience a fully dislocated lens never becomes attached, it always floats about.

Now, here in this vial is a lens which was totally lost in the vitreous. It was lost in July, 1914. I removed it in February, 1915, waiting until then because I had the feeling that the longer this case was able to see the better, as the chances of my destroying my patient's vision were good. I didn't want to have it on my con-

science that I had cut off a few days, weeks, or months of vision, because it is not a pleasant thought.

My patient yonder has two eyes from which dislocated lenses have been removed; her sister also had dislocated lenses in both eyes. All four lenses in four eyes in the case of these two sisters became dislocated between the ages of fifty and fifty-five.

Now, I have three radical points that I want to bring out at this meeting, and I wish to enforce them. They are new and should revolutionize this operation.

The first is Light. I don't care how good operators you are, no operator lives but that can operate better when he can see what he is doing. Now, then, the first point, Light. Illumination of the interior of the eye while operating.

The first case I used my method on came to me six years and a half ago, with a dislocated lens, complicated by an attack of acute glaucoma, at eight o'clock, one night. The lens had been dislocated for six months. This was her second eye, I didn't dare to tackle the first one, that had become dislocated five years earlier (over eleven years ago). The woman had consulted others beside myself about both, the books all said "to wait, to wait, don't touch them." You heard that in the paper already—"Wait, wait," very good. I did so. In six months that eye, the first one, was perfectly soft and good for nothing. When the second lens became dislocated I had already had five years from the first to the second of thinking it over. And I assure you I didn't enjoy the thought of it. But I tried the expectant treatment with the second until she came with acute glaucoma at eight o'clock at night, when something had to be done. She had been walking the floor with pain. She lived out of town, couldn't get in until that time. Now, I had to use a light. I used an electric light, a 20-candle frosted, corkscrew or spiral twisted filament lamp, and I used this one, and had it held about two feet away from the eye. This illuminated the interior of the eye perfectly by focusing with a 3-inch condenser, 3-inch focus. Other means can illuminate an eye perfectly well, but what I used will answer, and show you your instruments lying around on the table, and with this method you can focus your light right into the eye. Now, gentlemen, think of it. When the incision is made, your iris in almost every case, will settle down like a woman's dress. The consequence is you have a pupil the size of the whole circle, clear to the limbus to throw a light in.

Any old light will illuminate an eye under these conditions. Why operators have never illuminated the interior of eyes before, while operating, so that they could see what they were doing just as plainly as an egg in a pail of water in daylight, I don't know. But I know that it hasn't been mentioned in any text-book I have read, nor has any operator mentioned it to me, and operators grope and text-books still advise this blind unscientific groping in the dark. I found out about illumination six and a half years ago. I have done others since. There is my case back there, whom you have examined, illumination used in both eyes. The result is before you. She has perfect vision; has had perfect distant and near vision for over a year in both eyes.

Now, then, leaving an eye to itself and waiting and expecting and holding on and waiting a little longer, is a mistake—it was a mistake with me; I am sorry I did it; I advise you all not to do it—one of my patient's eyes got so that it was filled full of black floaters. Well, you know what that means. The eyes, both of them—but one especially, the one where the lens was floating in the vitreous and lost.

Now, Fuchs, gave me no consolation when I read in his book that "the extraction of a lens floating in the vitreous is impossible." I had to go at it myself. As I had already removed one for this patient's sister by means of illumination, I could see no reason why I couldn't find that loose one at the bottom just as well as one-half way down. So I went for it.

After making your incision, the first thing to do is to be very careful in holding the lids up. Now, that is the second point—the instruments to use, and the technique.

Now, (exhibiting a speculum), here is a speculum that is used in the Moorefields Ophthalmic Hospital in London. It has long branches. You can put that down by the side of the face, so that the assistant can lift up on the lids gently, and holding just the same as Smith with his elevator, as modified by Fisher, also uses. The trouble with the Smith method is, in operating on these cases you must be directly above the head, and look directly down, in order to see the lens, and these Smith-Fisher elevators are in your way. This one, or the least addition or improvement, with a hinge, I use. It is the Moorefields speculum made by John Weiss, London, and Meyrowitz, of New York, under the name of Knapp's speculum, as Dr. Knapp brought the pattern to this country.

Now after you have made your opening, be sure you keep the lids up. The eye will lie quietly right there, and it won't empty out. It won't lose vitreous, you needn't be afraid of it.

Now, then, the next thing is the iris will funnel right down, which will make it very difficult to get. Now, the point of doing an iridectomy is so that if you get a gush of water later, while the healing is going on, you won't have the iris washed into the wound. That is all the benefit in iridectomy. And if you have an iris likely to

bleed you can do your iridectomy just as well after you remove the lens. If it isn't likely to bleed you can do it before. I use a pair of Fuch's iris forceps like these, which are very small. Or, you can use a hook like this, Tyrell's, or Stevens'. You can lift the iris up and make an iridectomy. I made a large iridectomy in both her eyes which were glaucomatous and had suffered from simple glaucoma some years changeing her focus from a + 2 in the distance to a a — 5.

Doctor Thomson has very well said that scooping and working around in the dark in an eye and trying to extract lost lenses will produce cyclitis. It certainly will; no question about it, and leaving them in the eye will usually do the same, with atrophy thrown in.

Churning up the vitreous by lost lenses or surgeon's instruments is always a serious thing. But if you will take a hook like this, which is the Stevens' tenotomy hook, you can put that right down with absolute precision, and catch the lens. Bear in mind that that lens, in or out of its capsule has almost the gravity of water. You don't need any force to lift it to the anterior chamber. Just catch it lightly, it will come right up to the surface. When it comes up close to your incision, there is the spatula of Smith—Lieutenant-Colonel Henry Smith, of India. It is not a spoon, or loop, but a spatula. I like that very much better than any other way for the reason that when you slip that in behind the lens, you don't need to do what has been spoken of here, and what is usually recommended—lift the lens out. Now, Colonel Henry Smith, in his book, points out that that is a bad way to operate. You pass this spatula right into the anterior chamber behind your lens and support it. With your lens right up in the anterior chamber above the level of the iris, if your hook that you have caught on the lens don't pull out, your lens comes with it; if it does pull out, which is probable, why just press on the cornea, and slide it right up the spatula and out. Colonel Smith speaks of sliding. It is easier to just slide the lens up that smooth inclined plane than it is to have some kind of an instrument behind it to do the lifting, and it won't slide on a circle-like wire loop.

Now, gentlemen, the third point, and then I have done. The third point is simply this: Don't wait. First, get your light; second, use instruments with care, stop the loss of vitreous by lifting—supporting—the lids from below; and, last, don't wait. Every minute that a dislocated lens is in the eye, it is tending towards a pathological condition, a pathological eye that is more difficult for you to operate on, and is worse for the future of the sight of the patient. You will save your cycletis and you will save your patient's eyes if you operate by this method and do it without delay. Don't leave lenses in eyes for weeks and months and years, as the old-fashioned methods say, because they are always working to the bad and you owe it to your patients to save their sight.

Dr. Clifford B. Walker, Boston. I had a patient who was blind in one eye and had a dislocated opaque lens in the other eye as the result of an injury. The dislocated lens was hinged below so that it could float up and block the vision unless the head was held in a certain awkward position. The vitreous was fluid and filled with floating opacities. The vision was 3/200. A reclination was performed, but the vision fell in a few months to 2/200 probably due to the action of the lens on the retina. The lens could be seen and was removed with a wire loop. The vision, however, improved only very slightly.

Dr. Wendell Reber, Philadelphia: I am extremely indebted to you for the opportunity of speaking on this occasion. I have only dealt with two such conditions. I absolutely agree with Dr. Paine that no illumination is too good in these cases. Indeed, the illumination I have had in both the cases, I felt was insufficient. I used a powerful trans-illuminator, which would throw the beam of light just where you wanted, and you can sweep around in the vitreous in that way much as a searchlight sweeps around the sky at night. And in that way I was able to locate one of these lenses with very little difficulty. It was glaucomatous eye, and was done solely in the hope of retaining an eyeball, that the patient could have, instead of doing an enucleation. A sharp pointed hook, after the fashion of the hook used by Wm. Fisher in his intra-capsular operation, I agree may be of value when you consider that you are operating in a chamber filled with a liquid of specific gravity very little more than water, and that the lens itself has precious little more specific gravity than either the vitreous, or the aqueous. It is, as Dr. Paine says, an extremely easy matter by the slightest touch to bring the lens up to a point where it may be engaged.

At that point I diverge from him in procedure. Dr. Ziegler of Philadelphia long since developed a loop with teeth in the inverse position (blackboard demonstration). It is an easy matter to slip it back of the lens, and once you get any grip at all on the lens it is like the barb on the fish-hook; the lens can't get away.

It was a relatively easy matter to deliver one of these lenses. The other one occupied the best part of three quarters of an hour, and we finally turned the patient on the side, to rotate the lens in such position that we could get at it. Moreover, in all these cases (being unfortunately presbyopic—a thing against which I would warn all the younger members), I use as an operating glass, a plus foursphere with a four-prism base

in, giving me a very delightful field at eight to ten inches. This is worn over my regular destonic correction. One can't see too well nor too much in doing this kind of thing. And in this particular case I almost had to stand on my head to finally engage the lens. The final vision was about 5/60.

One word as to general anesthesia: I would like to ask Dr. Thomson, whose opinion I value very highly, whether he considers it an absolute essential. It is almost sure to induce post-operative vomiting which, with an open wound, and a broken hyaloid membrane, means almost surely extrusion of vitreous into the limbus of the wound. For four years we have used combined anesthesia, on all of my cataract patients, without exception. All of my patients on whom I operate under local anesthesis receive three hours before the operation twenty grains of bromide and ten grains of chloral; two hours before the operation, another dose exactly the same; one hour before the operation ⅙ grain of morphine and 1/150ths of atropine. It is absolutely amazing how placid and contented such patients are. One may object that the morphine and atropine disposes to vomiting quite as much as the ether alone. It doesn't, with the bromide and chloral as a cross-sedative. I have yet to see in four years a case of vomiting. And it has produced a quiet, tractable type of patient that is a joy to the heart of any ophthalmic operator. Particularly do I use it in the intracapsular operation and I must confess that I don't think the American patient is as well adapted to the intracapsular operation as the Indian or the Eurasian. Perhaps there is something different in the metabolic processes in the races. For I do see a good bit of post-operative reaction, not quite as much, however, as in our old operation, with which we are all familiar. I think there is a little more tendency to glaucoma. I am not sure of that. I am still holding the question sub judice.

Dr. Arthur Bedell, Albany: The vectis that Dr. Reber has just shown is very familiar. I have used a similar instrument in the same condition instead of the plain spoon.

I wish to report the case of a patient of fifty-seven who was struck in the eye some six weeks previous to examination causing complete dislocation of the lens. The lens was removed under a local anesthesia with the vectis of which Dr. Reber speaks. The end result was with correction, 20/30, plus 2.

Dr. Martin Cohen, New York City: In starting the operation is it advisable to make a large conjunctival flap with sutures in situ, thereby preventing gaping of corneal section and lessening dangers of secondary infection through loss of vitreous.

Dr. Percy Fridenberg, New York City: If I am correct, that procedure is recommended by Czermak in the extraction of dislocated lens—the preliminary suture and sub-conjunctival extraction.

Dr. Charles B. Meding, New York: The removal of a lens from the eye is always a delicate, uncertain and in many respects a difficult operation. The removal of a foreign body, except in those cases where the magnet actually withdraws the same, is in a large number of cases destructive of useful vision; a dislocated lens is a foreign body.

It is because operators of experience have discovered this truth, that text books almost universally deplore or omit the operation. As in every condition, certain cases present for which little skill and less thought suffice. Just why certain eyes withstand every possible manipulation with no reaction may be impossible to state but such happenings form no basis for general or safe advice. They are dangerous as precedents and the thoughtful teacher accepts them as items inseparable from the experience in which they occur.

Lenses dislocated into the vitreous may be and always have been extracted. Few operators of experience have escaped the apparent necessity of attempting their removal and fewer still are enthusiastic over their results. The trauma is not well borne. A stirred up vitreous is not apt to return to normal. No method can quickly and directly control the movement of a floating lens, and every move of the instrument disorganizes the vitreous body. Again the number of cases is small. In India where couching was once common, operators found that the life of the eye was not prolonged by removal of lens. A certain period of vision was common in the successful cases—removal of lens nearly always shortened this period.

Even where lenses have slipped into the vitreous during intra-capsular operation, it is not easy and seldom safe to follow them up. The speaker has seen the world's best operators at their wits ends in the attempt, in Vienna, Berlin, Paris, London, Madras, Bombay, Amritsar and Tokio, he has watched, assisted and operated, and is yet far from being able to propose a method applicable to two consecutive cases. He always advises great caution and to the less experienced "hands off." Here as elsewhere in eye surgery there can be no satisfaction in the operation which does not prolong a useful eye—vision is the test, not the vision of a year but of the remainder of the patient's life. Atrophy or phthisis bulbi are not satisfactory results, but they are as real whether following operation or the unoperated condition.

One is and should be encouraged by success, but no single success should hide the unfortunate frequency of failure, and in these days we cannot be too careful in advising routine operation. Too many inexperienced operators are inspired to attempt described maneuvers without the nec-

essary poise and eye sense which the reporter possessed.

As to the method, one must be familiar with all and armed with the variety of instruments one or another of which may fit the need. A steady hand, tireless patience and long training are requisite. Nowhere more than in eye surgery does the single error in judgment or technic so materially and unalterably affect the result.

In the simple but tremendously sincere words of the great Herman Knapp, "These cases are not so easy, I too have had them."

Dr. Otto W. A. Schirmer, New York: I should like to say a few words, not about the technique, but about the issues of this operation. I think the decision when to operate should be dependent upon the prognosis of the operation. And in order to put this question on a scientific basis, we ought to have an idea in what percentage we probably will have a clean extraction and a favorable result. Now, I am sorry to say, I think it is hardly possible to get such statistics of general value, because here more than in any other operation the outcome will depend upon the personality of the operator, upon his skill and upon his experience.

I should like to say that in my experience it is not necessary at all to proceed operating right away in these cases. I remember more than one case which I have followed up for years, where a lens dislocated in the vitreous stayed there and didn't do any harm to the eye. And I recall just here a case of a student whom I have treated abroad for a subluxation of the lens with subsequent glaucoma. Simple treatment with myotics, bandaging, and keeping the patient in bed for about four weeks, sufficed to cure the glaucoma and to give the eye normal vision. This condition remained for all those years that I have seen the patient, in my memory about five or six years. Afterwards I left that place, and lost track of the patient. I have seen other cases, too, where inflammation followed subsequently and where it may be it would have been better to extract right away. But how to decide what the outcome of the case will be—I think we are unable to do that as yet. And we have simply to weigh against each other the probable outcome of the case, with operation, and without operation.

Dr. John J. O'Brien, Schenectady: I had three cases of dislocation, due to trauma. In one of them a block had fallen down and hit the man over the side of the head. It didn't really seem to hurt the eye at all, and didn't do very much injury to him except just an abrasion of the skin. Yet it dislocated the lens. And in that case I removed the dislocated lens, five days after the injury, and got a good result. I think it was a little less than twenty-fortieths.

I had still another one a couple of years later, where a similar injury occurred, only in this one the eyeball itself was hit, causing the dislocation. There was a good deal of reaction and the man refused to have anything done to the eye. In the course of four or five weeks, he went blind. And subsequently the eye had to be enucleated for intense pain from glaucoma.

I still had one other, in which I did an extraction, after a similar injury, due to the eye being hit; and got even a better result, as far as vision goes, than in the first case.

Those patients have all been lost track of. Just whether the vision has been retained, I can't say. In the last case, the vision was twenty-thirtieths. There was a good deal of reaction after the extraction, and it took quite a little while before the eyes quieted down. I think in one case it took about eight or nine weeks, and in the other just a little less.

Dr. Thompson: This has been a very gratifying discussion, and I feel that there are a few things to which I should reply to make my own position in the matter more clear.

The great difficulty of speaking generally of these cases is that there is hardly any one of them resembles any other that you have ever seen. They present special problems, and Dr. Schirmer put that very well when he said that you must balance the probable success to the probable damage to the eye from operating.

However, I agree with Doctor Paine in the opinion that it does not do to wait too long. And what I meant to imply in my paper with regard to operating was that it was much better, if you couldn't see the lens, to wait until things had cleared up a little before you started, rather than go fishing around blindly. There is no question but that we can afford to wait longer, if the lens goes clear back to the vitreous, although the operation is much more difficult than where the lens lies on the ciliary body.

Now, as to the views which Dr. Paine quoted, about the attachment to lens of ciliary body, I disagree entirely. For I have seen, and examined histologically, lenses dislocated on the ciliary body. And I have a photo-micrograph, which I gave to Dr. Ellet to publish in an essay on the lens, showing the lens dislocated on the ciliary body and surrounded by plastic exudation. The plastic exudation does occur, and I think we ought to anticipate it. That is one of the reasons for hurrying the operation where the lens is on the ciliary body. Where it is back in the vitreous, the question is a much more difficult one, although my own feeling is that while those cases may go—we know they do in some instances, go along well for years—I think that if we are sure of our technique that we ought rather to lean to the side of getting the lens out while conditions are good, instead of waiting for secondary changes to come on. In that I agree with Dr. Paine.

Now, in regard to the loop technique. I have speared lenses usually with a knife needle and brought them forward. But I have never had any difficulty in holding them with the loop. The main thing that makes the lens slip away from the loop is adhesion to the ciliary body. And if you can detach it, there is no trouble about getting it out. So that I use the ordinary wire loop.

Dr. Reber's remarks about absolute anesthesia: I have said, general anesthesia will *often* be required. Now, of course, I appreciate the dangers of vomiting. And if the eye is quiet, I think it is safer to operate under local anesthesia. However, for my general anesthesia, I depend a great deal on Dr. Bennett, and he is very skillful, indeed, in the administration of chloroform. He can put patients through chloroform narcosis and not have them vomit at all afterwards, as I have repeatedly seen him do. He avoids the excitement in a very clever way. If I may digress for just a minute—when the patient gets into the excited stage, instead of restraining him, he gives him something to handle. And it is very interesting to see how they will handle these things and pass them from one hand to the other, instead of struggling. It distracts their attention, and they do go through it quietly and don't vomit afterwards.

With regard to sutures to avoid gaping of the wound, as Dr. Cohen mentioned, that is a question of the individual case. I have in a few instances put in sutures so as to be prepared, when I thought the patient was very restless. But, as a rule, I don't use them.

HEALTH CENTER FIELD WORK.*

By ARTHUR C. SCHAEFER, M.D.,

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THE field work of the health centers, as conducted in Buffalo, comprises:

Sanitation and tenements.

Medical school inspection.

Examination and disposition of apparent mental conditions, such as backwardness in school and feeble-mindedness, and indications of insanity.

School nursing; little mothers' leagues.

Tuberculosis nursing.

Pre-natal, natal and post-natal care and instruction.

Midwife supervision.

Natal accidents and defects.

Ophthalmia neonatorum and other eye defects.

Medical care and nursing dependents.

Supervision of homes receiving children for board.

Supervision of homes and children whose mothers receive widowed mother's pensions.

Unemployed, non-supporting or abusive husbands.

Wife desertion, neglect of family.

Abuse of children, intemperance, need of money relief.

Apparent need of commitment of children to correctional schools, orphan homes on account of delinquency, abandonment or death of parents.

Neglect of children.

Truancy.

Domestic science instruction.

Social service for patients maintained in private institutions or hospitals at city expense.

Need of institutional care on account of old age.

Unmarried mothers and delinquent girls.

Sanitation and tenement service consists of a house to house canvass of all the homes within the district with such subsequent follow-up visits as may be necessary for the removal or correction of any defects.

Medical school inspection, all children are examined and measures instituted for the prevention and spread of communicable diseases, and at least three times during school life, the child receives a complete and thorough physical examination. The sanitary conditions of the school and its environments are investigated by the inspectors. The examination of all children for admission to the special classes, open-air schools and school for tuberculosis, is the work of the inspectors.

The examination and disposition of cases of mental subnormality, backwardness in school and feeble-mindedness, are taken care of by the special examiner in the Psycho-Physiological Division of this department. Cases showing indications of insanity are referred to the City Examiner in Lunacy.

School nursing includes visiting of schools, ascertaining those children who have defects of any character, following up to their homes and explaining to the parents the importance of having such defects removed. They are requested to elect their own family physician, if they have any, and in the absence of such, they are referred to the health center where the service is given free of charge.

Tuberculosis nursing consists in repeated visiting of all cases of reported tuberculosis to see that the contacts are examined and re-examined, that proper prophylactic measures are observed by the tubercular patients, and, if possible, a voluntary or legal commitment to the tuberculosis hospital. Bedside care is given by the District Nursing Association.

Prenatal work consists in visiting the homes of all pregnant women, taking cognizance of

* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

their condition, and giving them pertinent and necessary advice in accordance with the indications, and, further, in securing their attendance at the health centers when necessary.

Natal care consists in the furnishing of suitable medical care and nursing attendance of all women in confinement, when they cannot afford to pay for the same.

Post-natal work is as comprehensive as it is important and includes such service as comes within the scope of the District Nursing Association. The public health nurse visits all cases attended by midwives on the third day. On this occasion, she considers both the mother and child. The mother as to her general condition, evidence of septicæmia, character of the lochia, accidents incident to child birth, breast condition, breast feeding or artificial milk supply, etc. The infant is considered as to eye defects, condition of the navel and other parts and as to physical deformities. Finally, specific advice is given in accordance with the findings which are recorded and reported. Further, the mother is advised as to the advantages of the milk station, is instructed in the preparation of milk where the feeding is artificial and, finally, all cases are followed up to their conclusion.

Midwife supervision consists in securing the registration of all midwives in accordance with department and legal requirements.

The technical supervision includes personal investigation and examination for fitness, obstetrical bag and equipment carried, and also the actual attendance, at least once, of a public health nurse, at a case of confinement under the midwife's care in order that her efficient technical adaptation to the work may be observed. She is required to report whenever a physician is called on a case, stating the reasons for such calling. She is further required to attend a course of instruction carried on by that bureau, which course includes lectures on all the particular features pertaining to her vocation. Finally, when, for any reason, the midwives are summoned to the department they are given a hearing and proper action taken in accordance with the state law and the Department regulations.

Natal accidents and defects are reported by the nurse discovering the condition and later followed up to see that same are corrected or removed.

Ophthalmia neonatorum and other eye defects: In addition to the reporting of all cases of sore eyes by physicians and midwives, the nurse takes a smear of all suspicious eye cases attended by midwives, which are followed up in accordance with the indications, until a cure is effected. Medical attention is given in all cases, and, when indicated, hospital care furnished.

Supervision of homes receiving children for board: The law requires that any person not the Superintendent of Poor, receiving a child under 16 years of age, for board, not a relative, must first obtain a license from the department of health, but such duty has been delegated to the Superintendent of Poor, so that full control may be had and no divided responsibility.

When the parties receiving children submit bill for caring for such children, it must be accompanied by a certificate, in which are embodied three requisites: from the school principal, that school attendance has been made; from the pastor, that church or religious attendance conforms; from the medical examiner, as to the physical examination of the child. This is followed by subsequent reports from the nurse maintained by the health nurse in that district.

Unemployment, non-supporting or abusive husbands, intemperance, wife desertion, neglect of homes, need of money relief, need for commitment of children to correctional institutions or orphan homes on account of delinquency or death of parents, need of institutional care on account of old age, truancy, neglected or abused children, begging, unmarried mothers, delinquent girls and such other social and economical conditions pertaining to the health and general efficiency of the person and community are referred to the Charity Organization Society and representatives of medical and social agencies doing the work together, on a plan co-operatively followed.

Domestic science instruction is under the direct supervision of the Educational Department and consists in visiting homes and giving proper instruction to uninformed mothers and housewives, also in maintaining domestic science classes for adults.

Proper social service is afforded for all patients maintained at private institutions at the city's expense. In the majority of cases such social service work is performed by the hospital social service worker, or by the public health nurse in the district in which the patient resides. The nursing care is furnished by the District Nursing Association.

When the investigator finds that the need in the home requires social treatment and care, she retains the family for visitation, referring all the medical needs, present or future, to the medical official in the health centre, through the dispensary registrar, working in co-operation with the representatives of these agencies.

Families in the health zone that have come to the attention of the charity organizations otherwise than through the health centres should be taken under care, as customary.

The work of the public health nurse sets an example in the neighborhod, crystalizes authority, eliminates overlapping of inspectional work and that by other agencies, and secures an intended co-operation.

It is the only practical method of securing control and reaching the basic conditions.

ATROPHIC VASCULAR CIRRHOSIS OF THE LIVER WITH ASCITES.*

By WARREN L. DUFFIELD, M.D., F.A.C.S.,

BROOKLYN, N. Y.

ATROPHIC vascular cirrhosis of the liver can hardly be considered as a surgical condition and yet the disease in some of its phases is possibly more amenable to surgery than to medicine—we refer to the stage of ascites.

Even as the treatment is disappointing and the prognosis unsatisfactory, the etiology becomes more involved if we are to accept the views of certain French and German writers.

Osler, Anders, Strumpell and Tyson all emphasize the over-indulgence in alcohol as the most important etiological factor, and but casually mention such other causes as tuberculosis, malaria, etc. In fact Strumpell and Tyson make no allusion to tuberculosis.

Turning to the more recent articles we find that Roque and Cordier report in detail the case histories and laboratory findings in twenty cases of cirrhosis. They find that all cases of Laennec's cirrhosis the ascitic fluid is of a tuberculous character and origin and causes tuberculosis in animal inoculation. They maintain that the ascitic fluid may be tuberculous even though the cirrhosis itself is not caused by tuberculosis, but they conclude that in the majority of cases the origin of the sclerosis is a toxic infection, generally from tuberculosis, and that alcohol simply favors its development. The cirrhosis is not found in non-alcoholics if there is not preceding injury by bacteria or their toxins.

Baumler also states that tubercular peritonitis is peculiarly liable to become superposed on existing cirrhosis of the liver.

Hertz reports two cases of cirrhosis of the liver of tuberculous origin and Gougerot has conducted animal experiments to prove that the tubercle bacillus alone without the aid of alcohol is able to produce typical cirrhosis of the liver.

The acceptance then of a tubercular origin in some or all cases may possibly explain the very gratifying results of omentopexy in cases where there definitely exists a disturbance of the portal circulation due to a compression of the branches of the portal vein by the sclerosis of the liver tissue, and its absolute failure when the ascites is due to a tubercular irritation but without disturbance of the portal circulation.

This, however, leads us still further afield, for it is a well accepted fact that a simple opening and closure of the abdomen is very beneficial in some cases of tubercular peritonitis.

A tubercular origin does perhaps aid in explaining the beneficial results obtained in those cases of ascites by an aspiration of the ascitic fluid and its reinjection into the subcutaneous tissues as was done by Vitry and Sezary in a case of advanced ascites from cirrhosis of the liver which had persisted for six months. They treated the patient by subcutaneous injections every other day of 10 c.c. of his own ascitic fluid. On the third day there was a marked increase in the urinary output and a beginning absorption of the fluid which continued until the eleventh day when the injections had to be discontinued for lack of fluid.

Of equal interest is a case reported by Lahari of a patient eighteen months old, who at eight months had a hard enlarged liver two and one-half inches below the costal arch, accompanied by marked ascites. He injected 0.5 c.c. of the child's serum into the cellular tissue of the flank, causing marked urinary increase. On the eighth day 1 c.c. was injected and later 2 c.c. Six weeks after the first injection the child was cured.

Before proceeding to detail two cases, one at least of considerable interest, it may not be amiss to very briefly recall to mind the objects sought to be attained by operation and the various operative procedures advocated.

Probably the operation of omentopexy or epiplopexy in which the surfaces of the omentum and parietal peritoneum are lightly abraded and then sutured in contact or the omentum drawn from without the abdomen and sutured in contact with the abdominal muscles or their sheaths is the measure usually adopted. At the same time a portion of the surface of the liver may be abraded and brought in contact with the peritoneum by suturing.

These procedures establish an anastomosis between portal and systemic systems and according to Sinclair White the beneficent effect lies not only in the increase in the circulation by reason of the supplementary channels of anastomosis which are formed, but also in that it increases the blood supply to the surface of the liver, whose cells possess considerable regenerative power. Mayo believes that the substitution of the extra-peritoneal lymphatics for the overworked lymph channels plays an active part in the improvement following omentopexy.

Other methods and more radical means have been urged either to drain off the accumulated fluid or to relieve the impeded portal circulation. To accomplish the former object, Piper and others have effected drainage of the abdomen into the subcutaneous tissues of the thigh by means of silk threads passed through the femoral canal, thus doing a lymphangioplasty.

Ruotte sutured to the peritoneum just above Poupart's ligament the peripheral end of the saphenous vein severed 8 c.m. above its mouth. This succeeded in curing a case of ascites after omentopexy, renal decapsulation and continuous drainage failed.

Of the more major procedures may be mentioned Villard and Tavernier's attempt to do an anastomosis in the lumbar region between the main inferior mesenteric vein and the left utero-ovarian vein which resulted in death; and the

establishment of an Eck's fistula or the anastomosis of the portal vein with the inferior vena cava. The patient upon whom Vidol performed this latter operation died, and from experiments upon dogs Vidol found that when successfully performed it produced uræmia. Displacement of the spleen behind the peritoneum has been advocated but seems not to have attracted much attention.

The following reports illustrate two types of cases, one alcoholic and one non-alcoholic, and two methods of treatment:

G. C., a male Italian, thirty-six years old, was admitted to St. John's Hospital on September 23, 1914. As he spoke no English it was quite impossible to obtain anything like a full and complete history. It was ascertained, however, that he had used alcohol to excess for many years and had had to be aspirated on several occasions, each time a large quantity of fluid being obtained.

In the record of his physical examination which is more complete there are only a few notes of interest, one that he had a slight systolic murmur, that the abdomen was much distended with fluid, that a caput medusæ was present and that his liver was very much contracted.

The day after his admission twenty-two pints of fluid were obtained by abdominal aspiration. After he had been in the hospital for five days an omentopexy was done under gas-oxygen anæsthesia from which he made an excellent recovery. At all times his urine maintained a specific gravity of about 1,032 and always contained a moderate amount of albumin. Before operation the average daily excretion was about ten ounces and after operation it averaged about twenty-five ounces. Nineteen days after admission he was discharged and was seen in January, 1915, and again during the following summer, and on neither occasion could any evidence of return of fluid be found.

The second case deserves a more detailed report.

This woman was forty-four years old and was admitted to St. John's Hospital on July 26, 1915, in such a serious condition that even an omentopexy under local anæsthesia was unadvisable at that time.

She gave no history of any previous illness and her family history was irrelevant. Six months before, she first noticed a slight swelling of the abdomen to which she paid no attention until the enlargement progressed. Aspiration by her family physician gave her temporary relief followed by a reaccumulation which caused her to enter the hospital.

She was apparently very ill, her breathing was very labored and the character and rapidity of the pulse was such that it was difficult to count, though it is recorded as 180. Systolic blood pressure was 125 and diastolic 82. There was a coarse blowing systolic murmur transmitted to the axilla, and her lungs were negative. The abdomen was greatly distended with fluid, which rendered an examination of the liver difficult. A subsequent examination revealed it somewhat smaller than normal. Her urine contained a moderate amount of albumin, specific gravity 1,024, and contained both red and white cells, but no casts. As she had quite a marked leucorrhœa it is possible that the blood in the urine was a contamination. The day following her admission fourteen quarts of fluid were removed by abdominal aspiration.

As above stated, operation seemed to be distinctly contraindicated and it was decided to try aspiration and reinjection of the fluid, and on August 2nd, thirteen quarts were aspirated and 10 c.c. injected into the subcutaneous tissues. August 5th, seven and one-half quarts were removed and 10 c.c. injected and the dose repeated (without aspirations) on the 7th and 9th. Running short of serum three quarts were removed on the 18th and 30 c.c. administered on that day and 20 c.c. on August 20th. At each aspiration every effort was made to remove all fluid present so that the amounts removed represent all that could be obtained at the various times.

To recapitulate, she was aspirated four times:

July	27th	14 quarts	removed
August	2nd	13 "	"
"	5th	7½ "	"
"	18th	3 "	"

There were four injections of serum of 10 c.c. each; one of 30 c.c. and one of 20 c.c.

Following the institution of the serum therapy there was a steady and consistent increase in urinary excretion with a disappearance of the albumin. The heart action became much stronger, more regular and decidedly slower, and on August 13th her condition had so improved that she was allowed out of bed.

On August 23rd, three days after the last injection of serum and following about fourteen days of almost normal pulse averaging about 80, she had an apoplexy. The nurse's notes state that at 7 A. M. she was apparently well, that at 7.20 she became semi-conscious, her pulse became imperceptible and later was counted at 60. She perspired profusely, voided involuntarily and seemed unable to move right arm. Later it was perfectly evident that she had a right-sided hemiplegia with inability to articulate.

On November 17, 1915, her physician, Dr. Waller, reports as follows: "Power of speech returning, is now able to walk but cannot use right arm. Sleeps and eats well and passes about normal quantity of urine. Ascites has not returned."

As the patient objected very seriously to the aspirations and as it was feared that if performed too often she would leave the hospital, fresh serum was not used for all injections. At each

aspiration some of the serum was collected in sterile containers and kept on ice until used. This resulted in some of it becoming unfit for use due to the formation of a coagulum and has raised the question as to whether perfectly fresh fluid would not be more desirable.

MEDICAL GYNECOLOGY.*

By ROSS G. LOOP, M.D., F.A.C.S.,
ELMIRA, N. Y.

WE are frequently charged by the laity and occasionally by our colleagues with an undue and unwarranted lust for operative surgery—with a too hasty resort to the knife in some cases where careful study and patient treatment might have averted such heroic treatment. Without attempting to controvert this charge or to justify the work of the conscientious surgeon, I wish to consider a few gynecological conditions which may properly be treated by non-operative means, but which are often referred to the operative surgeon, too frequently with the "operation suggestion" firmly implanted in their minds, by the very men who charge us with over activity. I am sure the awkward position of having patients come all prepared for operation, which an examination proved to be unnecessary, is not an unusual one to my hearers. This paper is my own answer to the question, "What gynecological conditions are amenable to non-operative measures?" and "What non-operative measures are applicable to such cases?"

Gynecological patients usually consult their family physician and it is he who has the first opportunity to make the diagnosis which shall put them on local, palliative or radical operative treatment. For his guidance I would suggest a simple classification of his findings into congenital defects or deformities, neoplasms, infections, traumatisms incurred during labor and the sequelæ of labor or abortion. From this list I would at once strike off as unsuitable for local treatment in its commonly accepted meaning, all new growths, tumors or any kind or location. Even though nothing more than a urethral caruncle or small uterine polyp extruding from the external os be found, with which he may be entirely competent to cope, yet his treatment of these conditions must be considered surgical and not within the scope of this paper.

Regarding congenital deformities and fœtal remains, no such sweeping statement can be made. The sterility and dysmenorrhœa due to infantile uterus may often be relieved by medical and local treatment, while atresia at any point of the genital canal, septa of the vagina or uterus, or absence of any of the component organs are absolutely unsuited to these methods. Young or unmarried women suffering from these conditions are often subjected to gross mal-practice because of the aversion physicians feel to examining such cases. The most classical case of atresia of the vagina which I have encountered had dragged out a miserable existence from puberty to marriage, with constantly increasing pelvic pain and a slowly developing enlargement in the pelvis, until the perineum was stretched as with the fœtal head and the rectum was almost entirely obstructed before an examination disclosed the real nature of her distress. We must not allow our modesty to interfere with our duty. As for the patient, such a sufferer has no modesty left; her sole thought is to be relieved.

Infections from the standpoint of treatment, must be sub-divided into acute and chronic types, the nature of the infecting organism, whether the gonococcus, streptococcus, the colon group or what not, and also the point of attack must be considered. Vaginal, urethral or bladder infections and puerperal infections of the uterus, almost a crime in our day, should be met with prompt and vigorous resistance. Acute infections of the tubes, pelvic peritoneum and cellular tissues are best treated by palliative measures, watchful waiting, not unmindful of vaginal douching and vaginal puncture. Many of these cases recover by resolution, while many more, after the storm, must be treated by radical or conservative surgery. It is in this latter class of cases that much of the abuse of local treatments is seen. The family physician must know the limitations of palliative treatment and must not subject these patients to months or years of tampons, douches and chronic invalidism.

Injuries from childbirth, neglected or unsuccessfully repaired at the time, which destroy supporting structures or leave eroded surfaces for the absorption of infection, are not properly cases for palliative treatment and should only be so managed when there exist definite contraindications for radical treatment. Other sequelæ of labor, of which subinvolution is the most frequent and has the greatest morbidity, if uncomplicated by injury, may usually be best treated by palliative means.

The management of these cases, then, hinges on accurate diagnosis, good judgment, and a knowledgment of the possibilities and limitations of therapeutic measures. I shall make no pretense to a comprehensive consideration of the subject but wish rather to bring to your attention a few of the commonly encountered conditions which I believe to be properly and often best treated by local means, together with some methods of treatment which I have found extremely useful but which have been more or less frowned upon by the authorities, and somewhat feared, doubted, or ignored by the profession.

Congenital deformities and diseases are often difficult of detection because so often encountered in virgins. I would emphasize the value of the bimanual examination per rectum in these cases

* Read before the Elmira Academy of Medicine and the Medical Society of the County of Steuben.

especially, although it is often of great service in parous women. Local treatment of non-parous women is limited to those in whom the hymen and vagina will permit instrumentation. In the congenital classification I include those abnormalities which have existed from birth, or which are first evidenced at puberty or after marriage and which are not neoplastic, traumatic or infectious in origin.

Infantile uterus, when possible, is best treated by non-operative means. In addition to the usual hygienic and tonic measures, the use of graduated uterine dilators, the intrauterine application of 95 per cent phenol or iodine, and if possible, after some progress, the use of a stem pessary, which may be left in situ with impunity for many months, together with the careful administration of small doses of thyroid extract, ¼ or ½ grain twice daily, has been more fruitful of results in my experience than the usual curettage. It is well known that thyroid extract has a selective action on the generative organs, stimulating them to normal activity. I shall refer to its use in other conditions later.

Amenorrhœa when not due to the great physiological cause, pregnancy, or to some physical obstruction, may well be treated by much the same methods and with excellent results. Of late, I have used corpus luteum instead of thyroid extract in these cases and with much satisfaction. In the strumous type, however, thyroid extract always has a marked effect for good. Curettage does these patients little or no good and its results are almost always temporary. Depending on some obscure fault, local stimulation, together with our feeble, groping opotherapy, seems, and is far more rational than curettage. Yet we have many of these cases referred for curettage. Actual physical obstruction is about the only indication for operation in these cases.

Dysmenorrhœa is one of the most frequent complaints the physician hears, and it merits all the attention that its victim insists on, for aside from the danger of drug habits, whether as a cause or effect, it is so often associated with cystic disease of the ovaries as to be considered more than a mere coincidence. I am firmly of the opinion that many ovarian cysts are due to back pressure from a spasmodic dysmenorrhœa. Now we are offered as our defensive weapon, dilatation and curettage, and who of us has not been disappointed in its results in, I may safely say, the majority of cases? Having ruled out, by careful examination, cystic disease of the ovaries, tubal disease, varicosities of the broad ligaments, etc., *i. e.*, having arrived at a positive indication for curettage, I contend that the use of graduated dilators where necessary, the intrauterine application of phenol and iodine, followed by the introduction of a stem pessary, and in some cases, the use of very small doses of thyroid extract, will accomplish results of a far more lasting and satisfactory character than the orthodox treatment with the curette.

The stem pessary is looked upon with fear by many physicians. I have used them for many years, introducing them at the office under fairly aseptic technique, and have left them in place for as long as twenty months, with none but good results. There are a few patients with a positive indication for them where the vagina is so small or the cervix so tight as to preclude their use except with an anesthetic. A curious fact has been that when introduced after dilatation under anesthesia, they have invariably been expelled within a few days, even though I have tried to insure their retention by a suture of kangaroo tendon through the cervix. This shows that our rapid dilatation lasts for a short time, that the cervix does not shut down enough to hold the pessary, but a return of the old symptom proves that it is not for long. In these cases I have usually been able to replace the pessary before contracture took place. Here again, I wish to emphasize the action of thyroid extract on the pelvic organs. Do not forget it in the treatment of amenorrhœa, dysmenorrhœa and sterility.

Endometritis, leucorrhœa, menorrhagia, dysmenorrhœa, these are almost synonymous terms. In cases where the treatment can be carried out, I have rarely administered an anesthetic for curettage alone and I submit that I have had more complete and lasting results than from operative treatment. Dr. Charles A. L. Reed was the first to recommend the use of phenol as a local application to the endometrium so far as I know, and since reading his work some ten years ago, I have used this treatment in endometritis almost to the exclusion of curettage or in connection with it where an anesthetic had to be administered for some other purpose. Graduated sounds are used where necessary, and the uterine cavity swabbed out with 95 per cent phenol, or better, where possible, ½ inch selvage tape saturated with it, is packed into the cavity and is left for twenty-four hours unless expelled by uterine contractions. A dossel of cotton saturated with alcohol is placed behind the cervix to neutralize the overflow. Appropriate tampons may be used in the vagina at the same sitting and the whole arranged so as to be easily pulled out in twenty-four hours. A hot saline douche should be used immediately after the withdrawal of the tampon and packing, and in most cases can be used to advantage every night until the treatment is repeated, which is ordinarily on the fourth or fifth day. A wide experience with these measures enables me to say that they may be carried out at one's office without infection, that there is no danger of toxic symptoms from the phenol, and that the results are excellent, better as a rule than simple curettage in like conditions.

Retroversion is a condition which may be congenital or at least, discovered very early in life

with no history to explain its acquirement, or it may be acquired. In my operative experience it is unusual to find the fundus adherent except in those cases where a pelvic cellulitis has matted all the structures together, although we are quite apt to say it is adherent in cases in which we are unable to reposit it except by abdominal section. It may exist without symptoms and be discovered accidentally. I rarely apprize a patient of its presence unless she is conscious of symptoms which may be properly attributed to it. It is like a movable kidney—what she don't know, won't hurt her. On the other hand, I can not agree with some gynecologists who contend that retroversion per se, causes no symptoms but that an entirely independent lesion in the tubes or ovaries is responsible for the symptoms. While the pain or heaviness or dragging may come from the latter, I am of the opinion that the tortion of the broad ligaments with the resulting interference with the pelvic circulation is the cause of most of the pelvic symptoms and is therefore part of retroversion. In the apparently adherent fundus, a thickening of the vaginal ring, the interposition of a heavy sigmoid, or the incarceration of the fundus between the utero-sacral ligaments is probably at fault and before deciding that a given fundus can not be replaced without operation, let me urge a trial of the knee-chest position and bimanual manipulation with one finger in the rectum. One other method remains before resorting to operation, and I know I shall be severely criticized for mentioning it, but I can only plead my own experience, not inconsiderable in this class of practice. I often pry up such a fundus with the uterine sound, taking it out and bending it more nearly to a right angle as the fundus comes up and continuing until I can grasp the fundus through the abdominal wall. Is there danger of puncturing the uterus? Not in the hands of anyone capable of undertaking any such work. One can tell how much resistance he is encountering, as a rule, very little, and it need only be raised till the abdominal hand can catch it. I prefer this to the uterine repositor made for the purpose, for this is quite large and hard to introduce and working with a screw adjustment, one can not judge so accurately how much force he is using and might well injure the uterine wall.

Having placed the fundus in a position well to the front, with the cervix pressed back into the hollow of the sacrum, the next question is how to maintain this position until it accustoms itself to its normal position and until the supporting structures undergo involution. In cases where there is considerable bogginess or inflammatory swelling with tenderness, for a short time wool tampons with dehydrants, antiseptics and antiphlogistics, such as combinations of ichthyol, iodine and glycerine, may be used with good effects. This treatment requires daily or bi-daily visits to the physician's office and should be superseded very soon for the support that can usually be adopted at once, the pessary. My experience would indicate that physicians are not sufficiently familiar with the uses of this useful device. The younger men, especially, seem to be taught all about the surgery of this condition but very little about its non-surgical treatment. Perhaps if they were told that there are some fifty different methods of surgical relief for retroversion and that forty-nine professors are making fun of the method their teacher has honored with his name, they might conclude that the surgical treatment of this condition is not entirely satisfactory and that the fifty-first method might make their patient as comfortable as any of the others. The bogie of ulceration from pressure with ultimate sequestration within the tissues so often mentioned in the text-books, does not obtain at the present time when patients are more generally schooled in matters of health.

With a knowledge of the proper function of the pessary, to elongate the vagina and thus pull the vaginal ring back into the hollow of the sacrum, allowing the fundus to *fall* to the front, instead of expecting it to replace a retroverted uterus, with ordinary skill and tact in selecting the proper size and in bending it to fit the case in hand, the pessary is a most useful accessory to gynecological work. There are a few cases where a pessary with a very slight angle to its posterior curve may be used to elongate the vagina before it is possible to reposit the uterus, but these are rare.

Is pessary treatment of more than temporary relief? Yes, in many cases. In both parous and non-parous patients, where there are no adhesions and no serious injuries to the supports, the utero-sacral ligaments will shrink up and draw the cervix back into the hollow of the sacrum, the round ligaments, relieved of the stretch to which they have been subjected, will take up and tilt the fundus to the front and the twist in the broad ligaments having been relieved and the normal circulation restored, the boggy fundus with its sensitiveness and discharge and chronic infection, undergoes resolution and these results are just as permanent and more anatomic than where operative means have been employed.

One other common condition that may often be more satisfactorily managed by means other than operative is that monument to bad obstetrics, so prolific of morbidity, subinvolution. My experience has been that old, aggravated cases of this type, when existing without lacerations, are not cured, or at least their recovery takes months or years after the usual operative treatment, curettage, with or without plastic reduction of the cervix. In these cases, the use of the pessary when indicated, tampons, hot douches, phenol or iodine applied as before suggested, and

in these cases the cervix is usually sufficiently open to permit packing the cavity with gauze, will give better results than a single curettage and plastic work, and if the cure is not complete, they will insure a more perfect result when operation is undertaken.

The foregoing, constituting the large percentage of our every-day gynecological complaints, are the ones in which I have found office treatments of the greatest service. Results, if forthcoming in this way, are usually attained in from six to ten treatments. The phenol treatment is heroic and I always advise the patient beforehand that if no improvement is experienced within that number, more radical means must be adopted. I have as little sympathy with protracted courses of treatment over months or years as with the exclusion of all office treatment.

I am well aware that some of my contentions will meet with opposition; that they are frowned upon by many of the authorities. I can only reply that this paper is based exclusively on my own experience, entirely ignoring the authorities; that considerable office instrumentation may be done without infection by exercising ordinary precaution; and that in quite an extensive practice in this line of work, I have secured results that merit my conclusions.

THE SUCCESSFUL COUNTY MEDICAL SOCIETY.*

By WILBER G. FISH, M.D.,
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WHEN may a county medical society be said to be successful? The county society has many functions and duties to perform, and the manner in which it performs these various and varied functions and duties will measure its degree of success.

These various functions and duties have to do with its relations to the state society of which it is an integral part; to its district branch; to the public of its county; to the profession of its county; to its own members as individuals, and to itself as a society.

The county society should take an active interest in the work of the state society; should support it, not only with its money, but if it agrees with its policies should make that fact known by whatever action is necessary to aid the state society in carrying out these policies; and if it disagrees, should also make that fact known. It should elect live-wire delegates and, if necessary, give these delegates live-wire instructions. In this way only can the county society take its rightful place as an integral part of the state society.

The duties of the county society in its relations to the district branch consist, to a large extent, of a willingness to assume its share of the work, both as a society and as individuals.

What are the duties of a county medical society to its local community?

It should take an active interest in, and lend its moral support to such things as the public health work in the county. All health officers should be members and at least one meeting of the society each year should be conducted by them. Public health measures to prevent and control tuberculosis should receive its active and moral support. If there is a county tuberculosis hospital the medical society should have one or more members on its board of managers, and the superintendent should be a member of the society. The society should take an active interest in its management and the results obtained and should actively support measures for its betterment.

If certified milk is sold within the county the county medical society, through its milk commission has control of it, and this control should be so exercised that both the producer and the consumer is properly protected.

The county medical society should give its active support to such public health measures as the better babies movement, the prevention of blindness in children, etc.

The duty of the county medical society to the profession at large in the county is, in a few words, to make the society of such practical value that each member of the profession can plainly see that he cannot afford not to be a member.

Perhaps the most vital duties of the county medical society are those which relate to its members, and in this respect it is seemingly impossible to divorce the duties of the society to its members and the duties of the members to the society. A society is composed of members and members comprise the society.

The society should provide for its members a means of increasing their professional knowledge. Its meetings should be a professional clearing house where each member contributes something of value to the general good and from which each member may secure something of value to add to that which he already has; and each member should willingly contribute of his knowledge for by this means only can each add to his store.

The society should conduct its affairs in a business-like and dignified manner, and its officers should see to it that each meeting shall have something of interest to offer.

The members should encourage the officers in the proper discharge of their duties by attendance at the meetings, even at some sacri-

* Read at the Annual Meeting of the Medical Society of the County of Tompkins, Ithaca, December 19, 1916.

fice of time and convenience if necessary. No society can continue to be of use to its members if those members persist in spending the evenings of the meetings some place else. The society needs the active interest of all its members if it would hope to make those members feel the active need of the society.

It is very difficult to answer definitely the question with which I started: "When may a county medical society be said to be successful?"

Any county medical society which continues to exist may be said to have a measure of success, as, in order to exist at all it must have fulfilled some, at least, of the mentioned qualifications. But, to my mind, the county medical society which achieves the largest measure of success, is that society, large or small, all of whose members are in complete accord, rising above all petty personal or professional differences, working together harmoniously in and for the society.

In doing this the society as such receives a great benefit, but the greater benefit must inevitably be received by the individual members.

ECONOMIC FOUNDATIONS FOR HEALTH.*

By BENJAMIN C. MARSH,

Executive Secretary, New York Congestion Committee,

NEW YORK CITY.

PHYSICIANS, like policemen, are often asked to be substitutes for just economic and industrial conditions. While individual and personal delinquency is often a factor in sickness, most practicing physicians can testify that in a large percentage of the cases in public clinics and hospitals insufficient nutrition and bad housing and working conditions are the chief factors in producing disease.

We may frankly admit that the present season is a seeming exception to this condition because we have a fictitious prosperity based upon profits made from the war. The war, however, is being largely financed by borrowed capital, which will inevitably involve a reaction at the conclusion.

Can physicians hope to nationalize health by the use of drugs, and surgical operations or by hospital and institutional care? The answer seems evident. They cannot.

Next to their interest in materia medica, physicians, it seems to me, should interest themselves in economic reform. The testimony of medical men as to the effects of fatigue was the deciding factor in securing legislation limiting the hours of work for women in Oregon, and in obtaining the decision of the Supreme Court of the United States upholding the constitutionality of the law. The help of every physician is needed to perform the operation of cutting out privilege and exploitation in this country.

A brief summary of economic conditions will show some of the changes which are imperative. The United States Commission on Industrial Relations reports that while the wealth of this country, between 1890 and 1912, increased from sixty-five billion dollars to one hundred and eighty-seven billions, or 188 per cent; the aggregate income of wage-earners in manufacturing, mining and transportation increased, between 1889 and 1909, only 95 per cent.

It states that the most exhaustive investigation ever made showed that the incomes of almost two-thirds of the wage earning families (including earnings of father, mother and children) were less than $750 a year, of almost one-third were less than $500. The Commission states, after analyzing the data, "These figures show conclusively that between one-half and two-thirds of these families were living below the standards of decent subsistence, while about one-third were living in a state of abject poverty."

Incidental conditions are mentioned by the Commission, as follows: 79 per cent of the fathers of wage-earning families earn less than $700 per year. Therefore, less than one-fourth of these fathers could have supported their families on the barest subsistence level without the earnings of other members of the family. Thirty per cent of the families kept boarders and lodgers. In 77 per cent of the families two or more persons occupied each sleeping room, in 37 per cent three or more, and in 15 per cent four or more persons.

The Commission states: "The death rate of babies, whose fathers earn less than $10 per week is 256 per 1,000, while those whose fathers earn $25 or more per week die at the rate of only 84 per 1,000. Thus the babies of the poor die at three times the rate of the fairly well-to-do."

In the families of the workers 37 per cent of the mothers are at work and consequently unable to give the children more than scant attention.

The New York Congestion Committee has endeavored, during the present year, to secure the enactment of legislation for New York City to abolish the worst type of cellar dwellings by requiring the same standard for cellars in old law as in new law tenements, the most important stipulation being that the ceiling shall be at least four and a half feet above the street or ground adjoining. The Congestion Committee has also sought the enactment of legislation empowering the Tenement House Department of New York City to vacate rooms or apartments in tenements that are so defective in lighting and in means of escape in case of fire as to be a menace to life and health. Both of these measures were defeated in the Legislature at Albany by powerful real estate interests who have for years controlled the Legislature.

* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

The frightful housing conditions existing in New York City and most large American cities are well known to all physicians who practice among tenements and poorer districts of the cities. We waste in this country, every year, about three hundred thousand lives from preventable diseases, chiefly from tuberculosis, typhoid fever and similar diseases.

The United States Commission on Industrial Relations enumerates the following causes of industrial unrest:

"1. Unjust distribution of wealth and income.

"2. Unemployment and denial of an opportunity to earn a living.

"3. Denial of justice in the creation, in the adjudication and in the administration of law.

"4. Denial of the right and opportunity to form effective organizations."

The following facts are given in official reports of the government or estimated upon the basis of relative figures:

One or two per cent of the city's population own the major part of the value of land in large cities.

In 1910, nearly one-fifth of the acreage of farm lands in the country was held in tracts of one thousand acres or more, while over one-third of the farms were less than fifty acres.

Commissioner Davies, of the late Bureau of Corporations, reported in 1914, that 1,694 timber owners hold in fee over one-twentieth of the land area of the United States, from the Canadian to the Mexican borders—a total of 105,000,000 acres—while sixteen holders own nearly half of this or 47,800,000 acres.

The United States Steel Corporation controls about 60 per cent of the available Lake Superior ores, the chief ores of the country, and about 1½ per cent of the stockholders of the United States Steel Corporation own 57 per cent of the stock.

The known Standard Oil concerns marketed in a recent year, 88.7 per cent of the illuminating oils.

Most of the anthracite coal of the country is located in four counties in Eastern Pennsylvania, the ownership of which is concentrated in a few hands, who also are the controlling factors in railroads distributing coal.

The Secretary of the Treasury shows that in 1914, sixty taxpayers had a net taxable income of over $1,000,000, with an aggregate income of $127,643,766; 7,509 persons (each one of whom received an income of at least $20,000) received in 1914 a net taxable income of nearly $1,000,000,000, or approximately one-twentieth of the total income of the country, which is about $20,000,000,000; 357,515 persons received a total income of nearly $4,000,000,000, or about one fifth of the total national income.

The concentration of income is due primarily to the concentration of income producing property and widespread privilege. The most important and fundamental privilege is that of monopolizing land. There cannot be any nationalization of health till land monopoly is broken up and there is no way to do this except by much heavier taxation of land values.

It is true that the death rate from certain diseases has been reduced materially within the last few years, but we seem to have reached a standstill practically, and any further reduction is going to cost more than in the past.

Medical prophylaxis has been largely directed to individual causes of disease and poverty and not to those fundamental economic causes over which the individual has no control, as an individual, and for which he cannot be held responsible, except to the extent in which he fails to use his vote wisely. It is my conviction that we cannot abolish these economic causes of poverty until we get more direct political action, except through a thorough campaign of education, and by increasing that independence in voting, the growth of which is one of the most encouraging signs in our political development.

A number of suggestions have been made for changing these conditions, most of which would fall far short of achieving the results desired. They should be enumerated, however, in any program for economic freedom. Shorter hours of work, providing safe conditions for factory workers, restrictive legislation to insure better housing (such as closing dark rooms and prohibiting cellar dwellings), city planning, social insurance against sickness and accidents, pure food laws and general medical examination and treatment. While these measures are essential and part of a program for the nationalization of health, they are not the most fundamental measures, nor will they be efficacious.

The tendency of restrictive legislation is to increase the cost of living and to defeat measurably the object of the legislation.

It is absolutely essential to secure for the people the values they produce, and to limit the field for private profit to business in which there can be competition. By far the most important measure upon which most of the other measures must depend for their fullest usefulness and effectiveness is the breaking up of monopoly in land and the natural resources therein and thereon. This will be achieved only by taxing land values heavily and abolishing taxes on improvements and on all products of labor. A few figures will indicate the bearing of land values taxation on securing economic freedom and improving the status of the workers of the country.

The present selling price of farm land is approximately $41,000,000,000, of urban land approximately $24,000,000,000, a total of $65,000,000,000. The ground rent, calculated at only 6 per cent on the present selling price is $3,900,000,000. Of course, not all the farm land nor all city land is actually improved, but the major

part thereof has some improvement or is used for some purpose, though not to its fullest capacity. The total taxes on land values for all purposes do not exceed $750,000,000, or a little over 1.1 per cent, on the average, although in some cities the tax rate is over 2 per cent, while in some rural districts it is decidedly under 1 per cent.

The total cost of government, federal, state and local, is, in round figures, $3,000,000,000, distributed as follows, and based upon the expenditures for 1913 in most instances: Expenditures for Federal Government, $742,000,000, exclusive of post office expenditures; expenditures of states, $410,000,000; expenditures of incorporated places, $1,390,000,000; expenditures of counties, $395,000,000; expenditures of villages $23,000.000. These expenditures are, however, constantly increasing. Until three years ago, the Federal Government derived all of its income from indirect taxes, *i. e.,* taxes on consumption.

As Prof. E. R. A. Seligman states in his book, "The Income Tax": "A tax on expenditures necessarily becomes an increasingly heavy burden on the least wealthy classes."

There are only three kinds of taxes which cannot be shifted to the consumer of the goods or user of the service taxed. These are taxes on land values, taxes on incomes and taxes on inheritances. The total revenue from the individual income tax in 1915 was $41,046,000, while in 1913 the total revenue from inheritance taxes for state purposes was $26,470,000. Most revenue for state and local purposes is secured from indirect taxes, which fall most heavily upon those of small incomes. It is most conservative, therefore, to state that nearly three-fourths of the total cost of government for current expenditures comes from the workers of the country and from those least able to pay. It has been estimated that our present system of taxation costs every family, on the average, either directly, or through the higher prices charged because of the tax system, approximately $180. The wealthiest people of the country pay not over 12 to 14 per cent of their incomes, even including the 7 per cent federal income tax on the excess over $500,000 net taxable income. The tax system costs many poor families as high as one-seventh to one-fifth of their total earnings.

Heavy taxation of land values would reduce the unearned profits of land owners, and to the same extent reduce the present charge on the workers of the country, while also reducing the rentals which they must pay, if tenants.

Some of the advocates of heavier taxation of land values are:

The chairman and all labor members of the United States Commission on Industrial Relations, which recommended: "The forcing of all unused land into use by making the tax on non-productive land the same as on productive land of the same kind, and exempting all improvements."

Surgeon General William C. Gorgas, who says: "Sanitation in my mind has been very closely associated with single tax. I am a single taxer, I think, because my life work has been that of sanitation. Sanitation is most needed by the class of people who would be most benefited by the single tax. That poverty is the greatest single cause of bad sanitary conditions was very early impressed upon me."

Nine members of the New York City Committee on Taxation endorsed the principle of transferring taxes from buildings to land values. Dr. Robert Murray Haig, the investigator for this committee, stated: "The change promises ultimate benefits of considerable importance to all tenants and to many of the home owners in the outlying boroughs."

The American Federation of Labor, the New York State Federation of Labor, the two central labor bodies of New York City and scores of locals endorse untaxing improvements.

The New York State League and the Metropolitan League of Saving and Loan Associations have endorsed untaxing buildings.

The most feasible way to get taxation of land values is gradually to transfer taxes now levied on buildings to land values. For several years a bill to submit to a referendum this change in the tax system for New York City has been before the Legislature and has been defeated because the Legislature is controlled by the real estate interests. It is true that this change merely for New York City, or even for New York State alone, would not reach the wealthiest people of the country who live in New York City, but who have investments in mineral land, railroads, farm land, urban land, oil fields, etc., throughout the country.

The proposed tax measures, before Congress, are therefore of interest because the only way, immediately effective, to reach unearned incomes is through a rapidly, progressive federal income tax, or through a federal inheritance tax.

As Prof. Seligman has also stated: "If wages are sufficient for a bare minimum of subsistence, then to encroach upon this minimum by taxation is to require the minimum to be maintained in some other way. If the laborer can no longer live on his wages he must be supported by a system of poor relief, if he is to live at all."

Taxation is, it will be apparent, a most effective method for redistributing national wealth, since health is determined in appreciable and even large measure by income, the question of taxation is of direct interest to every physician.

The medical profession has given ample evidence that it is more interested in preventing disease than in curing it. It is for this reason that I have stated the economic issue of taxation as

fully as I have done, although realizing that such presentation is somewhat different from the discussions of a technical medical nature, to which you must necessarily give most of your attention.

Another factor of importance in the family budget is expenditures for carfare, for gas and electricity.

At present we farm out these natural monopolies to private corporations for profit. It is inconceivable that a few years hence we shall permit private corporations to make from 6 to 16 per cent net profit on these necessities in all cities. As has been clearly shown the ground rent of the country is amply adequate to meet all cost of government and leave a surplus of enormous profits to land owners. In cities it is apparent that all municipal expenditures benefit financially only one class of citizens — land owners—who constitute a very small proportion of any large city's population. Taxation of land values it, therefore, an ethical as well as a medical question. As such it must appeal to all physicians.

ON THE IMPORTANCE OF DIAGNOSIS TO VITAL STATISTICS WITH SPECIAL REFERENCE TO THE CANCER PROBLEM.

By JOSEPH S. LEWIS, M.D.,

BUFFALO, N. Y.

(A contribution from the State Institute for the Study of Malignant Disease.)

THE present bewildering condition of *cancer statistics is due in great measure to the fact that so much is written with an effort to compel the acceptance of some pet theory, whereas anything more positive than a statement of opinion is to throw the dust of controversy over a subject all too obscure to grant the right to positive conclusions. As far as statistics go the question calling most importunately for an answer is whether or not cancer is increasing. On this everyone will agree that if all cancer deaths are duly reported and counted, and no diseases not cancer are wrongly included under cancer, then figures do not lie. Then we are steadily approaching the time when cancer will hang over every person beyond middle life like an inevitable doom certain to strike in time. On the other hand if the figures are defective how nearly do they state the truth?

The tabulated deaths from cancer are after all not in themselves cancer deaths but only the enumerated statements taken from death certificates. There are reasons why these death statements are often untrue or at best half true. Moreover many physicians are still unconvinced or uninformed as to the ultimate value of death certificates. In the beginnings of the more elaborate modes of certification many, perhaps most, physicians considered the death certificate an annoyance incommensurate with results. Any conscientious registrar of vital statistics can testify to the great burden of extra work formerly needed to get intelligible certificates. This was due in small part to ignorance or inexperience but very largely to apathy. A physician may have done all possible for the comfort and the ultimate cure of a patient sick unto death, and at the end have a definite mental picture of the case; but asked to put the contributory and final cause tersely in writing he will often be sorely puzzled. The death certificate means, furthermore, an unrequited mental effort irksome to the physician. After an encounter with the vital statistician of the health department he soon learns to put down his causes of death in such a way as to satisfy legal requirements. In any disease of long standing (this is especially true of cancer) there is usually one, probably several, terminal diseases which will serve well enough for a death certificate if the original ailment has been obscure, e. g., terminal pneumonia, myocarditis, nephritis, etc. A physician who might formerly have written "Heart Failure" will now write, for example, "Myocarditis" and in truth he may be no nearer the mark than before.

Out of the 150,000 odd deaths a year in New York State the proportion correctly certified is sufficiently large to make the value of the compilation worth more than the labor and expense. This is especially true of zymotic diseases. But there are certain given causes of death proper and according to law but which are possible hiding places for cancer. The following list, selected from the table of deaths by cause in New York State for 1910, gives those causes most likely to conceal cancer. There are other such causes but they occur in such small numbers as not to call for consideration:

Dysentery	395
Abdominal Tuberculosis	1,125
Paralysis without specified cause	1,144
Organic Disease of the Heart	12,155
Embolism and Thrombosis	523
Broncho-pneumonia	7,248
Ulcer and Other Diseases of the Stomach (not cancer)	1,190
Intestinal Obstruction	537
Cirrhosis of the Liver	1,801
Bright's Disease	9,711
Diseases of the Prostate and Bladder	663
Old Age	1,951
Ill defined	1,231
	39,674

Out of these 39,674 deaths how many were cancer deaths? Of the 7,522 cancer deaths for

* The word cancer is used in this article to mean malignant new growth.

the same year how many properly belonged in one of the above list of causes? In doubtful cases, as those in the enumerated classes are apt to be, would the average physician toss his diagnosis among the 39,674 to meet an outspoken symptom, would he decide for cancer, or would the errors both ways counterbalance, and give an approximately correct result?

When we have weighed the fallacies inherent in the frequent impossibility to diagnose correctly without autopsy, we are still confronted with the factor of the *willingness* or *unwillingness* of the physician to give more than a passing thought to this the death certificate; enough to get it past the registrar. This last source of error naturally diminishes with the growing appreciation in the medical profession for vital statistics, resulting in a gradual development of greater care in certification. With this improvement the total number of the definite causes of death must increase at the expense of the indefinite ones. The definite causes are those easily determinable by accepted methods other than physical examination alone, or by an unmistakable symptom complex. The indefinite causes are such as can by nature or circumstances be confirmed only by autopsy. The gradual decrease in certain preventable or curable epidemic diseases is universally admitted. This is the more certain in that the decrease occurs, as in diphtheria, in the face of vastly improved and increasingly used facilities for discovering the disease. But then there are certain diagnoses which have no existence save in theory, e. g. "Old Age" and the group, "Ill defined causes." They continue on the records because certificates are still sent in with such returns. The very existence of these diagnoses in formidable numbers calls into question the exactness of figures for admissible diagnoses. The number of proper diagnoses must of course be swelled by every reduction in the number of improper or inadmissible diagnoses. Another source of error is the loss by duplication whether of cancer or any other disease. What of a man with cancer of the prostate and diabetes? He is likely to die of either or both, but he will be recorded to have died of what the physician discovered or laid stress on and in either case the unrecorded cause is lost or rejected, for to set down both would be to record two deaths for the one man.

It may be tempting to maintain, inasmuch as cancer is on the increase *pari passu* with greater precision of diagnosis, that it is a true increase because physicians less frequently call a disease cancer which is not, and still the diagnosis is more frequent. It will be seen later that the error as far as can be ascertained is rather in calling cancer something else than in labeling another disease cancer. Mortality statistics have the advantage of finality. A disease ending in death is usually more easy to diagnose, especially when autopsy takes place, than one ending in recovery. This is pre-eminently true of cancer, in which the diagnosis may sometimes be confirmed by the very fact that the patient did not recover. This too might unduly swell the cancer total, but then where there exists any doubt it is only natural to set down an ambiguous conclusion. Statistics must grow more reliable as diagnosis improves, but no truly satisfactory results will be obtained until a paternalistic government shall require the performance of an autopsy on every person that dies. I refer to these United States. Why should the privilege of contributing post-mortem to the value of death certificates be reserved as a rule for a part of the inmates of municipal hospitals, to presidents, and to murderers? The body of the prince must be autopsied, so too, if the case be interesting, is now and then the body of the pauper destined for the Potters Field. The rest of mankind must needs disintegrate by fire or by decay and be munched by the humble worm, but let it not be so much as scratched by the knife of the seeker after the true cause of death. The feeling against autopsy is of course mere sentiment like fear of rats or snakes and is subject to proper control. Pure sentiment should not be permitted to hinder so great a common good.

We have considered the willingness of physicians to take pains in assigning the cause of death. Now what of their ability? That the medical profession often hits beside the mark in diagnosis of the cause of death is something very hard to prove because there are very few figures in point. If the physician buries his errors of treatment how many more mistaken diagnoses are buried where treatment has been above reproach and no suspicious circumstances demand greater precision in the death certificate? After an error is once certified only the positive error may, without enormous labors, be corrected. For example, if a study is made of cancer deaths and a death certified as cancer proves on inquiry to have been a mistake it can be stricken out. But if a cancer is certified as something else it so remains, hidden under a misleading title. Where diagnosis is confirmed by a laboratory test, such as in diphtheria, diabetes, and typhoid fever, an autopsy is not so much needed, but of all cases which are buried with the diagnosis hidden in the head, chest, or abdomen, the resultant figures are not after all statistics but a summary of probabilities weakened by numerous sources of error. The only figures at hand given with any detail on cancer bedside diagnosis in equation with subsequent autopsy are those of Cabot, *Journal of the American Medical Association*, December 28, 1912, and a similar study reported by Bashford in "The Imperial Cancer Research Fund," report No. 2, Part I, 1905, (London). From these two unconnected sources the following tables are made up.

Diagnostic Table.

	Cancer of	Successful	Proved to be Cancer, not diagnosed (missed)	Proved to be something else not Cancer
Bashford & Murray	Colon	51%	49	0
(Diagnosis before	Stomach	71%	29	0
autopsy)	Oesophagus	70%	30	0
Cabot—	Colon	74%	26	?
(Diagnosis before	Stomach	72%	28	?
autopsy)	Oesophagus	75%	25	?
Bashford & Murray	Colon	80%	20	0
(Diagnosis before	Stomach	90%	8	2%
operation)	Oesophagus	95%	5	0
Reichelman	Carcinoma	78%	22%	?

Here the diagnosis has in every case been proven. In the average death certificate where the diagnosis is proven in only the small minority of cases it may be presumed that the errors preponderate in the same column as above. When something called cancer proves otherwise there enters a factor which artificially raises the cancer death rate and vice versa. The factors either intensify the error in the result or counterbalance, tending to a correct average. The following table makes the difference clear. The first column represents the fact, the other columns the error as presented in the mortality returns.

Actual Cancer Deaths	Statistical Cancer Deaths			
	Correct	So-called something else actually cancer	So-called cancer actually something else	Result
75	50	25	25 =	75
75	50	25	0 =	50 (rate too low)
75	75	0	25 =	100 (rate too high)

Hospital statistics and general returns with autopsy or microscopic diagnosis, reported after the death certificate was written, increase column 3. Statistical inquiry in general, applying to cases exclusive of those just named, results in an increase of column 4 when such later inquiry renders very doubtful or disproves the death certificate. Inquiry into these latter cases gives nothing under column 3 because any cancer occurring there is lost to the inquirer by being called something else. All available statistics bring evidence to the effect that at present column 3 is always the greater so that our actual cancer death rate is constantly under-stated rather than over-stated. Granting that this is true, it is reasonable to expect that improvement in statistics and diagnosis should result in an *increase* in the statistical cancer death rate, not a decrease. What is the present status of "so-called cancer"? We find in returns to the cancer inquiry throughout New York State that there are a few cases where investigation has disproved cancer, but these returns are far below the probable proportion of misses as deducted from the post-mortem tables quoted before. Most clinicians and all pathologists agree that the cancer increase is, at least in part, only apparent. What of the disputed remainder of the increase? This question can be answered positively only when every doubtful death is submitted to autopsy (Horst Oertel *Journal of the American Medical Association*, June 7, 1913). It can be answered with greater certainty than it now is, when the clinicians of our large hospitals can agree to have their diagnoses, as well as their lost cases, scrutinized in the post-mortem room. It is one thing to make loose statements previous to section, but to be of any value as a test for statistical validity of the diagnosis it must be written just as it would be for the report to the health department. Another contribution has been devoted to some peculiarities of the cancer death rates of this and other countries which seem to call into question the apparent increase in cancer mortality.*

* J. S. Lewis, *Jour. A. M. A.*, Oct. 23, 1915.

Announcements

An Appeal for More Members of the Medical Officers' Reserve Corps, U. S. Army.

If it is found necessary to increase our regular army forces, the U. S. Army will require a large number of medical officers to carry on the necessary work of examining recruits, as officers of volunteer regiments to be formed, as officers of ambulance companies, base hospitals, etc. The members of the regular Medical Corps of the Army, on account of their small number, will all be required for instructive and sanitary work, for which their long training has fitted them, so that it will be necessary to call on the members of the medical profession of New York and all over the United States to help.

A Board of Officers of the Medical Officers Reserve Corps of the United States Army will be in session at the New York Academy of Medicine, 17 West 43d Street, every week day except Saturday from 3 to 5 P. M., to examine candidates for appointment in the Medical Officers Reserve Corps of the Army, and explain the details of the work they may be called upon to do.

J. Herbert Lawson,
Secretary.

Women's Medical Society of New York

The Eleventh Annual Meeting of the Women's Medical Society of New York State will be held Monday April 23, 1917, at the Hotel Utica, Utica, N. Y. An interesting scientific program has been arranged for the morning and afternoon sessions and in the evening the annual banquet will be held.

The date and place of meeting has been chosen to enable the members of the Society to also attend the annual meeting of the Medical Society of New York State.

Medical Society of the State of New York

NOTES BY THE SECRETARY.

A MESSAGE TO THE MEMBERS AND COUNTY SOCIETY OFFICERS.

I wish to write this month upon the question of delayed payment of dues. The County Society dues and the State Assessment are due on January 1st. Five months of grace are given for payment. Members who have not paid by June 1st become members "not in good standing." More than 1,600 such members are placed upon the list every year. In many cases there are adequate reasons for non-payment, such as illness, absence, or financial embarrassment. Other cases are due to negligence. I am convinced, however, that in a large number of cases the member does not realize that it will make any particular difference when his dues are paid, if they are paid by December 31st. For this reason I propose to explain in detail the expense and trouble which delayed payment causes the County Societies and the State Society, and also the personal disadvantages it brings to the members.

Omitting the steps which must be taken by the County Society when a member defaults in dues on June 1st, two steps must be taken by the State Society:

1. His card must be removed from the general list and placed in the list of members not in good standing.
2. His stencil must be removed from the addressograph and placed in the proper receptacle for preservation.

When he pays his dues the following five steps must be taken in the Secretary's office:

1. His card must be removed and placed in the list of members in good standing.
2. His stencil must be placed in its alphabetical position in the addressograph.
3. A JOURNAL for each month from June to the time of his payment must be wrapped and addressed.
4. After the first of October the same process must be taken for the Directory.
5. The JOURNALS and Directory must be sent to the Post Office by special messenger. During the rush of the last weeks of the year an expressman must often be employed. In the regular routine JOURNALS and Directory are sent direct from the printing office in bulk at comparatively small expense.

Four distinct disadvantages accrue to the member who delays the payment of his dues:

1. He has the consciousness that he is not in good standing in the County Society or the State Society and is so listed on the records of each society.
2. He does not receive the publications of the State Society.
3. He cannot be defended if suit is brought against him for malpractice. The delay in receiving notice from the State Secretary, in paying his County Treasurer and its tranmission to the State Treasurer may be very detrimental to the success of his defense.
4. He cannot legally hold any office or position in his County Society. Election to office of a member in arrears for dues is illegal and is not made legal by subsequent payment, as I explained in the March number of the JOURNAL.

All this work on the part of the State Society is outside of its activities and is in large part unnecessary and a waste of money. The amount of extra help required, correspondence, stationery, and postage causes an expense of several hundred dollars which might be saved for carrying on the activities of the Society, were the members more punctilious in the payment of their dues.

One other point is to be mentioned. Every year the whole membership of two or more County Societies is placed in the list of members not in good standing, because of the remissness of their County Treasurers in making their annual reports. Members should understand that when a Treasurer fails to properly report in June every member of his Society who has paid his dues to him suffers the disadvantages which I have just enumerated. It is proper that the members of a County Society whose Treasurer is thus remiss should bring him to book for placing them and their Society in so unfortunate a position.

I have spoken thus plainly and in detail that the members may fully understand that delay in the payment of dues is really a matter of serious importance both to themselves and to their Societies.

F. M. C.

MEETING OF THE COUNCIL.

A meeting of the Council of the Medical Society of the State of New York was held in Ithaca, March 3, 1917, at 9 A.M. Dr. Martin B. Tinker, President, in the Chair. Dr. Floyd M. Crandall, Secretary.

The meeting was called to order by the President and on roll call the following answered to their names: Drs. Martin B. Tinker, Floyd M. Crandall, Alexander Lambert, James F. Rooney, Samuel J. Kopetzky, James E. Sadlier, Alvah H. Traver, Arthur W. Booth, Wm. Mortimer Brown, and Albert T. Lytle.

A quorum being present Dr. Tinker announced the meeting open for business.

The minutes of the last meeting were approved as printed in the NEW YORK STATE JOURNAL OF MEDICINE.*

It was moved, seconded, and carried that the names of the health officers be designated by some distinctive sign in the next edition of the Directory.

A verbal report was made by the Treasurer and accepted.

Whereas, the tentative agreement between the Medical Society and Insurance Companies regarding the fee bills for services to be rendered under the Workmen's Compensation Act was to continue only one year and terminated in July, 1915, and was repudiated by the House of Delegates, Therefore be it RESOLVED, that

1. The Council again repudiates any fee bill published by the insurance companies.
2. That the Council notifies the profession, through the JOURNAL and the public press of this action.
3. That the Workmen's Compensation Commission also be informed of this action.

It was moved, seconded, and carried that the Chairman of the Legislative Committee be instructed to oppose the introduction or passage of any legislation amending the Public Health Law in relation to the practice of medicine.

It was moved, seconded, and carried to rescind the resolution passed on December 9, 1916, which reads as follows:

"Therefore be it resolved, That the Council of the Medical Society of the State of New York, considering that these essentials safeguard the public interest, the public health, and the welfare of the medical profession, hereby endorses and approves the *Medical Provisions* of the *tentative* draft of the Compulsory Health Insurance Act, and instructs its Committee on Medical Economics in conjunction with its Committee on Legislation to act in accordance with these resolutions."

It was moved, seconded, and carried that the Medical Society of the State of New York opposes the passage of any measure proposing to institute a system of Compulsory Health Insurance in the State of New York, and that its Committees and Officers be instructed, in accordance with this resolution, to appear at any and all legislative hearings in opposition thereto, and that this opposition should be stated to be based upon the grounds of insufficient understanding and education of the profession and public upon this question at the present time.

It was moved, seconded, and carried that in the event that a bill to appoint a commission be introduced, the official representatives of the Society do not appear for or against it. FLOYD M. CRANDALL, *Secretary*.

* See Vol. XVII, No. 1, page 47.

The Utica Meeting

Greeting.

TO you, the members of the Medical Society of the State of New York, to your wives and your daughters, yea also to your husbands, the City of Utica and the Medical Society of the County of Oneida extend greeting.

To you all we offer the freedom of the city and the hospitality of our citizens. To the members we offer scientific sessions worthy of attention. To your fair companions we promise a round of amusements which we hope will convince them that meetings of the State Society are gatherings never to be missed.

So come ye one and come ye all. Pack your grips and your wives' Saratogas, and, by automobile, by train and by trolley, hie ye to ye ancient City of Utica. Come Tuesday morning and stay until Thursday afternoon. By so doing you will miss nothing.

Our History.

The land on which Utica is built originally belonged to the Oneida tribe of the Iroquois Indians. In 1734 it was granted by King George II to William Cosby and became known as Cosby's Manor. On the main trail from Albany to the Great Lakes, near the head of navigation of the Mohawk River, it was frequented by Indian hunters, by trappers and by fur traders.

In 1758, during the French and Indian War, a chain of forts was erected connecting Schenectady with Fort Stanwix.[1] One of these was built to guard the ford of the Mohawk at the point where the trail for the Oneida Long House branched from that to Lake Ontario and Canada. This was called Fort Schuyler in honor of Colonel Peter Schuyler.[2] After the war, with the French menace from Canada removed, and the Indians friendly, the fort fell into disuse and decay, but nevertheless served as a resting place for the army of General Nicholas Herkimer when his small force returned from the bloody field of Oriskany. This battle, the site of which is marked by a monument, seven miles west of Utica, is considered by many historians to have been the crucial contest of the Revolutionary War. Here Herkimer, with his raw recruits, drove back the Indians and Tories under Brant and Butler, caused the relief of the siege of Fort Stanwix, and stopped the advance of the British under St. Leger, down the Mohawk Valley to effect a junction with Burgoyne at Albany and to split the Colonies in half. Oriskany, by frustrating this plan, made Saratoga possible. The turning point of the Revolution was Oriskany, not Saratoga. A quaint poem describing his experiences in the battle, his capture by the Indians, his narrow escape from the tomahawk after being stripped of his clothing, was written by Dr. Younglove, one of the surgeons with General Herkimer's Army.[3] For the lover of history a pilgrimage to the battlefield of Oriskany is an inspiring experience.[4]

The earliest white inhabitants within the boundries of what is now Utica consisted of three Dutch families who settled Deerfield, the district north of the Mohawk,[5] shortly before the Revolution. Driven out by hostile Red Men, they later returned, and their descendants, the family of Weaver, are today the prominent inhabitants of that district of the city. In 1787 there were but three log houses near the site of the old fort, but from them

Oriskany Monument.

Dr. Alexander Coventry.

[1] Rome.
[2] The site of this old fort is marked by a tablet and three cannon. It is located at the foot of Park Avenue, eight minutes' walk from the Armory.
[3] This and many other interesting historical relics may be seen at the Watson-Williams Memorial Building, three blocks down Park Avenue from the Armory.
[4] Take the Rome car starting on the even hour and half hour from the corner of Genesee and Lafayette Streets.
[5] Deerfield was added to the City of Utica by annexation in 1916.

sprang the settlement of Old Fort Schuyler.

The first physician in the new hamlet was a sturdy Scotchman, Doctor Alexander Coventry, who arrived in 1796 and by his ability and personality rose to be one of the leading physicians of the State of New York. In 1823, he was elected to the presidency of the State Society and re-elected in 1824. A story is told that on one occasion while driving to the meeting of this Society in Albany, he met a teamster on his wagon. There was room for but one on the road and each refused to turn out. After warm words the teamster offered to fight for the road. Dr. Coventry complied, stripped off his coat and was well thrashed. He climbed back into his gig and pulled into the ditch. He then drove on to Albany, but his black eyes and swollen nose prevented his attending the meeting place. His son, Dr. Charles B. Coventry, who succeeded him in practice, also became president of this Society in 1854.

DR. CHARLES B. COVENTRY.

In 1798, the settlement of Old Fort Schuyler became incorporated as a village under the name of Utica.

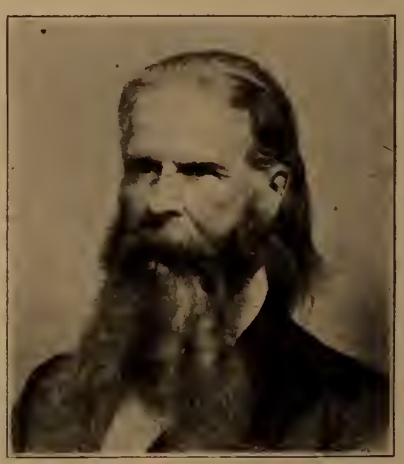
In 1806, twenty-nine physicians of Oneida County met at Rome and organized the Medical Society of the County of Oneida. This meeting was presided over by Dr. Matthew Brown, Jr., who had come to Rome on horseback in 1793. He was the leading physician of the district, and attended at the death bed of Baron Steuben.[6].

The opening of the Erie Canal in 1825 caused the village to take on a rapid growth, and in 1832, with a population of ten thousand it became the City of Utica, at that time the

[6] Baron Steuben spent the last days of his life on land granted to him by the Federal Government in the wilderness in the northern part of Oneida County. His memory is kept fresh in Utica by Steuben Park and the new monument in his honor at Genesee Street and the Parkway.

DR. MATTHEW BROWN, JR.

largest city in the United States west of Albany. The joy of the city in its new dignity was short lived for in the same year the scourge of the Asiatic cholera settled upon it. Panic reigned and one-third of the population fled. Through the actions of a board of health and efforts especially of Dr. John McCall, another remarkable Scotchman, who was appointed health officer, the epidemic was checked after 206 cases and 65 deaths. Fourteen years later, in 1846, Dr. McCall was honored by being raised to the presidency of your Society.



DR. JOHN MCCALL.

Utica State Hospital.

In 1843 occurred the opening of the Utica State Hospital, truly an epochal event in the history of American psychiatry. Under the superintendency of Dr. Amaria Brigham, this, the first state institution for the insane in the State of New York, at once became the fountain head of advanced ideas in the care of the insane. The *American Journal of Insanity*, founded by Dr. Brigham and carried on by Dr. John P. Gray, the leading American psychiatrist of his day and president of the State Medical Society in 1867, and by Dr. G. Adler Blumer, now of the Butler Hospital in Providence, was published within its walls for over fifty years. Utica is proud of the great past of its State Hospital and invites the members of the Society to visit it while in the city.

Utica is well supplied with hospitals, perhaps even over supplied, with its General Hospital, opened in 1858; St. Elizabeth's founded in 1866, and now outgrown its quarters and building a magnificent edifice on upper Genesee Street; St. Luke's, founded in 1867, and moved to its modern building in 1905; Faxton Hospital, opened in 1875, and the Homeopathic Hospital, started in 1895, and this past year moved into its new building on Genesee Street.[7]

Dr. Amaria Brigham.

Dr. John P. Gray.

Saint Elizabeth's Hospital.
Under Process of Construction on
Upper Genesee Street.

Saint Luke's Hospital.

Faxton Hospital.

[7] These hospitals may be reached as follows:
Faxton, St. Elizabeth's, and Homeopathic: By Genesee Street car or auto up Genesee Street.
General Hospital: By car passing Armory or auto out South Street.
St. Luke's and State Hospital: By car on Lafayette Street, marked "Whitesboro," "N. Y. Mills" or "Rome." By auto out Court Street.

The Utica Dispensary, founded in 1870, has in recent years been reorganized and is now said by the state inspectors to be a model of its kind. It is well worth a visit.[8]

The Utica Dispensary.

Five years ago a Baby Welfare Committee was organized. This has grown until it now maintains three permanent stations with clinic and nurse and a prenatal nurse. During these five years the infant mortality of the City of Utica has dropped from 158 to 112.[9]

Description of City.

Utica is a city of about ninety thousand inhabitants located on both sides of the Mohawk River. The city proper rises by a gentle slope from its south bank for two miles to the foot of the sharp range of hills at the southern border. These hills a few years ago were converted into a superb park and presented to the city. This and a number of smaller parks presented to the city at the same time have been connected by a boulevard, the Parkway, making a drive in all of some dozen miles, and forming a semi-circle surrounding the city. The more sparsely settled portion of the city to the north of the Mohawk River rises rapidly to the Deerfield Hills, beyond which are the Adirondack Mountains.

[8] This is located at 224 Mary Street, three minutes' walk north of the Armory

Genesee Street, the chief business and residence thoroughfare and main artery of travel, is part of the old Seneca Turnpike, extending from Albany to Buffalo.

The city is noted for its fine trees, especially its elms. In the summer, looking at it from the hills it looks more like a forest than a busy city. For those interested in eleemosynary institutions there are five orphan asylums and three homes for the aged.

The New York State Masonic Home at the eastern boundary of the city, should be visited by every Mason present.[10]

Masonic Home.

The industry of the city has undergone a marked change during the past score years. Formerly known as a dairying center, it has recently become an active manufacturing city and is now the center of the knit goods industry of America. There are also cotton and woolen mills, foundries, cutleries, and other mills too numerous to mention. One, however, deserves especial mention at this time. This is the Savage Arms Company where the Lewis rapid fire gun is made, the gun which has done more than any other one thing to make the advances on the Somme possible.

The city lies in the center of a country of rare beauty, within a few miles being such renowned spots of scenic charm as Trenton Falls, Richfield Springs, Cooperstown and the Adirondack Mountains, to which it is the chief gateway.

[9] A clinic will be held Thursday morning at 10 at the Faxton Hall Station, Court and Varick Streets, and Thursday afternoon at 2 at the stations at 112 Whitesboro Street and 654 Jay Street. Members of the Society interested are invited to attend these clinics.

[10] Take Bleecker Street car or auto out Rutger Street.

How to Reach Utica.

There is no city in the State of New York so accessible to the inhabitants of the whole state as is Utica. Just two hundred and forty-one miles by state road from New York City, from Plattsburgh and from Niagara Falls, and half-way between Binghamton and Clayton it is in the exact center of the state and is approached in all directions by state highways. It can be reached from practically every point in the state in five hours by train or in a day and a half by automobile. Its railroads are the main line of the New York Central, with its branches, the Adirondack and St. Lawrence, the Rome, Watertown and Ogdensburg and the West Shore, the Lackawanna, and the Ontario and Western. All enter the new Union Station. Trains run practically at every hour of the day or night. Members from New York City or Buffalo may breakfast at home and lunch in Utica.

For those coming by automobile a parking space has been arranged about Steuben Park, opposite the Armory, our headquarters. Autoists note that the ordinance not allowing automobiles to approach within six feet of or to pass a standing street car is strictly enforced. There are garages capacious enough to hold several hundred cars.*

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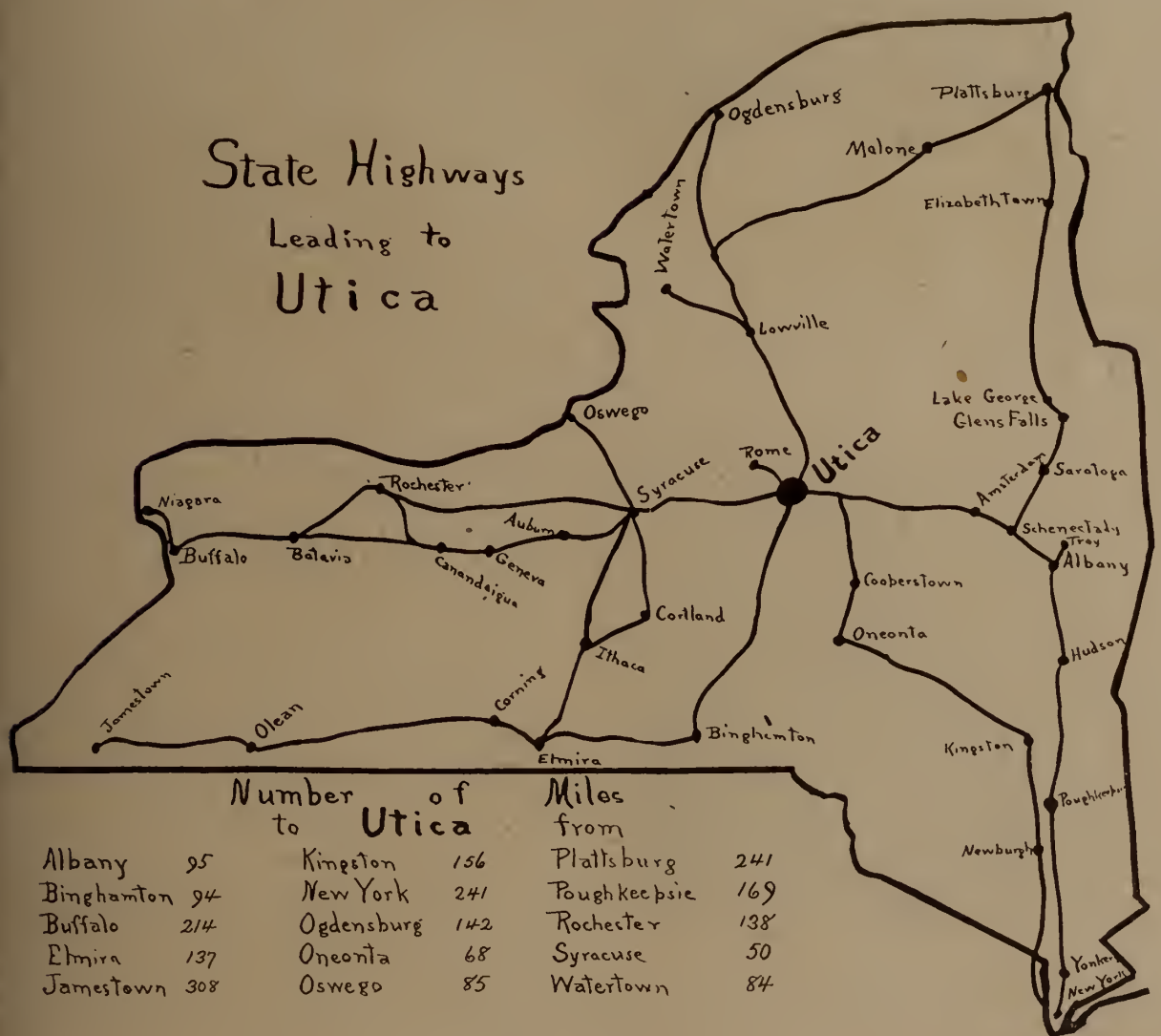
* The chief ones are:
Hotel Utica Garage, 404 Washington Street..... 100
Cronk's Garage, 130 Hotel Street 100
Oneida Square Garage, 1219 Park Avenue..... 25
Besides these there are many smaller garages, a list of which will be on file at the Bureau of Information at the Armory.



Number of Miles to Utica					
Albany	95	Kingston	156	Plattsburg	241
Binghamton	94	New York	241	Poughkeepsie	169
Buffalo	214	Ogdensburg	142	Rochester	138
Elmira	137	Oneonta	68	Syracuse	50
Jamestown	308	Oswego	85	Watertown	84

Arrangements for Meetings.

The meeting places are in the heart of the city, five minutes' walk from the leading hotels, and are grouped within a radius of a hundred yards.

The headquarters, where will be the Bureau of Information, Bureau of Registration, where all are urged to go first, commercial and educational exhibits, the Sections on Pediatrics and Public Health will be in the State Armory. The Sections on Medicine and Surgery will be next door at the Park Baptist Church.

The State Armory and Park Baptist Church.

On Steuben Park. Automobile Parking Space Around This Park.

The Section on Eye, Ear, Nose and Throat will be a short block down Hopper Street at the Coke Memorial Church.

The Coke Memorial Church.

Corner of Hopper and Union Streets.

The Section on Gynecology and Obstetrics will occupy the large auditorium of the New Century Club, one block further down Hopper Street, at the corner of Genesee Street.

The Masonic Temple and New Century Club. Corner Genesee and Hopper Streets.

This grouping is as nearly ideal as can be imagined, and will permit of free intercourse between the various sections.

The House of Delegates will meet in the Hotel Utica and the General Meeting, Tuesday evening, will be held at the First Presbyterian Church, just around the corner on Washington Street.

Hotels.

There are five large hotels in Utica and several smaller ones. The larger ones with their capacity and rates are as follows:

Hotel Utica, 200 rooms, European plan:
Single, $2.00 to $5.00
Double, $3.50 to $8.00
All rooms have baths

Hotel Martin, 200 rooms, European plan:
Single, $1.50 to $3.50
Double, $2.50 to $4.00

Baggs Hotel, 125 rooms, European plan:
Single, $1.00 to $5.00
Double, $3.00 to $6.00

Yates Hotel, 80 rooms, European plan:
Single, $1.00 to $1.50
Double, $2.00

St. James, 125 rooms, American plan:
$2.50 and up.

A list of the smaller hotels and boarding and lodging houses will be prepared by the Utica Chamber of Commerce and can be consulted at the Bureau of Information at the Armory.

Hospitality.

Our meeting places are in the center of the club district, and that Utica will not fall short in its reputation for hospitality is shown by the cordial invitations extended to the members of the Society by the various clubs.

The Masonic Temple, at 251 Genesee Street, next door to the hall in which the Gynecological Section will meet, cordially invites all Masons to make use of their commodious building. This also contains a fine restaurant, which the visiting Masons may patronize and to which they may take their wives.

The Elks extend a similar invitation to Elks and their wives to their fine new clubhouse opened last year at the corner of Charlotte and Mary Streets, two minutes' walk from the Armory.

The Knights of Columbus cordially invite all visiting Knights to their clubhouse, one of the most imposing residences in Utica, located at 307 Genesee Street, next door to the Public Library, two blocks and a half from the corner of Genesee and Hopper Streets.

The Knights of Pythias invite visiting members of the order to their club at 171 Genesee Street.

The Y. M. C. A. will accept the button of our Society as a badge of membership and cordially invites our men members to make use of their reading rooms, gymnasium, swimming tank, bowling, and restaurant. This is located at the corner of Genesee and Washington Streets, a few rods from our place of meeting.

A similar invitation is extended by the Grace Church Men's Club to their clubhouse, with its reading rooms, billiard parlor and bowling alley. This is situated just off Genesee Street at 11 Devereux Street, just behind Roberts' store.

The Arcanum Club, at 210 Genesee Street, with its large restaurant will furnish guest tickets to its members, which will be distributed freely.

On Steuben Park, diagonally opposite to the Park Baptist Church, is located the home of the Republican Club. This building, at one time the handsomest private residence in Utica, was presented to the club last year by the same citizen who gave the park system to the city a few years ago. The parlors of this club will be thrown open to all men members of the Society, regardless of party affiliations.

To the ladies of the Society are extended invitations from three institutions. The New Century Club, in whose auditorium the Gynecological Section will meet, offers you the freedom of their clubhouse and invites you to make it your headquarters.

Three doors below the Utica Court of the Daughters of Isabella, at 247 Genesee Street, invite all ladies, whether members of their organization or not, to make themselves at home.

The Y. W. C. A. with its new clubhouse, reading rooms, rest rooms and complete gymnasium, at 1000 Cornelia Street, a few yards from Genesee and one block above Hopper Streets, also offers the freedom of their buildings to all women members and members' families.

Entertainments.

A special endeavor is being made to provide entertainment for the families of members, and it is sincerely hoped that as many as can will bring their wives with them. From the present outlook, there will be something going on every minute.

The general meeting, Tuesday evening, will be open to all, and promises to be a meeting of note.

The Wednesday evening entertainment at the Hotel Utica, officially known as the "Cabaret" is to be something which nobody should miss. The program is to be kept a secret. It is allowable to say that it will be something entirely different from any entertainment the Society has held in the past, and if you miss this you miss a good thing. Besides there is to be informal dancing afterwards.

During the day time, especially on Wednesday, there will be automobile trips about the city, through the parks, to the State Masonic Home, Hamilton College, and the inspiring Trenton Falls. For the stay-at-homes there will be teas and bridge parties.

So again we urge you to come to the meeting in Utica; come by train, by trolley, by Packard or by Ford. If needs must, walk, but come early and stay late; bring your wives and your daughters, and reserve your rooms in advance.

IMPORTANT DETAILS OF THE PROGRAM.

The program of this year shows an unusual combination of subjects of general interest. While many papers concern common ailments which have been long and carefully studied, papers by men of national authority should help to decide certain doubtful questions.

Therapeutics and Treatment.—A common criticism with considerable justice is that many prominent physicians and clinical teachers are weak on treatment. While all recognize the importance of prevention and diagnosis, the majority of practitioners are chiefly concerned with the treatment of disease, and many will appreciate the work of the officers of the Medical Section in arranging two sessions on Therapeutics and Treatment. The afternoon of April 24th will be devoted to Therapeutics. Vaccine therapy, serum therapy, physiological and drug therapy are to be taken up by men of experience and authority. Another entire session, the afternoon of April 25th, will be given over to the various phases of the treatment of heart disease.

The Symposium on Peptic Ulcer.—Dr. Albert Vander Veer, of Albany, as honorary chairman of the Surgical Section unites with the Medical Section in a symposium on Peptic Ulcer.

While this subject has been repeatedly thrashed out at medical meetings, the speakers on the practical pathology, symptomatology, X-ray diagnosis, medical and surgical treatment will give an authoritative statement of our present position regarding this important condition. A large number should be glad to hear the well-known writer, clinical teacher and practical surgeon, John B. Deaver, of Philadelphia, who will discuss the surgical treatment.

Glands of the Neck on Children.—The Surgical Section also unites with the Sections on Pediatrics and on the specialities in a symposium on Glands of the Neck in Children. Papers on Diagnosis, on the Relation of Nose and Throat to Cervical Adenitis and the Relation of the Teeth, the X-ray treatment and the indications for removal insure a symposium of very unusual interest and value.

Every Day Obstetrics and Gynecology are the subjects of the greatest importance to every general practitioner as well as to the specialist. The gynecologists and obstetricians participating in the discussions will present these subjects in a masterly manner.

Efficiency in Surgery.—In these days when so much is said of efficiency in all lines of work, the paper by Efficiency Engineer, Frank B. Gilbreth, of Providence, R. I., with motion pictures of surgeons at work proving the need of drill and time-saving methods, should prove of great interest.

Syphilitic Lesions of the Eye, Ear, Nose and Throat.—Every practitioner in every line realizes how common the syphilitic lesions are and how frequently unrecognized. In addition to excellent papers by our own members, the specialists will be interested as well as the general practitioners to hear Dr. William Campbell Posey, of Philadelphia, speak on the "Luetic Lesions of the Eye," and Dr. Joseph C. Beck, of Chicago, on the "Luetic Lesions of the Nose and Throat." The moving picture demonstration of the value of routine examination of the labyrinth by Dr. Jones, of Philadelphia, should also prove of much interest.

Practical Study of Feeble-mindedness.—In addition to the valuable program of the Section on Pediatrics, the automobile trip and visit to the New York Custodial Asylum at Rome is a feature, the practical importance of which should not be overlooked. Feeble-mindedness and idiocy can and should be more effectively controlled; its problems force themselves upon every medical man in every branch of practice. Relatively few understand what is being done in our state to cope with this menace.

County Societies

MEDICAL SOCIETY OF THE COUNTY OF ALBANY.

Regular Meeting Held at Albany.

February 20, 1917.

The meeting was called to order in the Albany Court House by the President, H. Judson Lipes, M.D., at 8.45 P. M.

On motion of Dr. Andrew MacFarlane it was voted to proceed at once to the Scientific Session, which consisted of a paper by George Blumer, M.D., Dean of the Medical Faculty, Yale University, "A Discussion of the Deleterious Effects of Competitive Athletics." The paper was discussed by Andrew MacFarlane, M.D., and Henry L. K. Shaw, M.D.

A rising vote of thanks was given to Dr. Blumer for his most interesting and instructive paper.

The minutes of the January meeting were read by the Secretary.

Communications from the Third and Fourth District Dental Societies and from the Medical Society of the County of Schenectady, denouncing the proposed law for Compulsory Health Insurance, were read.

An invitation was read from President Julius Illch, of the Albany County Bar Association, to the Medical Society of the County of Albany to be their guests some time in the near future.

James N. Vander Veer, M.D., Chairman of the Committee on Legislation, presented a very full report of the year's legislation, taking up the important bills individually and giving a short résumé as well as a report of each one.

Charles W. L. Hacker, M.D., gave a full and interesting report of the work which had been done during the year by the Committee on Public Health.

Following this report Percival W. Harrig, M.D., presented the motion that a copy of the Traffic Resolution, which was adopted at the meeting held on November 23, 1916, be mailed to the new Commissioner of Public Safety, James Sheldon Frost.

Report of the Memorial Committee on the death of Arthur A. Vibbard, M.D. The report follows:

"Dr. Arthur A. Vibbard was born in Galway, N. Y., his parents being the Rev. Abel R. Vibbard and Elizabeth J. (Fisher) Vibbard. His early life was spent in Gloversville and Northville, N. Y. He graduated in medicine from the New York Homeopathic Medical College in 1894, and practiced in Westerlo, Sloansville and Central Bridge, coming to Albany in 1906, being associated with Dr. J. Ivimey Dowling in eye, ear, nose and throat work. Dr. Vibbard was married to Georgina R. Burrow, who died in 1904. There are surviving him a son, Earl B., and a daughter, Dorothy.

Dr. Vibbard always took an active interest in religious work and was at the time of his death deacon in the Emmanuel Baptist Church of Albany. He had not been in vigorous health for several years but was ambitious to perfect himself in the arts of medicine. He took several post-graduate courses, and was a regular attendant at the meetings of this Society since his connection with it. He was taken ill January 10th and died January 19th, from pneumonia.

Therefore be it Resolved, That we, the members of the Albany County Medical Society, mourn his early death; also

Be it Resolved, That we bear testimony to his courtesy, gentleness and skill in his chosen specialty, and that also we bear in mind his children, left orphans at a formative period of life, and we be ready to aid them materially and with counsel and encouragement, if necessity arises; also

Be it Resolved, That these resolutions be written in the minutes of the Society and a copy sent to his children.

(Signed) T. W. Jenkins.
A. MacFarlane.

MEDICAL SOCIETY OF THE COUNTY OF MONROE.

REGULAR MEETING, ROCHESTER.

Tuesday, March 20, 1917.

The meeting was called to order at 9.15 P. M., Dr. Myron B. Palmer, presiding. The minutes of the last meeting were read and approved.

A resolution was passed in favor of increased appropriation for the care of the feeble-minded in this state.

Dr. John M. Swan read a letter from the office of the Surgeon General of the United States of America suggesting that the County Society make plans for taking care of the practices of the Medical Reserve officers called into active duty. Dr. Swan also included the officers of the National Guard. It was moved, seconded and carried that the matter be referred to the Comitia Minora and their action and suggestions reported to the society.

Dr. Dean moved that the Legislative Committee of this society be instructed to take action to oppose the appointment of a Commission for Health Insurance at the present time, such an appointment being considered premature. Seconded and carried.

Dr. A. Bowen moved that the President appoint a committee to look into the matter of establishing a new medical fee bill and that this committee report at a later meeting. Seconded and carried.

There being no regular program, the members of the society presented cases for discussion and diagnosis. These cases were presented by Drs. Hennington, Flynn, Swan, Brown, Dean, Winans, W. T. Mulligan, Simpson and J. R. Williams.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

TRAUMATIC SURGERY, by JOHN J. MOORHEAD, M.D., F.A.C.S., Adjunct Professor Surgery, New York Post-Graduate School and Hospital. Octavo volume, 760 pages, 522 original illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, $6.50 net; half morocco, $8.00 net.

DIAGNOSIS AND TREATMENT OF SURGICAL DISEASES OF THE SPINAL CORD AND ITS MEMBRANES. By CHARLES A. ELSBERG, M.D., F.A.C.S., Professor of Clinical Surgery at the New York University and Bellevue Hospital Medical College. Octavo of 330 pages, with 158 illustrations. Philadelphia and London. W. B. Saunders Company, 1916. Cloth, $5.00 net.

THE EXPECTANT MOTHER. By SAMUEL WYLLIS BANDLER, M.D., Professor of Gynecology in the New York Post-Graduate Medical School and Hospital. 12mo volume of 213 pages with 14 illustrations. Philadelphia and London. W. B. Saunders Company, 1916, Cloth, $1.25 net.

THE MOTHER AND HER CHILD. By WILLIAM S. SADLER, M.D., Professor Therapeutics, Post-Graduate Medical School, Chicago; Director Chicago Institute Physiologic Therapeutics; Fellow American Medical Association, and LENA K. SADLER, M.D., Associate Director Chicago Institute Physiologic Therapeutics; Fellow American Medical Association. Illustrated. Chicago, A. C. McClurg & Co., 1916.

Book Reviews

EMBRYOLOGY, ANATOMY AND DISEASES OF THE UMBILICUS TOGETHER WITH DISEASES OF THE URACHUS. By THOMAS S. CULLEN, Associate Professor Gynecology, Johns Hopkins University. Large octavo, 680 pages, 269 original illustrations, 7 plates by Max Brodel and August Horn. Philadelphia and London. W. B. Saunders Company, 1916. Cloth, $7.50 net; half Morocco, $9.00 net.

Without fear of contradiction we predict that Thomas S. Cullen's book on "The Umbilicus and Its Diseases" will be for many years to come the standard text book of reference on diseases of that region.

Doctor Cullen has gathered information from every conceivable source and has compiled and classified this wealth of material into a book of exceptional worth. One can appreciate the thoroughness of the work when he learns that the author has read and translated articles on the umbilicus from over one thousand different writers. For clear, concise, illuminating reading the book is in a class by itself. The numerous reports are so varied and well written and the illustrations are so exceptional that the book is as fascinating reading as a good novel.

The illustrations by Max Brodel are just what one would expect from that excellent artist. Those illustrating the Embryology of the Umbilical Region are the finest we have ever seen.

The general practitioner and the pediatrist will find the book very useful for diagnostic purposes. The surgeon will find much that is of interest in the chapters on Remnants of the Omphalomesenteric Duct, Intestinal Cysts, Patent Omphalomesenteric Ducts, Umbilical Polyp and Umbilical Hernias. The chapter on the Urachus fills one hundred and sixty-six pages and covers the subject completely.

One of the most unusual chapters is the one on Secondary Carcinoma of the Umbilicus. There are case histories with illustrations describing carcinoma of the umbilicus secondary to carcinoma of the gall bladder, the intestines, the stomach, the ovary, the uterus and other abdominal organs. The anatomy is very cleverly illustrated.

After reading the chapters on Umbilical Infections in the Newborn and Umbilical Hemorrhage, one is convinced that practitioners are not giving proper attention to the treatment of the cord. We note with satisfaction that Dr. Cullen endorses and adopts Dr. Robert L. Dickinson's technique in amputating and treating the cord.

We cannot close without commenting on the excellent indexing and arrangement of subjects, together with the attractive type and paper.

HARRY R. TARBOX, M.D.

INFANT HEALTH. A Manual for District Visitors, Nurses and Mothers. By J. (SHAWNET) CAMERON MACMILLAN, C.M.B., A.R., San. I., Inspector of Midwives and Health Visitor, Aberdeen. London, Henry Frowde, Hodder & Stoughton, Oxford University Press, Warwick Sq., E. C., and 35 West 32d St., New York City. 1915. Price, 75 cents.

"The material in this little book was originally gotten together for the purpose of giving a course of instruction to Voluntary Health Visitors." It contains very elementary information, satisfactory in the main, but we doubt whether, in this country, there is any considerable audience such as is suggested in the quotation above, people needing just this little information and, for mothers, there are more useful books.

Further local conditions in England differ so far from those in this country that certain advice offered would not be of value here. On the whole it seems a very good little book for its purpose but of no particular interest to us.

W. D. LUDLUM.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and Other Topics of Interest to Students and Practitioners. By Leading Members of the Medical Profession throughout the World. Edited by Henry W. Cattell, M.D. J. B. Lippincott Company, Philadelphia and London. Cloth, price $2.00 per volume.

For twenty-five years this series of volumes has been published, at the rate of four volumes per year, and its continued existence is the best proof of its popularity. By a series of monographs the attempt is made, and with no small degree of success, to cover practically the entire field of medicine with carefully selected write-ups on the subjects in which advances have been made and which have occupied more or less of the interest of the workers in the realm of medicine during the year. The special articles are not merely abstracts of the literature but specially written monographs. As is but natural, they vary in merit to a marked degree. The volumes are well printed and illustrated by numerous colored plates and half-tone cuts.

Vol. 4, 23d Series, 1913.

This volume contains five articles on Diagnosis and Treatment, three on Medicine, four on Neurology, four on Surgery, and two on Eugenics.

Vol. 2, 24th Series, 1914.

Twenty-three separate monographs are published in this volume, of which number six are classified under Diagnosis and Treatment, three under Medicine, eleven under Surgery, two under Obstetrics, and one under Child Welfare. The last is a very sane article advocating the teaching of sex hygiene to the young.

Vol. 3, 24th Series, 1914.

Under Diagnosis and Treatment are six articles; under Medicine, eight; under Electrotherapeutics, three; under Surgery, six; under Child Welfare, one; and under Medical Problems, two, one entitled "Big Fees" in which Dr. M. V. Ball, of Warren, Pennsylvania, contends that physicians should charge alike for their treatment whether rendered to rich or to poor, and the other entitled "The Waste in Medical Education" in which Dr. J. H. Mackay, of Francitas, Texas, maintains that the modern medical educational system is very, very wrong, and "until medical colleges cease simply to promulgate nondescript medical knowledge and until they produce efficient workers for the social fabric of the nation, they will have failed to fulfil their high destiny in the sphere of human evolution." We fail to learn, however, from Francitas, Texas, just what the ideal is and how it is to be achieved.

Vol. 1, 25th Series, 1915.

Ten articles under Diagnosis and Treatment, four under Medicine, five under Surgery, together with a monograph on Medical Economics, and a resume of the Progress of Medicine During the Year 1914, comprise this volume. If the article on Medical Economics is puerile trash, the resume of progress makes up in that one's attention is called to many interesting economic developments that similar resumes, dealing only with scientific development, do not mention.

Vol. 2, 25th Series, 1915.

This volume contains six articles on Diagnosis and Treatment, a like number on Pediatrics, and six each under the general heads Medicine and Surgery.

Vol. 3, 25th Series.

Twenty-five articles are contributed to this volume under the headings of Diagnosis and Treatment, Pediatrics, Borderland Medicine, and Surgery. In some the hand supposed to wield the editorial blue pencil would seem to have become palsied. The article by Dr. L. Rahm, of Zurich, on "War Experiences and Observations in Germany and France," is timely and interesting.

Vol. 4, 25th Series.

This, the 100th volume of "International Clinics," completes the twenty-fifth year of its publication. From the opening article by Sir William Osler entitled, "The Coming of Age of Internal Medicine in America," to the last contribution, Dr. J. E. Sweet's "The Surgery of the Pancreas," the Alvarenge Prize Essay for 1915, the volume is replete with interest and in striking and favorable contrast to some of its more immediate predecessors as regards quality of the contributions presented. Among the more notable contributors are Drs. J. W. Ballantyne, George W. Crile (an interesting account of whose surgical clinic is also presented), Dr. Berry Hart, and Charles H. Mayo.

Vol. 1, 26th Series, 1916.

With this volume the name of Dr. H. R. M. Landis as editor-in-chief replaces that of Dr. Henry W. Cattell. Seventeen separate contributions under the headings of Treatment, Medicine, Neurology, Public Health, Pathology, Gynecology, and Surgery make up the volume. In the concluding "General Review of Medicine for the Year 1915" we miss the consideration of the economic and sociologic conditions which lent distinction to the annual resume of former years in this particular publication, and are treated to the stereotyped hack review of the results of medical investigation published during the year, which is good enough of its kind.

Vol. 2, 26th Series, 1916.

In this volume, under the caption Treatment, we find four monographs; under Medicine, 7; under Psychiatry, 2; under Obstetrics, 2; under Public Health, 3, and under Surgery, 6.

Vol. 3, 26th Series, 1916.

Some twenty articles, on various topics and of varying merit, comprise this volume of 309 pages. Not the least interesting is the concluding monograph by Fielding H. Garrison entitled "Armand Trousseau: A Master Clinician." "To Americans," says Garrison, "Trousseau will always be of interest because he gave us Da Costa. This eminent clinician . . . may be said to have patterned himself after his old clinical chief."

Vol. 4, 26th Series, 1916.

A variety of contributions on Medicine, Pediatrics, Obstetrics, Neurology, Ophthalmology, Genito-Urinary, Public Health, and Surgery, make up this volume, which also includes a general index of the four volumes comprising the series. H.

Cancer: Its Study and Prevention. By Howard Canning Taylor, M.D., Gynecologist Roosevelt Hospital, New York; Prof. Clinical Gynecology, Columbia University; Member American Society for the Control of Cancer, etc. 12mo, 330 pages. Cloth, $2.50 net. Lea & Febiger, publishers, Philadelphia and New York, 1915.

The author has incorporated in a single volume of 320 pages all that is known regarding cancer—truly a useful book. Remembering that there are 75,000 deaths every year in the United States from cancer, we are at once struck by the dimensions of the cancer problem and, therefore, any contribution, medical or social, that segregates dependable facts regarding the causation, mode of spread, geographical distribution, treatment, etc., is well worth our serious consideration.

There are two ways, the author believes, by which the cancer problem may be attacked, viz., first, "by the acquisition of more information regarding the disease," and, secondly, "by the better use of the facts now in our possession."

With these facts clearly in mind, the author has constructed a volume of twelve (12) chapters which covers the cancer problem from every conceivable standpoint. There are four chapters which deal with the causation of cancer, predisposition to cancer, the precancerous lesions, the most important stage of recognition if absolute cure is to be had, contagiousness of cancer, etc.—all leading questions to the clear understanding of the early recognition and cure of cancer.

"Cancer can be cured if recognized early enough" is the working slogan and should be constantly in the minds of every clinician that he may forewarn the laity by disseminating dependable information regarding the early manifestations of cancerous growth.

Following this more or less introductory part of the volume there is a complete treatise, divided into eight chapters, upon malignant disease of each organ of the body. Under each of these is given the etiology, pathology, metastases, method of extension, symptoms, diagnosis, prognosis and treatment.

Such a work should prove of inestimable value to those interested in the cancer problem—physician or laity.

HARVEY B. MATTHEWS

TREATISE ON FRACTURES. By JOHN B. ROBERTS, A.M., M.D., F.A.C.S., Prof. Surgery Philadelphia Polyclinic; and James A. Kelly, A.M., M.D., Attending Surgeon to St. Joseph's, St. Mary's and St. Timothy's Hospitals; Associate in Surgery in the Philadelphia Polyclinic. With 909 illustrations, radiograms, drawings and photographs. J. B. Lippincott Company, Philadelphia and London. Price, $6.00.

This new work, well illustrated by over 900 drawings, radiographs and photographs, is a convenient volume of about 675 pages. One-fourth of the book is devoted to general considerations and the operative treatment of fractures. In twenty-five subsequent chapters, regional fractures, beginning with fractures of the cranium, are consecutively and systematically discussed. The book is concluded with a consideration of birth fractures and gunshot fractures.

The authors have attained their desired object in presenting a clear, concise and systematic treatise. The various fractures which occur in each bone are well classified. Carefully compiled statistics are quoted from large series of cases. Their ideas of symptoms, diagnosis, prognosis and treatment reflect the best present-day opinions and methods. Displacement of fragments and the various kinds of retentive apparatus are graphically shown. This book really teaches. General practitioners and internes will profit by reading this book. To follow the teaching contained in this volume will start the reader upon the right path.

In the final analysis one is impressed by the profusion of illustrations, the practical character of the book and the sound conservative treatment of the subject by clinicians of great experience. The authors have added an excellent book to literature. R. H. F.

DISEASES AND DEFORMITIES OF THE FOOT, by JOHN JOSEPH NUTT, B.L., M.D., Surgeon in Chief, N. Y. Hospital Crippled and Deformed Children; Orthopedic Surgeon Willard Parker Hospital, New York. 8vo., 105 illustrations and plates. E. B. Treat & Co., 241 West 23d Street, New York.

This little book is written primarily for the general practitioner, and is certainly very readable. Used for reference, it stands ready to furnish the symptoms or treatment of nearly every ailment of the foot. The pathology in brief, the essential factors in etiology, the early recognition, the reasons for corrective procedures are all clearly stated. The descriptions of operations are given with considerable detail, enabling the student who has not seen them performed to follow very accurately—as, for example, Dr. Whitman's operation of astragalectomy. The opening chapter on Anatomy and Physiology, while rather technical in places, is written with the design of giving the reader a better understanding of the mechanical principles upon which the physiological action of the foot depends. The proper methods of examination, showing the departure from the normal in action and at rest are then carefully described. Weak foot is given the space its importance and frequency demand, not only the typical marked case, but particular emphasis being laid on the early stages. Infantile paralysis, as affecting the foot, with its resulting deformities, is treated of both from a preventive and corrective viewpoint—correction by mechanical means and operation being shown. Tuberculous and toxic affections comprise the remainder of the pathological conditions, except for a chapter on various common ailments such as hallux valgus and hammer toe. The treatise is closed with an interesting chapter on foot apparel.

CHARLES DWIGHT NAPIER.

SIMPLIFIED INFANT FEEDING, with .75 illustrative cases. By ROGER H. DENNETT, B.S., M.D., Adjutant Professor Diseases Children; Attending Physician Children's Department, N. Y. Post-Graduate Hosp.; Assistant Attending Physician, Willard Parker and Red Cross Hosps. Fourteen illustrations. Price, $3.00. Philadelphia and London, J. B. Lippincott Co.

The author is exceedingly fond of a limited line of milk modifications and this, of itself, naturally simplifies the subject. Aside from this he presents very well the principles of milk adaptation and does show, as he sets out to do, that the mathematical task is not the difficult problem commonly thought.

By learning his methods and principles, the student will ease his labors in the great majority of his cases and with decided satisfaction, as the means employed are *good,* though there will be divided opinion as to whether they are *the best* in many cases.

With a thorough understanding on the part of the not too experienced physician that the pediatrist has many feeding resources not offered here, he may employ this advice to his satisfaction in the bulk of his work.

The subject is well and clearly presented and the illustrative cases illustrate. It is not padded.

The errors are not numerous, though one is at least amused to learn on the very second page that an infant will gain as much in six months at the rate of three or four ounces a week as he did in another six months at six or eight ounces a week. W. D. L.

MOTHERCRAFT. By SARAH COMSTOCK. Illustrated. Hearst's International Library Co., New York, 1915. Price, $1.00 net.

This is one of the books written for the mother which are already so numerous that the necessity for another is not very obvious. Its chief difference, which also constitutes its chief virtue, is that it is written from the female and non-professional standpoint and may therefore appeal to some to whom the man-written books do not. Also, so long as bad advice is not given, the larger the audience that can be secured for such works the better.

On the whole the advice given is reliable; it should be known to writers of books on babies that the reliable scale makers will sell scales which will weigh babies to the ounce for seven dollars, not twenty.

The few suggestions about feeding are dominated by a school with which most pediatricians do not agree, but, as no specific advice is given for formulæ, the attendant will have the opportunity to counteract this. The advice for choosing milk must be directed to the mother near the cow; for the city mother it could be both abbreviated and made more useful at the same time. The advice that barley-water may be kept three days is wrong and should be eliminated.

On the whole the book can be recommended.

A Treatise on Diseases of the Skin. For advanced Students and Practitioners. By Henry Stelwagon, M.D., Ph.D., Prof. Dermatology, Jefferson Medical College, Philadelphia. Eighth edition, thoroughly revised. Octavo of 1,309 pages, 356 text-illustrations, and 33 full-page colored and half-tone plates. Philadelphia and London, W. B. Saunders Company, 1916. Cloth, $6.50 net; Half Morocco, $8.00 net.

The eighth edition comes to us with many of the chapters rewritten, and with the addition of considerable new matter. The footnote reference, always a valuable feature of this author's work, which has been brought up to date, makes this work invaluable to any one looking up the latest dermatological literature.

In spite of many recent dermatological treatises, Dr. Stelwagon's "Diseases of the Skin" continues to be one of the best English works on dermatology.

Modern Medicine and Some Modern Remedies. Practical Notes for the General Practitioner, by Thomas Bodley Scott, with a preface by Sir Lauder Brunton, Bart., F.R.S. Paul B. Hoeber, 67 East 59th Street, New York, 1916. Price, $1.50.

This group of four essays on practical medicine, from the pen of a mature and experienced practitioner, is read with absorbing interest from foreword to finis.

The book is not a treatise, or text book, but a plain discussion of a few pertinent subjects, as viewed in their modern aspects.

A chapter on disorders of the heart studies the heart in the light of the modern Myogenic theory. Frequent quotations from Mackenzie show the authors to be in sympathy with Dr. Mackenzie's views.

While advancing nothing new, the picture presented is one well worth viewing.

An essay on arteriosclerosis proves most interesting. Quoting Oliver, in his recent book, "Studies on Blood Pressure," the subject is clarified to a marked degree. Treatment, especially in the stage of the presclerosis of Houchard, by means of the Hippurates is timely, as this remedy tends to be overlooked in recent times.

The third essay on therapeutic speculations and doubts develops into a study of the endocrine glands. Very instructive, and very replete in therapeutical possibilities.

The author is evidently a firm believer in the future therapeutical use of these natural internal secretions in preference to drugs.

The fourth essay on bronchitis and bronchial asthma recognizes the infectious theory, and advocates the use of vaccine for the cure.

One rises from the perusal of this book with a feeling of great satisfaction.

It is a veritable *multum in parvo* to the active practitioner. R. F. I.

Ultra-Violet Light by means of the Alpine Sun Lamp, Treatment and Indications by Hugo Bach, M.D., Bad Elster, Saxony, Germany. New York, Paul B. Hoeber, 67 East 59th Street, 1916. Price, $1.00.

The cure of disease by the ultra-violet light is practically unknown to the majority of medical practitioners; there is no doubt that this therapeutic method could be made a valuable addition to our armentarium if we only knew when and how to use it; this is what this monograph teaches, for it is so comprehensive, and the style is so clear, that one cannot fail to gain the needed instruction in the use of the instruments, as well as knowledge of the class of diseases in which to employ these methods. W.

Collected Papers from the Research Laboratory of Parke, Davis & Co., Detroit, Mich. Dr. E. M. Houghton, Director. Reprints—Vol. 3, 1915.

The system of collecting reprints of articles published from the Research Laboratory of Parke, Davis & Co. was begun in 1912. The volume before us is the third volume of collected papers to be published. It contains twenty-two monographs which have been previously published in various periodicals, on bacteriological, therapeutic and pharmaceutical topics for the most part. The 341 pages of the volume contain many valuable contributions, well illustrated.

Studies in Surgical Pathological Physiology From the Laboratory of Surgical Research, New York University, 1915. Vol. I.

The growing tendency among groups of men studying different aspects of the same subject to collect and republish in one volume the results of their investigations is shown by this volume. The contents have been arranged in accordance with the newer viewpoint that surgery should deal first with the greater problems of function and diagnosis, therapeutic progress being obviously dependent upon these; and second, with the details of method and technic.

First of the twenty-eight separate articles which the volume contains is that entitled "Medicine and the World War," in which the authors discuss the growing importance of laboratories of surgical research. There follow groups of papers detailing certain studies upon the alimentary and neural canals and vertebral column, upon the Abderhalden reaction and a series of efforts to apply chemistry directly to surgical diagnosis, upon the ureteral neuro-musculature, etc. Following studies on the subject of shock, the volume concludes with a group of technical and miscellaneous papers.

The American Year-Book of Anesthesia and Analgesia, F. H. McMechan, A.M., M.D., Editor, 1915. Surgery Publishing Co., 92 William Street, New York City. Price, $4.00.

The initial volume of this new venture is a handsome quarto volume of over 400 pages, printed on India tint paper, bound in red buckram, and is copiously illustrated. It collates the more ultra-scientific phases and the invaluable technical advances in the subjects of anesthesia and analgesia.

The conception of the Year-Book is encyclopedic in character and in this first volume a given number of vital subjects have been exhaustively dealt with, and in succeeding volumes these subjects will be kept up-to-date by means of collective abstracts and new subjects introduced and similarly handled.

The list of contributors is a notable one and every anesthetist should add the work to his library.

Deaths

Judson Beach, M.D., Etna, died March 16, 1917.
J. R. Eaton, M.D., Chittenango, died March 12, 1917.
Frank E. Gessner, M.D., Port Jervis, died March 6, 1917.
Thomas H. Hallett, M.D., Clyde, died February 11, 1917.
James M. Jenkins, M.D., Auburn, died February 3, 1917.
Charles S. McLaughlin, M.D., Glens Falls, died March 4, 1917.
Ovila Mallet, M.D., Troy, died March 25, 1917.
Harry Mead, M.D., Buffalo, died March 18, 1917.
Henry Ruhl, M.D., New York City, died February 25, 1917.
Albert W. Sully, M.D., New York City, died March 14, 1917.
George E. Thomas, M.D., Port Chester, died February 12, 1917.

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ORIGINAL ARTICLES

THE DIAGNOSIS AND CHOICE OF OPERATION IN CERTAIN AFFECTIONS OF THE STOMACH AND DUODENUM.*

By J. M. T. FINNEY, M.D.,

BALTIMORE, MD.

I TAKE it that the majority, at least, of the members of the New York State Medical Association are more or less in general practice and, as such, are naturally interested not only in the diagnosis, but also in the surgical treatment of the various affections of the stomach and duodenum. I have, therefore, chosen this rather broad subject, a discussion of which will probably afford more general interest to my audience than one more special in character.

Every practitioner, whether general or special, must have been struck with the great frequency with which stomach symptoms may usher in almost any affection. Just consider, for a moment, the vast range of pathological conditions having their origin either in the stomach or out of it, or, indeed, entirely outside of the abdomen, which, not infrequently, present as one of their earliest manifestations nausea and vomiting, or some form of gastric disorder or distress. This is true not alone of organic affections but of functional troubles as well. Outside the abdomen, we see these disturbances of the normal activity of the stomach occurring at times, associated with such general conditions as pneumonia, tuberculosis, brain tumor, the acute exanthemata, angina pectoris, arteriosclerosis, various disturbances of kidney function, eye strain, etc.

Associated with conditions having their origin in the abdomen, aside from the actual diseases of the stomach itself, we find it not infrequently occurring with purely functional disturbances, either in association or not with disease elsewhere in the body, or due to functional and other disturbances of the stomach proper, such as the vomiting of pregnancy, appendicitis, intestinal obstruction of one sort or another, mesenteric thrombosis, acidosis, uræmia, etc. In arriving at a definite diagnosis, then, in any case of so-called stomach trouble, the physician will not infrequently be called upon to go over in a general way the whole ground indicated above, and, much more, before being able to discriminate between a case of real stomach disease and one in which the stomach symptoms, while prominent, constitute only a minor consideration, because secondary to some other pathological condition elsewhere in the body. A stomach case may, after careful consideration, prove to be an inflamed appendix, cancer of the rectum, brain tumor, gastric crisis of tabes, cholecystitis, cholelithiasis, or what not. It goes without saying, then, a fact with which no doubt you are all familiar, that the diagnosis in any given case of stomach trouble is not always an easy matter. Not only is it not always easy, but it frequently cannot be made in the ordinary way. One must call to one's aid certain of the special diagnostic tests, and even then, in a small percentage of

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 24, 1917.

cases, must leave the diagnosis to be determined, if at all, by the pathologist, or by the exploratory incision of the surgeon. This is a rather humiliating confession in these days when our diagnostic ability, aided by the various established laboratory tests, has reached such a high stage of scientific development. But unfortunately it is perfectly true.

The question that interests us, as medical men assembled upon an occasion such as this, is to take counsel together as to how we can limit, as far as possible, the number of cases in which we are unable to make a positive diagnosis and, on the other hand, how to increase the percentage of cases in which a definite, correct diagnosis can be made. There are various aids at hand which can be invoked in order to bring about this much to be desired condition. In the first place, the hearty co-operation of the physician and surgeon. I know of no class of case in which it can be more truly said that the combined skill of the physician and surgeon is productive of greater results; indeed, is so absolutely necessary in order to produce results at all satisfactory, as in cases of suspected disease of the stomach. What surgeon has had sufficient training in the technique of the chemistry of the stomach or, if he had, what one in active practice would or could take the requisite time and give the attention to detail necessary to arrive at a definite conclusion? The same is true of the fluoroscopic and X-ray examinations of the stomach. This requires special apparatus and technique and the ability to interpret correctly the findings. This comes only from long practice and study of such conditions.

If the speaker might be allowed a personal reference, he never operates on a supposed stomach case without having first had it thoroughly studied out and reported upon by a competent internist, or until he is satisfied that nothing more is to be expected from a further continuance of medical measures. But it may be urged that it is not always possible to secure the services of such an one, which, in country districts, is perfectly true. But it is equally true, a fact that should not be lost sight of, that questions of operative treatment for stomach diseases are not for the country doctor, who only does a little surgery of necessity, to decide, but for the thoroughly competent surgeon skilled in the care and treatment of such cases. If these facts are borne in mind, a long step forward will have been taken in doing away with legitimate criticism which has been leveled at the profession in certain quarters and along these lines.

Every effort should be made to arrive at a definite and correct diagnosis before operation is resorted to. Every exploratory incision is in a measure a reproach to surgery, a reflection upon our ability as diagnosticians and a confession of defeat.

There are valuable diagnostic aids that can be summoned to our assistance, if only we are careful to use them properly and to assign to each one its relative importance. Some cases of stomach affections are so obvious that "The wayfaring man, though a fool," may recognize them. Here no special aid or skill is required in order to make a diagnosis. Take, for instance, the retention vomiting associated with mechanical obstruction of the pylorus, or the repeated severe hemorrhages from a bleeding ulcer. A great deal, indeed, the whole story can often be learned from the history, especially when carefully taken, and its important features recognized and properly interpreted, no easy task in many cases. Then a careful physical examination. One cannot insist too strongly upon the necessity for this. In an assemblage such as this, it seems almost foolish to insist on a thing so self-evident as a thorough, careful physical examination. But when it is constantly being brought to one's attention, that a thorough physical examination is not by any means always made, this reference to the fact and insistence upon it may be excused. A noted consultant of international reputation, no less a personage than Sir William Osler, once facetiously remarked that so far as he could see, "The chief difference between a consultant and a general practitioner was that the consultant made a rectal examination while the general practitioner did not." This may seem a little overdrawn, perhaps, but it is brought home to me strongly by the fact that I have recently had under my care a patient who had been treated for a long time for stomach trouble by physician after physician, some of whom, I may say, were excellent men, without relief. No rectal examination had been made by any one of his numerous attendants. This examination made after he had entered the Hospital simply in following the regular routine, revealed at once the cause of his trouble, in the shape of a well-advanced carcinoma which by that time had involved pretty much the whole rectal wall. Not long since, I operated upon a woman of middle age who had given a history of digestive disturbance referred entirely to the upper right quadrant. Her trouble had always been definitely located in this region. The clinical picture was a rather mixed one which her physician and consulting internist had not been able satisfactorily to unravel. The gastric examination was negative. Examination of the stools showed the presence of occult blood. The X-Ray showed only some evidence of trouble causing adhesions about the gall-bladder. In other respects, the examination was practically negative. The diagnosis was probable chronic cholecystitis to which the gastric disturbance was secondary, possibly duodenal ulcer. Incision through the right rectus showed the upper right quadrant to be perfectly normal, except for a few light adhesions about the gall-

bladder. On looking further for an explanation of her symptoms, I found a well advanced annular carcinoma of the sigmoid whose presence the history and physical examination gave us no reason to suspect. Cases of this sort can be multiplied. They come under the observation of every surgeon of any considerable experience. The point which they emphasize is simply this—the extreme necessity of a careful and thorough physical examination which should always include an examination of the rectum. A favorite dictum of my honored preceptor, the late Dr. John Homans, of Boston, and one upon which he used to insist, was "No surgical examination is complete without a catheter in the bladder and a finger in the rectum."

The trouble is that from the multiplicity of demands from all sources on the time and attention of the busy practitioner he often cannot or does not make his examinations as thorough as is desirable, nor does he give sufficient thought and study to the individual case. The tendency in some quarters is to discount the fundamental importance of attention to details in the matter of diagnosis. For how often do we not hear in medical meetings such as this, speakers, sometimes, of more than local reputation, declaiming against the dangers of the so-called slow laboratory methods. We hear it stated that, while the laboratory man is busy counting blood or looking for parasites or examining the gastric contents or the stools, the patients may be dying for want of immediate attention. The thing to do is "to grasp the situation at a glance," "instant decision," "rapid execution," in other words, a more or less snap diagnosis. All this sounds very fine and appeals to the gallery, but when soberly analyzed, it means just this—incomplete histories, imperfect examinations, crude analysis, immature judgment, faulty conclusions, at times strikingly brilliant, perhaps, and at other times palpably, yes, almost criminally wrong. Are we, as a Profession, ready to stand for this sort of thing? There can be but one answer. Those practices which are fundamentally based on accurate observation, careful analysis and scientific study will stand any test put upon them, and when properly applied in intelligent, conservative surgical practice, will redound to the credit of our noble profession and increase the longevity of the human race.

In a previous paper, the speaker has endeavored to warn against this pernicious practice to which he has just referred, and has urged on the part of the examining physician or surgeon the most careful study of every fact developed in the course of a carefully taken history or a thorough routine physical examination. So much depends upon the proper sifting of the crude material thus obtained and the relative importance to be attached to each particular fact or group of facts, and the correct interpretation of the various signs observed, that it is difficult to over-estimate the importance of a broad point of view and the value of the special aids to diagnosis, the so-called laboratory methods. Here shines out with striking brilliancy that rare quality, that much to be desired possession known as "surgical instinct," "good judgment," or "commonsense." Trite and hackneyed as all this may appear to some, nevertheless it is supported by the weight of ancient and honorable authority, for since the days of Hippocrates it has been recognized by those best qualified to judge that diagnosis is after all of relatively more importance than treatment, since on the correctness of the one, depends in large measure the effectiveness of the other.

The subject of diagnosis of the various gastric conditions is far too large to permit of adequate discussion upon an occasion such as this. One can do no more than refer to certain more or less well known facts to illustrate the points made. The diagnosis, as has already been pointed out, is occasionally very easy. It may now and then be made from inspection, certainly from the history alone, but this is not often and it is seldom that one would be justified in operating solely on the history without recourse to the use of further methods of investigation at our disposal, such as the results of the gastric analysis and the X-Ray findings. But careful and candid observers will tell you how misleading these may be at times. So often in the chemical examination of the stomach contents or feces one may be misled, for instance, by the presence of blood in greater or less quantity, into believing that an ulcer is present. Some years ago, in a paper on the subject of "The Significance of Blood in the Stools," the speaker called attention to the long list of conditions other than those of cancer or ulcer of the stomach or duodenum in which blood is more or less constantly found in the stools. It was found not infrequently in connection with such conditions as appendicitis, gallstones, cirrhosis of the liver, certain of the grave anemias, arteriosclerosis, etc. I have under my care in the hospital at this time a doctor who had had repeated and copious bloody stools, associated with marked indigestion. X-Ray and chemical analysis suggested duodenal ulcer. Operation revealed a normal stomach and duodenum and the presence of several large stones in the gall-bladder.

It does not do, then, to place too much reliance upon any one symptom or group of symptoms to the exclusion of others There are few absolutely pathognomonic diagnostic signs. The words "always" and "never" are quite out of

place in medicine, for it usually means only a little wider experience, a little broader observation and more knowledge, to convince one that what he had thought was absolutely sure, has its exceptions. So it is with the X-Ray findings. Great as has been the progress in this direction, and helpful as it is as a means of diagnosis, it must not be forgotten that what had been regarded as definite pictures of certain pathological conditions can be caused by other processes. For example, adhesions of the stomach wall to surrounding structures may cause irregularities in the outline of its walls, abnormality of the peristalsis itself, etc. In other words, the picture which is usually associated with the presence of an organic lesion, such as ulcer or cancer. Here it is often necessary in order properly to interpret the picture, to summon to one's aid the experience of the trained Roentgenologist, the history of the case, the physical examination, the chemical findings, etc., before one can arrive at a proper solution of the problem. So also reflex spasm, due to gall-bladder trouble or chronic appendicitis may also come in and vitiate one's findings. Moynihan, in one of his characteristic and catchy epigrams has well said: "The commonest seat of stomach trouble is located in the right iliac fossa." Mayo equally effectively speaks of the telephonic connection existing, through the reflex nervous system, between the diseased appendix and the stomach. The exact value of the X-Ray method as an independent means of diagnosis of stomach disease cannot as yet be determined, but when taken in connection with the clinical histories and other findings, it is a most valuable aid to diagnosis. Without these others, I should not attach too much significance to it, as there are so many possibilities for error, which up to the present time cannot be entirely done away with. As a general indication for employment of medical measures, the history of a given case may be sufficient, but except in emergency, we are not justified in performing a surgical operation solely on the basis of either clinical history, the chemical and microscopical findings or the X-Ray examination alone.

While gastric surgery as practiced in certain famous clinics, by men of skill, through long experience, may be a comparatively simple matter, still, to the average surgeon who performs only an occasional gastro-enterostomy, for instance, it is a more or less formidable affair, and should never be undertaken lightly or without due regard to all the circumstances involved. For, in the first place, let it not be forgotten that comparatively few of the diseases associated with gastric disturbances are cases for surgery at all, and a good many of those that are, under satisfactory conditions, are amenable to properly applied medical measures. Due consideration should always be given to the careful differentiation of the various groups from each other, in order to prevent the reproach that is cast upon the profession of surgery by the performance of an operation that is not indicated, or the improper performance of one that is.

The idea which we had in selecting this subject for this address was not that we had anything new to offer, for we have not, but simply to bring again to your attention the responsibilities that inevitably devolve upon us as medical men, for we are all human and need now and then to be reminded of our duties and responsibilities in the premises.

The point we want to make is simply this—that the vast majority of cases presenting symptoms of either organic or functional diseases of the stomach are capable of diagnosis. In the present state of our knowledge, some of them are not. At least the speaker experiences some satisfaction in thinking so, because now and then he meets with a case which, in spite of every care and the use of all of the known special tests and aids to diagnosis and the assistance of skilled internists, is not correctly diagnosed. Be this as it may, the vast majority of cases, if properly studied, can be diagnosed. Recently the question of errors in diagnosis has been the subject of very interesting and careful studies by a number of observers, notably Cabot and Abrahams. The latter classifies diagnostic errors in two groups (1) social, due largely to the personal equation of the physician himself, and (2) clinical errors, due (1) to ignorance, (2) faulty judgment, (3) obsession, (4) failure to think automatically, (5) failure to think at all, (6) reluctance to accept responsibility, (7) inherent difficulties in the case, (8) incomplete examination. It is evident at once that if his analysis is correct, some of these mistakes may be condoned and others not. Unquestionably the first and the last, ignorance and incomplete examination, are responsible for the majority of our mistakes, and these may be corrected. Indeed, all of them, except possibly those due to inherent difficulties in the case, may be overcome, and all the time, with our improved methods, this group is getting less and less. One might enlarge considerably upon this phase of the question, but it would lead us too far afield. My idea is simply to call again to the attention of this group of medical men the fact that, in spite of human limitations, one can all the while improve one's powers of diagnosis and one's skill as a surgeon, by careful attention to detail, familiarity with current literature and personal first hand study of the methods of those who are acknowledged to be masters along these lines.

In considering the question of the choice of operation in a given case of gastric disorder, the first thing to determine is whether or not operation is necessary at all. How may this be accomplished? There is no rule of thumb by which it can be done. It requires careful study of the individual case, sometimes extending over a long period of time, and a thorough knowledge of the clinical course of similar cases, treated both medically and surgically. This comes only by conscientious observation of one's own cases and those of others as recorded in the literature. So many of us, and the speaker is forced to include himself in this category, are so busy in one way or another with professional and other duties, that it not infrequently becomes a physical impossibility to give the amount of time to thought and study of our cases that we ought. Thus we do not learn thoroughly enough the lessons that our experience should teach us. We are prone to forget our mistakes and it may be to magnify our successes. All this is done unconsciously, perhaps, and with the best of intentions, but, nevertheless, it goes on until suddenly we are brought face to face with the true condition of affairs by some incident, or it may be accident, that forcibly arrests our attention and directs it to the fact that we have fallen into a professional rut, that our patients are no longer individuals but things, just to be ground through the surgical mill, each one tagged and numbered, his personal identity lost. Have I overdrawn the picture? Perhaps, but in many cases I think not. At any rate, one of the great factors that militates against giving one's best judgment to a given case, whether in the matter of diagnosis or the question of treatment, is failure, from whatever cause, to study the case sufficiently, and then to weigh properly the evidence for or against proposed operation. With added years and accumulated experience comes increased caution. This may be due partly to a lessened enthusiasm or a growing disinclination to the mental and physical exertion necessary to plan or carry out an extensive surgical operation. Whatever the explanation, and it may be that all these factors have an influence, it is a rule, with few exceptions, in the speaker's observation, that ripe experience is invariably accompanied by judicial caution, by a conservatism which, while it may be at times almost startling in its radicalism, is, nevertheless, fundamentally based upon sound pathology and rational physiology, backed up by actual results and tried by the test of time. So it follows that in matters of diagnosis, a wider experience and deeper penetration into the mysteries of physiology and pathology will slowly but surely lessen that large group of cases which, for want of more definite knowledge, are classified as neurasthenics, psychasthenics or as belonging to that class of unfortunates who are neither sick nor well, but always ailing.

Brown, in a recent paper entitled, "Gastric Dyspepsia Due to Intestinal Diseases and Intestinal Indigestion of Gastric Origin," discusses in a very thorough and convincing manner the intimate association and relationship existing, through an unstable nervous apparatus between these two conditions and the consequent transference of symptoms from the seat of the disease to some more or less remote region of the body. He refers especially to the chronic diarrhœas not infrequently met with in old people or those with defective teeth, due to achylia gastrica, in which the simple administration of hydrochloric acid in conjunction with a non-irritating diet will yield brilliant results when sedatives, astringents and intestinal antiseptics have signally failed. He also emphasizes a point particularly dwelt upon by Moynihan and others, namely, that in all cases of gastric dyspepsia of long duration, especially if the symptoms show exacerbations from time to time, particularly if the patients present the body form so characteristic of splanchnoptosis, and if no success has been met with by treatment based upon the diagnosis of a nervous dyspepsia or psycho-neurasthenia, the underlying cause is frequently found to be a latent or chronic appendicitis without local manifestations. Such an organic lesion may prove to be the physical cause of the psychic and nervous disturbances in one so predisposed.

The case with the definite organic lesion is, usually easy to recognize and handle, but the chronic gastric neurasthenic, so-called, is an individual that one soon learns to dread to see come into one's office. But these troublesome individuals are not infrequently misjudged. Some time ago I operated upon one of the very pronounced, fat, pale, anemic type. This patient had run the gamut of treatment for digestive disturbance of one sort or another and had consulted many physicians. I am frank to say that I could not make a definite diagnosis. My sole basis for operating was the conviction that here was a man who insisted that he was continually suffering great distress in the upper part of his abdomen, and had done so for a long time, and that no treatment that he had received had given him any appreciable relief. The operation was purely exploratory in character, with no fixed idea as to what, if anything, further should be done, but it was undertaken in the hope that surgery could give him the relief to which he was entitled and which had been denied him through medical measures. I found a spindle-celled sarcoma of the small intestine, high up, and encroaching upon the lumen of the gut. This loop

was excised, together with its mesentery and the patient treated subsequently with Coley's serum. So far, after four years, there has been no recurrence of his trouble and the patient has been completely relieved of his symptoms. This patient had been adjudged a confirmed neurasthenic by everyone who had seen him, simply because they could find no adequate explanation for the very atypical symptoms complained of, and because he was of a very highly nervous temperament. Everyone is familiar with the frequent association of splanchnoptosis with the neurotic symptom complex just referred to. Great difficulty is experienced, not infrequently, in this class of case in determining between cause and effect. There is excellent opportunity presented just here by this combination of circumstances for a lot of amateurish, ill-advised and not infrequently harmful surgery. In this category the indiscriminate stitching up of floating kidneys, dropped stomachs and sagged colons, to say nothing of the more radical and mutilating operations upon the big bowel which are strongly advocated and practiced in certain quarters, often without sufficient indication. "We must not forget in the study of these cases that function is more important than form, physiology than morphology. The assumption that a change in position in the intestine from horizontal to vertical will materially increase the difficulty of propulsion is contrary to the fact that for many years this has been taking the place in certain portions of the intestinal tract with no apparent disturbance. It is lack of tone, not displacement, per se, that is the cause of the trouble, although in the origin of this atonic condition, adhesions, displacement, kinking and constriction may all play a part." (Brown.)

After it has been decided that some operative procedure is really necessary, owing to the severity of the symptoms and the progressive nature of the disease, one should then consider, in the first place, what one expects to accomplish by the operation. Is it simply a palliative procedure undertaken to give temporary relief to the patient or are we justified in expecting and offering a cure? A definite decision as to this question cannot always be arrived at beforehand, because, as has already been pointed out, of our inability to make an absolute diagnosis, so that not infrequently one cannot tell until after the abdomen has been opened and the nature of the pathological process present determined, just what really is indicated or can be accomplished. The point I want to make is simply this—that when a choice of operation is offered in a given pathological condition, upon what basis are we going to determine the operative procedure to be carried out? Is it on the basis of habit? Because one has been accustomed to do a certain operation, under certain conditions, is one going to continue to do it in spite of other operations or newer modifications which offer better results, or is it a matter of fashion, because there are fashions in surgery just as in clothes and many other things? Or, is every individual case to be decided on its own merits and due weight given to the relative advantages that are generally accepted as belonging to every operative procedure? The answer given to this question would be, I imagine, by the vast majority of surgeons, the third proposition, namely, to decide every case on its own merits, but unfortunately, this is just what is not done in many cases. We are, in spite of ourselves, creatures of habit. We get into the way of doing things almost by rote, as has already been indicated, and, as a consequence, it occasionally happens that operations are done without due regard to all the considerations involved.

We have not the time, and it would over-tax your patience to go into detail as regards arguments for or against the various operative procedures. Let us take, for example, and consider for a moment the relative merits of two only of the most common operations performed on the stomach, namely, gastro-enterostomy and pyloroplasty. With the majority of surgeons, the operation of gastro-enterostomy is the operation of choice. There are many reasons for this—in the first place, it is an operation attended with very low mortality, it is a comparatively simple procedure to one who is accustomed to do abdominal surgery. It gives very satisfactory results in the large percentage of cases, and so without much consideration or thought, the average surgeon, when he finds evidence of obstruction about the pylorus, or active ulceration in the stomach or duodenum, proceeds at once to perform a gastro-enterostomy. On the other hand, for one reason or another, pyloroplasty with some surgeons is the operation of choice and, for substantially the same reasons as those given for gastro-enterostomy. What factors then should determine us in deciding between these two conditions. In order to try to answer this question intelligently, with the aid of Dr. Julius Friedenwald for whom I have performed one or other of these operations in many of the cases reported, I have endeavored, by studying carefully the early and late results in the first one hundred cases of pyloroplasty, and the first one hundred cases of gastro-enterostomy operated upon by me to determine the relative advantages and disadvantages of the two methods. These have been studied as carefully as possible, both early and late results, and compared. Some of these cases extend back over a period of nearly twenty years, and of course, are the earliest cases that

I have operated upon. It is only fair to suppose that owing to improved technique and greater experience, the last one hundred cases of each operation would show a decreased mortality and an increased percentage of satisfactory results. In our study of one hundred cases of pyloroplasty reported in 1914, we felt justified in drawing the following conclusions:

1. The operation has its greatest indication in the relief of pyloric stenosis due to chronic ulcer, situated at or near the pylorus, and on either side of it, or resulting from cicatrical contraction following the healing of such ulcers.

2. The operation has certain advantages over gastro-enterostomy and but few of its disadvantages.

3. Such objections as are urged against the operation, e. g., its inapplicability in the presence of adhesions surrounding the pylorus, as well as in the presence of active and bleeding ulcers, and also because of the fact that the new opening is not at its lowest point, taking advantage of gravity, are, according to our experience more fanciful than real, since the operation has frequently been performed under these conditions with most gratifying results.

4. The only contra-indications to the operation are inability to mobilize the duodenum when adhesions are too dense, and thickening and infiltration about the pylorus due to hypertrophic forms of ulceration. These conditions, however, in our experience, occur but rarely.

5. In atony or gastroptosis with slight motor insufficiency, such as is observed in nervous dyspepsia, i. e., in gastric disturbances not dependent upon organic disease, this operation is contra-indicated. It is also contra-indicated in cancer of the stomach.

6. The special advantages of this operative procedure lies in its affording the opportunity to excise all ulcers whether perforated or not in the anterior walls of the stomach or duodenum, after direct inspection of the part affected, also the application of treatment to ulcers situated in the posterior walls. It does not greatly disturb the normal relationship between the stomach and intestines, as is the case in other operations.

While in some instances partial gastrectomy or gastro-enterostomy is undoubtedly the operation of choice, nevertheless, on account of its simplicity and because of its satisfactory end results, we believe that pyloroplasty will continue to retain its position as a safe and useful procedure. Later and more extended experience with this operation has added a further indication, namely in the cases of marked spastic pylorus with hypertrophy of the pyloric end of the stomach, the result of reflex irritation from chronic appendicitis and cholecystitis.

In the study of one hundred cases of gastro-enterostomy, we have excluded, of course, those operated upon for malignant disease, as it would not be fair to compare benign with malignant conditions.

In the one hundred cases of gastro-enterostomy, there were fifty-six males and forty-four females, while in the pyloroplasty cases there were sixty-three males and thirty-seven females.

In the gastro-enterostomy series, there were forty-six of gastric ulcer, thirty-two males and fourteen females. Thirty-eight duodenal ulcer, fifteen males and twenty-three females, making a total of eighty-four cases in which ulcer was present and its location definitely stated.

In the pyloroplasty cases, there were fifty-five of gastric ulcer, thirty-six males and nineteen females. Thirty-two of duodenal ulcer, twenty-one males and eleven females making a total of eighty-seven cases in which the position of the ulcer was definitely noted. It will be observed that there was a preponderance of gastric over duodenal ulcer in both series, but there is a possibility of error here as the older observations were made at a time when the distinction between gastric and duodenal ulcer was not so sharply made as now. Secondary operations were made to correct immediate or subsequent difficulties four times in each series.

The operation of gastro-enterostomy proved satisfactory immediately in 82 per cent and unsatisfactory in 18 per cent.

In pyloroplasty it proved satisfactory in 90 per cent and unsatisfactory in 10 per cent.

There were seven deaths following immediately upon the operation of gastro-enterostomy and five following pyloroplasty, giving a mortality rate of 7 per cent and 5 per cent, respectively.

Of the seventy-seven cases of gastro-enterostomy followed during the first year of the operation, the results were satisfactory in 84.4 per cent and unsatisfactory in 15 per cent.

Of the eighty-two cases of pyloroplasty, the results after one year were entirely satisfactory in 93 per cent and unsatisfactory in 6.1 per cent.

The end results in the gastro-enterostomy cases showed a percentage of 77.2 per cent of satisfactory recoveries.

The end results in the pyloroplasty cases showed a percentage of 88.6 per cent of complete cures.

It would appear from the study of this series of cases that in our hands, at any rate, there was a definite although slight advantage in almost every respect in favor of pyloroplasty. It must be said, however, in justice to the operation of gastro-enterostomy that as these were our earliest cases, some of them, although a small percentage, were done after the earlier method, that is, with an anterior long-loop anastomosis. By far the greater number, however, were done by the present day accepted methods. The particular direction in which gastro-enterostomy seems

to be indicated over pyloroplasty is those rare instances in which there is inability to mobolize the duodenum, due to too dense or too extensive adhesions and to those cases in which there is a great thickening and infiltration about the pylorus, conditions which in our experience occurred but rarely. On the other hand, in gastro-enterostomy there is no possibility of excising the ulcer which can be frequently accomplished in pyloroplasty with, I believe, distinct advantage if the prevailing idea as to the close etiological relationship between ulcer and cancer of the stomach is accepted. From our experience, as related above we have come to believe that pyloroplasty has distinct advantages, although slight, perhaps, over gastro-enterostomy which renders it the operation of choice, except where contra-indications, as noted above, are present, and also in the presence of malignant disease.

Time forbids further discussion, but, in closing, we would like to emphasize the advisability and necessity of radical measures in dealing with ulcers presenting any suspicion of malignancy, as well as in those cases where malignant disease has already developed, which present a reasonable hope of complete removal. In this connection, Rodman's operation certainly has a great deal to commend it and I believe an increasing field of usefulness is before it. Excision of a portion of the stomach by one of the accepted methods is undoubtedly indicated in every case where the findings are sufficiently favorable to justify it. With our increased ability, due to improved diagnostic methods, to recognize and differentiate our stomach cases earlier, and with an enlightened public and a profession alert to the great need for surgical treatment in gastric or duodenal ulcer, which does not respond promptly to medical treatment, we may confidently expect to see ere long a definite decrease in the mortality rate from cancer of the stomach.

But let us sound a note of caution to the over-enthusiastic surgeon. It will be noted that the operation of gastro-enterostomy gave in our hands at least 18 per cent of unsatisfactory results while pyloroplasty, our own child, gave 10 per cent. Other surgeons may have more satisfactory results, but none of us have 100 per cent. It, therefore, ill becomes surgeons as a class to throw stones at the medical man when his own house is built of glass. It will be only necessary, I feel sure, to remind the surgeons in my audience of the times that they have failed to make a definite diagnosis in an obscure case, even after the abdomen has been opened, or to cure the patient by operation, even when done ever so skilfully. Co-operation is what is needed between the internist and the surgeon, not criticism, and this will bring the result that we all so earnestly desire.

THE MODERN HOSPITAL—ITS FORM, FUNCTION AND WORK.*

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FOR the sight-seeing public at home and abroad hospital buildings not infrequently are noted in their guide books or are pointed out by their couriers as objects of interest. Rarely, however, do they constitute for the laymen examples of architectural art, and only occasionally have they gathered about themselves traditions of past great names with which to arouse an interest in the passer-by. Yet to the medical man hospitals are the visible evidences of the progress of medical science and art; in their architecture they are expressions of periods of development in medicine, and with their names are twined the traditions of the profession back to that period when physician and priest were one and the same, and temple took the place of hospital.

As you, who are not initiated into the mysteries of medicine, pass a modern hospital building I fancy I can hear you say "Why was it constructed in this form?", "Is there any real reason for this particular style of building?" or more likely I would hear "lack of style in building?" I cannot enter the lists as a defendant of hospital construction from the point of view of claiming that the modern hospital building forms an architectural adornment of a city in the eyes of the laymen. Sometimes it does, and very often those are hospitals unsatisfactory from the professional side. However, given a certain purpose, location determined by the needs of the problem, and certain available sums of money, if architecture in its truest sense is an expression of the purpose of an edifice, then many of our modern hospitals are architectural achievements to those eyes that have learned to read into the bricks and stones the purpose of those who created the buildings.

Why do they not seem more beautiful, for beautiful they rarely are to the lay eye? Many reasons enter here. Architects are unskilled in hospital construction, because rarely does an architect during his life time plan more than one great hospital. Medical progress has prevented the establishment of rules and traditions for hospital construction. The medical man has certain requirements of inside arrangement which interfere with position of windows and doors, determine number of stories, balconies, roof lines and a hundred other things which must be proportioned and balanced, moulded and decorated to give an exterior architecturally satisfactory. Medical needs are constantly changing. Medical men know little or nothing

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 24, 1917.

of architecture; the architect is similarly ignorant of medicine. Is it any wonder then that the professional requirements within dominate the exterior, and the architect who has yielded here and given in there presents an external compromise unsatisfactory to himself and unlovely except to those who can read into the structure an expression of its purpose and an index of its activities? Medical men must be blamed for these conditions, not the architects.

What determines the form of the modern hospital? Why are some of the sky-scraper type while others are dotted cottage-wise over an extensive green lawn, and still others are more compact, and yet made up of separated buildings of many forms? As good an answer as any is: the needs of the individuals to be served determines the location; the requirement of fresh air and an abundance of light determines the form, a form further modified by the type of patient, acutely or chronically ill, young or old, sick of body or mind, a danger to his neighbor or not by reason of the contagiousness or lack of contagiousness of his disease.

The sky-scraper type is an expression of the need for a hospital in a thickly congested district, where land values are so great that economy requires story piled on story to reach fresh air and sunlight, while the lower floors serve for administration and the out-patient activities that make of the hospital of the densely populated district not merely a place for the cure of disease but a social center for its prevention.

The cottage type suggests the chronically ill of mind or body for whom outdoor occupation is needed, not merely the passive enjoyment of fresh air. These patients' diseases do not prevent their transportation, and they do not require emergency treatment from surgeons and physicians. These and other reasons make it wise to go for a site outside the city where land values are relatively low.

The third, or pavilion type, represents an intermediate position, a combination of the advantages of the sky-scraper type and the cottage type. This latter type is the one just now most preferred for large hospitals for those acutely ill of non-contagious diseases, as it gives an abundance of air and light, and still occupies a sufficiently restricted area to permit of its location close to the congested districts of the city.

Almost all of the larger American hospitals can be fitted into one of these groups, but the small hospital usually is but a single building of moderate heighth and rather intermediate between a single building of the pavilion type and the sky scraper form; on the whole conforming in conception rather closely to the latter, though of course on a much smaller scale. The average of our American hospital construction is good. The two chief criticisms that should be made of them are that they have cost proportionately too much, and that their construction and equipment is better adapted to the work of the surgeon than to that of the physician.

By costing too much I mean that with few exceptions hospital trustees and staff, when they come to building, spend too large a proportion of the available funds on buildings and too small on equipment and a maintenance fund. Of what is spent on construction much is paid for things which do not materially improve the comfort of the patients and the efficiency of their treatment. A hospital building should not be crude and bare; on the other hand ornateness, polished brass and marbled floors are equally out of place. I do not mean by this to decry the value of the artistic and the æsthetic to the sick man, for their value is great, but these are more dependent on good taste than on great cost.

When next you visit your hospital, or any hospital, ask yourself of everything you see, "How does this thing help the patient directly or indirectly?" If you do not know ask of the following, the superintendent, a member of the staff, a nurse and a patient. If no one knows check it off as useless. If the reasons given are vague or indefinite give it the same fate. If the different reports are conflicting mark it as of doubtful utility. If anyone advances a good reason for the thing asked about, put it down as contributing a useful part to the aim of the hospital. It is quite surprising how, looked at in this way, many things that cost money might have been omitted or constructed in far simpler form without rendering the hospital any less an efficient place for the care of the sick.

The overhead charges and running expenses of the modern hospital are and should be large. Apparatus for diagnosis and treatment, medical and surgical, is costly and much is needed. In the hospital personel many trained workers are required, and their cost is ever increasing. If the best service is rendered to the patients of a hospital much money must be spent. If the money is not available, patients suffer in the sense that they are inadequately studied, diagnosis is inefficient, often incorrect, and treatment is ineffectual. So if in building a hospital too large a part of the available money is spent on construction every patient subsequently admitted to that hospital gets proportionately less than he should. In my judgment to do, as is often done in this country, spend most of the available funds on buildings, thereby creating a handsome memorial, let us say, is little short of a misappropriation of funds for which trustees and staff should be held responsible by the public. The hospitals today in America that are doing

the best work are not those with the finest buildings. It is what is inside, not outside, and the effectiveness and cerebral capacity of the hospital personel that makes for efficiency in hospital medical and surgical work. If you are going to a hospital as a patient go to the hospital whose reputation is for good work, not to one which is known for its fine building.

As to my other criticism of American hospitals, that their construction and equipment is better adapted to surgical than to medical work, I mean by his that in most instances the needs of the surgeon have received more attention than those of physicians. I do not imply by this that surgical staffs are any better equipped for their work than they should be; they are not. However, medical work is rather generally handicapped by not having sufficient laboratory space and enough trained technicians for the numerous tests used today in medical diagnosis, and in most hospitals there is a sad lack of space and equipment for various forms of hydrotherapy, mechanotherapy, accurate dieting, etc., things which are of much help in the handling of medical patients. In the lack of these American hospitals are in sharp contrast to foreign ones. The medical side of a hospital should have a budget equal to that of the surgical side if each side has an equal number of beds. The laboratories, hydrotherapy plant, diet kitchen, etc., are just as essential as an expensive operating plant; all are merely means to diagnosis and treatment. These criticisms apply to our best and largest American hospitals. Many of the smaller hospitals are merely nursing homes attached to inadequate operating rooms. Such, and they are very numerous in the United States, should not be even considered as hospitals.

At first thought the function of a hospital would seem simple; to alleviate suffering and cure illness is the generally held idea of a hospital's purpose. This is one of its chief functions, but not the sole one. Equally important are its educative and investigative functions. Nurses, medical students and graduate physicians are daily being educated in the modern progressive hospital. If its work is well done from its doors goes each year a steady stream of men and women trained to serve the community in the great fight against disease and its consequences. Equally important in educative value is the effect of the hospital on the patient. Imagine the silent influence exerted on the women from the dirty, poverty-stricken tenement of a three weeks' sojourn in the clean wards of a hospital where she is well fed and given cheerful efficient service from nurses and doctors. Her friends come, too, to see her, and to many this visit gives them their first impress of the joy of a clean body and fresh linen. Such contacts can be but an inspiration to better living. The efficient hospital, however, does not leave the matter at this point, but by continuation treatment in convalescent homes, by return visits to its outdoor department, and by social service and other forms of follow-up work in the home, the hospital seeks to nurture the seeds thus sown by the sojourn in the hospital. It is difficult to measure in any concrete form the influences thus exerted by the hospital, but we see often in those who come again for subsequent hospital treatment evidences that in their first sojourn influences had been started at work which had improved their conditions of daily life. A spirit of friendliness more and more is becoming a dominant feature of efficient hospital service, and friendliness is assuredly one of the great factors in the uplift movement.

But what of the teaching work carried on in the hospital wards? Do not the patients object to being utilized for the instruction of medical students and nurses? Strange as it may seem, the answer most emphatically is "no." The medical man has been long convinced that teaching hospitals are the most efficient; that in them the examination of patients is most thorough and diagnosis most carefully made. Why? Because the keen-eyed, critical, eager medical student cannot be fooled by the cursory examination and careless diagnosis. No teacher can long survive his pupils' criticism of careless work. Even the general public is coming to recognize this, as was well shown recently in one of our large cities, where the trustees of a sectarian hospital asked of a medical school that they should make of their institution a teaching hospital. When asked the reason for this change of attitude, for that hospital had rather boasted in past years of not having medical students in its wards, there came the rather surprising reply, I am told, from its lay board of trustees, "We have found that patients prefer the teaching hospital." This information came in this wise. The trustees had noted a falling off in the number of patients entering their wards, and particularly in those able to pay ward charges. A social service worker investigating this by questioning former patients often received the answer, "When we can afford to pay we go to Hospital A (a sectarian hospital nearby in which there is much teaching). If we cannot get into A we come to your hospital." Further questioning brought out that the people considered that in Hospital A they were more thoroughly studied and better treated. As one patient said, "At A I have a young assistant almost entirely to myself, and the senior doctors always discuss my case with the junior." This, ladies and gentlemen, is ward teaching; the young assistant is no other than the medical student, and the discussion of his case is his instruction, but, true it is, that this very exercise often brings to light facts

of great value in determining diagnosis and treatment.

Any objectionable feature from the viewpoint of the patient in hospital teaching we hear of almost solely from the outside, from those who do not understand what is done; it is not a problem that disturbs us within the hospital walls. In ten years' intimate association with hospital teaching I can recall but few complaints from patients because of examinations made by students, and these are more than offset by those who give vent to their sentiments as did an old Irishwoman in my wards, who said one morning, "And shure, Professor, can't I have one of thim little doctors all fer meself like Mary Ann in that ither bed. I'v got so miny troubles to git off me mind, and you real doctors are too busy to bother." The medical student does much of the hospital routine work while being taught, and so adds his part to the efficiency of the institution.

What of medical investigation? Like investigation in any field it is the inspiriting influence that freshens the daily teaching and the routine of medical practice and administration. Medicine is essentially an advancing profession, and the hospital that contributes nothing toward that advance is one that is rapidly dropping behind in medical progress. Each patient in reality presents a problem for solution. To label his disease is not sufficient, for nature endows the human body with multitudinous variations. These constitute the environment for the causative factors of the disease, which in turn are subject to similar variations, for the causes are in many instances living things, now of the animal kingdom, now of the plant world. So the sick individual to obtain the best results should be looked upon as a problem for solution. This attitude is most prevalent where investigation is being carried on. Hence apart from the value to medicine as a whole of each new discovery there is a value to the individual patient in the spirit of investigation pervading the staff of a hospital. Decade by decade, now this hospital, now that, is able to throw light upon disease; in some cases by a single discovery to remove from the world untold suffering. This single discovery justified years of labor and great expenditure of money, but such a reward can come to but few hospitals. However, they are the inspirations of our work, the goals to which we aim even if rarely attained. All, however, by incessant delving may contribute the minor facts on which eventually great generalizations may be based. Unlike most investigation, medical investigation not alone contributes a result in the conclusions drawn but usually has benefitted a number of individual patients during the progress of the investigation. For these several reasons the modern hospital encourages investigation and utilizes its funds in providing facilities for investigation, not as a thing apart from the regular hospital routine, but as an integral factor in the daily work of the institution.

In the cure of the sick, in the education of nurses, medical students, graduate physicians and patients, in the investigation of medical problems results are obtained which concern not only the healing but in a large sense the prevention of disease, so that prevention of disease becomes, too, an important function of the hospital built primarily for the treatment of disease.

In a general way I have outlined the form and function of a modern hospital. How about its work? The efficiency of the hospital's work depends on material equipment, proper organization and an efficient personel. Material equipment I have already touched upon. Organization is a matter of much discussion at present. What is the best way to organize a hospital staff? What are the most effective relations between professional and administrative staffs? These and many other questions at once occur to you. No single catagorical answer can be given to any of them. With each hospital, size, purpose and local conditions should be seriously considered. What would be an admirably effective organization for Hospital A might easily prove a failure if applied unchanged to Hospital B. What would be highly satisfactory for the hospital in the large city would not work in that of the town. It would seem that of late there has been too much tendency to advise a fairly uniform plan for all hospitals, with too little consideration for individual variations and local conditions.

Hospital work now requires far more time of the staff than formerly. So organization must make possible to the staff to devote a considerable time to the work. Corollary to this is the necessity of providing directly or indirectly for the remuneration of the staff. If these two principles are recognized and met by any plan which is adopted, the plan will give a pretty efficient hospital organization.

Again, medical and surgical work is becoming more and more highly specialized, and this renders it necessary to have continuity in policy and direction to get best results. Consequently there seems but little doubt that the limited staff with some form of continuous headship of services is now necessary at least for the larger hospitals. In hospitals where teaching is done this is almost indispensable.

Many trials of various forms of staff organization are under way now and from these experiments much should be learned. It is to be recognized that conditions are changing, and in this transition period all interested in hospital management should watch these experiments

with an open mind, ready to adapt to their institution such changes as seem likely to improve it.

In those hospitals in which the continuous service with a single responsible head has been adopted, and in which arrangements have been made so that many of the staff spend almost their entire working day within the institution, many internal adjustments undoubtedly will be brought about. The relationship of the administrative departments to the professional departments of the hospital will need changes. It is to be recognized that much of the present subdivision of function came about more by accident than by design. In the older arrangement the superintendent was the man most constantly on the job, and he represented continuity of policy. To him naturally were delegated certain functions as a result. In some hospitals now with chiefs-of-service continuously on duty these conditions have changed, and it is the superintendent and his assistants, not the professional staff, whose work takes them away from the hospital for part of the day. These new conditions have stirred up the question as to who can do most efficiently a number of things formerly done by administrative officers as a matter of course. It is generally thought that changes will come about as the result of this newer form of hospital staff organization. At least from it has developed a considerable amount of dissatisfaction with some of the present relationships between administrative and professional staffs. New relationships will have to be worked out. Here again no fixed plan is desirable. The guiding principle should be a division of duty that will bring to the institution a maximum of efficiency and permit to all the opportunity of doing their work effectively, and happily remembering that the prime reason for the hospital after all is to render the best possible service to the patients.

Lastly, one of the most important things for any hospital is to secure an efficient well trained staff personel. The best possible man must be in charge of the hospital. Selection cannot be limited by anything else than the quality of the individual. In this respect sectarian hospitals, in so far as religious belief is allowed to determine selection of staff, are seriously handicapped. Seniority of promotion in the same way is a sure means of guaranteeing mediocrity of service. Previous training and demonstrated effectiveness in work should be the only factors considered in selection of hospital personel from top to bottom.

I hope in my remarks I have opened up questions for your thought. I have attempted no direct solution of most of these problems. How to make your own hospital as efficient and as effective as possible is an individual problem whose solution depends on many factors which you alone can know. Constant improvement is possible to all and should be your aim.

THE IRREDUCIBLE MINIMUM OF CARE AND ASEPSIS IN EVERY DAY OBSTETRICS IN THE TENEMENTS.*

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THE care of women during parturition in the Tenements depends entirely for its success upon Asepsis.

First, asepsis of the apparatus: second, asepsis of the operator: third, asepsis of the patient: fourth, some comprehensive method of recording all such cases so that a permanent record may be maintained, be it a well organized institution such as the Lying-In Hospital in the City of New York, where over eighty thousand cases of confinement in the tenements have been carefully recorded, or the ordinary practitioner who has a limited number to attend. Finally, the very fact of this work being carried on in the tenements implies a minimum of time expended and a minimum of cost, if it is to be done at all.

That it can be done well with a low mortality and morbidity depends entirely upon the adoption of a system that must be reduced to the simplest form compatible with the best results obtainable.

The reports of all the great lying-in charities are open to you all so that it will not be necessary to go into their methods of obtaining the splendid results that they show, notwithstanding the fact that the care of the patient is in many cases actually in the hands of students of medicine, although under direct supervision of men trained in obstetrics.

What I shall endeavor to bring before you in this paper is the simplest method that can be adopted by the general practitioner of obstetrics to secure results equal to the best of those found in the larger institutions devoted to this work.

Before going into the methods to be adopted, I shall quote from an article by Dr. James A. Harrar on *"The Results of Technique of the Lying-In Hospital Out-Patient Service in 45,000 Confinements,"* to show briefly what the most common causes of death are, for in this way the dangerous cases are brought more strongly before the practitioner.

In the 45,000 confinements there were 144 deaths or 0.32 per cent, or one death in every 312 cases; 99 of these died in the tenements and 45 died after the removal to a hospital.

First in the causes of death came sepsis, in one form or another, causing 36 maternal deaths, or 0.08 per cent, a record which I am happy to say has been materially reduced by the gradual improvement in technique that has taken place since those statistics were published.

The next most frequent cause was rupture of the uterus, 20 women having died from this

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 25, 1917.

cause. In 9 cases it followed internal podalic version. Six cases ruptured spontaneously, due to prolonged labor and failure to deliver the woman before the lower zone of the uterus had become thinned out. In all fairness I must say that some of these did not come into the hands of the Hospital Staff until they were well advanced in labor. Nineteen deaths were in eclamptic patients, many of whom were seen for the first time when already in the eclamptic seizure.

Placenta praevia caused 16 deaths; nine of these cases died within a few hours of confinement from shock and hemorrhage; some of these might have been saved had the modern methods of transfusion been perfected at the time. Pneumonia was fatal in eight cases; cardiac diseases in six; premature detachment of the placenta in four; postpartum hemorrhage, four; five from phthisis; five following Cesarean section in the tenements, as at that time there was no available hospital into which to send them; pulmonary embolism, carcinoma and similar troubles made up the remaining total.

That the greatest number of deaths were from sepsis compels us to adopt the most strenuous surgical cleanliness in the handling of these cases. This brings us to the point where we can study how best to combat sepsis in the tenements.

It is manifestly impossible to make a tenement house room aseptic, and in the service of the Lying-In Hospital we have made no attempt to do so. What we have done is to make aseptic, as nearly as possible, the immediate surroundings of the patient herself, and the paraphernalia utilized by the accoucher in conducting the delivery.

In an article on *"Obstetric Technique for the General Practitioner,"* I described a set of obstetrical instruments. It is contained in a canvas case which may be sterilized by boiling and contains the following: 1. The obstetrical forceps of Elliott, modified so as to be best adapted to the female pelvis and the head of the child. 2. The axis traction rods and handles as devised by Edward Reynolds of Boston and adapted to the Elliott forceps. 3. Instruments for craniotomy including the perforating scissors of Smellie, and the cranioclast of Simpson. In this group also belong the embryotome of Meigs and embryotomy scissors and blunt hook. 4. Instruments for the repair of the cervix and perineum, including two ribbon retractors, a Mayo needle holder, two volsella forceps, two sponge holders and suturing material. These instruments are characterized by simplicity and comparative inexpensiveness. They are all hand forged and accurately made, compact, and light in weight, weighing less than eight pounds when contained in a canvas case.

The practitioner should not, however, be merely acquainted with the proper use of the instruments referred to, but must be thoroughly acquainted with each of his cases, and this acquaintance should include a thorough knowledge of the woman's pelvis and its contents. This must in every case be determined before labor, so that if any abnormalities are present, they may be recognized and provided for. A knowledge of pelvic deformities is essential for every practitioner who undertakes the conduct of a labor case and it is only by carefully studying the normal pelvis that variations from the latter may be determined.

The examination of the patient at the time of labor must be conducted according to a definite system and the method employed in the Out-Door Service of the Lying-In Hospital may well be used as a basis for the same. The following description is taken from the "Book of Instruction" distributed to the doctors on the Out-Door Service of this institution. Upon arrival at the case the patient is questioned as to her pains, etc., while preparations are made for a complete abdominal and vaginal examination. The former must include the palpation of the fetus with respect to its position, size and condition of the uterus as regards its contractions. Auscultation of the fetal heart includes rapidity, character and position. At the same time a note is taken of the woman's general condition and the character of her pains. When this has been done, preparations for the vaginal examination are made. All outdoor garments should be removed before entering the lying-in chamber, and the shirt sleeves always rolled up to a point above the elbows. The patient is told to empty her bladder and is then told to go to bed, removing all her clothes except the chemise. She is then directed to draw up her legs and separate them and the Kelly pad properly inflated is placed under the buttocks. The doctor then scrubs his hands and forearms up to the elbows for five minutes, using a sterilized brush and soft soap provided in the labor bag, employing running water if possible and removing the dirt from under the nails with the wooden pick provided for this purpose. When this portion of the scrubbing is completed, the nail brush is laid on the open brush case and not at random anywhere else. The patient's genitals are then washed with soap and water after the pubic hair has been clipped, and are rinsed with whatever antiseptic solution is preferred; in our case a 1-2000 bichloride of mercury. The doctor's hands are again scrubbed for two minutes and rinsed with the solution. The patient is now ready for the introduction of the fingers of the examining hand into the vagina, previous to which the labia must be held apart by the fingers of the free hand so that no foreign material is carried into the vagina by the examining fingers. In making the vaginal examination, the following points are to be noted: condition of the external genitals, including dilated veins, venereal lesions, etc., patency of the

vaginal wall (obstructive bands, etc.). The mobility of the coccyx, the position of the ischial spines, the outline of the pelvic brim as far as this can be determined, the sacral promontory, the degree of cervical softening and dilatation, the ruptured or unruptured condition of the membranes and the position and engagement of the presenting part and if this is a vertex, that of the sutures and fontanelles.

Cleanliness is the secret of success both in surgery and obstetrics and there are many methods laid down for obtaining the same. One may adopt which ever seems best, but it should always be remembered that surgical cleanliness must be absolute and not the smallest break must occur, for it is evident that washing the hands with the utmost care and attention to detail will be of no avail if these hands become contaminated at any time during the conduct of the case. The rules for surgical cleanliness of the Out-Door Department in the Lying-In Hospital have worked well in over eighty thousand cases and we have no hesitation in quoting them as a safe procedure.

When the physician assumes the care of the woman who expects to be confined, he should feel that he is responsible for her welfare, not only until the child is born but until the woman has completely recovered. He must therefore make a careful antepartum examination of each case and likewise guard against the numerous complications of pregnancy which may arise, such as toxemia, etc.

He must also make certain that the general health of the patient is such that she will be able to bear the added strain of motherhood, and he must likewise warn her against various complications of pregnancy that may occur. He must likewise instruct the patient when to send for him, and have her prepare the room in which she expects to be confined. An abundance of hot water, clean linen and towels must always be provided by the patient. A good sized fish boiler makes an excellent sterilizer for instruments, etc. During the course of labor much time may be saved by adopting for the patient the postural treatment which is especially valuable during the first and part of the second stage. Forceps and other operations are resorted to daily by many practicing obstetrics with but little more reason than, that the patient has been in labor longer than appears necessary.

I would strongly urge that the first stage of labor be observed more carefully than it has been in the past and that obstetricians, both in hospital and private practice, exert their efforts to making this stage as short as is compatiable with perfect safety to both mother and child; for by so doing much suffering will be spared the mother, and the accoucheur will husband his time, first by instructing the woman how to make the best use of her pains, instructing her to hold her breath and bear down when the pains are weak and ineffectual, or in case of a strong, rapidly recurring uterine contraction to open the mouth and use as little as possible the auxiliary muscles of expulsion. In both of these the use of posture will be of great assistance. In the weak pains the sitting posture will allow the weight of the uterine contents to bear steadily on the cervical zone, slowly dilating the parts by the force exerted by the bag of waters, whereas in the case in which the contractions are severe the patient may possibly recline to better advantage than by walking about or sitting in the chair. Again, in moderate degrees of pelvic contractions, the chair will be of great advantage, allowing full dilatation to take place before the patient has become worn out by long continued efforts and the consequent thinning out of the lower half of the uterus with the not infrequent contraction of the ring of Bandl which, when carried too far, will mean an impossible delivery by normal process. Even in the second stage in old primiparas, the chair may be used to great advantage to dilate the rigid pelvic floor. Of course here the greatest care must be used not to carry it too far.

It has never been intended that the patient should be placed in the sitting posture at the beginning of labor and continued in that position, but rather that it be used to rest the expectant mother's efforts and allow the weight of the liquor amnii to do its part to the best advantage. Each case must be judged by itself, the patient going from the bed to the chair or walking about as is most comfortable for her, and yet bringing the first stage of labor to an end in the shortest time possible without risk.

Kindly sympathy and encouragement will do a great deal to alleviate the patient's suffering during labor and aid her confidence in the attending physician, so that she may make the best use of all her own efforts, both mental and physical to shorten the actual time of her labor.

Normal labor cases are best delivered in their own beds. The Kelly pad serves to protect the bed from the patient's discharges and also the patient from the bed.

The lateral position may be used at the time of delivery as it raises the patient's genitals from the bed and thus improves the asepsis of both patient and attendant. The position of the patient during delivery may, however, be a matter of choice with the physician.

When an operation becomes necessary, the patient is removed to the kitchen table and after anesthesia is properly induced, she is put into the lithotomy position with the assistance of a small canvas leg holder or twisted bed sheet. The towels are draped as follows: one across the perineum suspended from a strip of adhesive plaster passed around the thighs. One is pinned around each leg and one is laid across the abdo-

men. This procedure insures quite thorough asepsis of the immediate field of operation and the surroundings, which together with the care bestowed in cleansing the hands, affords a satisfactory method of guarding against the possibility of ordinary puerperal infection. The preservation of the sterility of the hands after such a preparation is largely a matter of training and the habit of refraining from contamination of the clean hands, is only acquired by continued thoughtful practice and the development of what may be termed an "aseptic conscience."

When instruments become necessary, we may regard the average female pelvis in so far as the use of forceps is concerned, to include such slight variations that these may be safely disregarded. Therefore our forceps' blades must be devised in such a manner that they will be neither too large nor too small to readily pass into and through the pelvis up to the brim. The distance from the tip of the coccyx to the pubic symphysis is about 12.7 cm. and from the symphysis to the promontory about 10 cm., therefore the forceps' blades must not be longer than 10 cm. If the forceps here described are laid upon a table, it will be seen that the handles curve upward to such a degree that the tips are about 8 cm. above the table and the distance from the beginning of the upward pelvic curves will be about 9 cm. We must not forget, moreover, that there are two curves to be considered in every forceps, one devoted entirely to the child's head and the other to the mother's pelvis, and I would urge that in applying the blades the fact be kept in mind: namely, that primarily we must apply the forceps' blades to the pelvis and secondarily to the child's head when this is met with.

In the first place we take up the pelvic application of the blade, ignoring the cephalic curve. The method which seems to the writer most nearly correct in a mechanical sense, is to place the left blade in the vagina at the outlet so that its tip lies directly in the center, midway between the symphysis in front and the coccyx behind, while laterally it must be midway between the tuberosities of the ischia. It will then lie in the center of all axes of the pelvis or at the beginning of the so-called curve of Carus. Then by depressing the handle, always in the median line, the tip will pass through the center of the pelvis to the brim. In order to do this correctly, one must gently press the thumb against the blade so as to keep it near the symphysis, thereby making the latter the point around which the blade rotates.

In describing the passing of the forceps into the pelvis we have purposely not taken into consideration the head of the child, for to make an application of the blade to the head of the child is an entirely different procedure. To do this one must bear in mind the cephalic curve only, remembering to keep the blade in the median line, and not until the head is reached do you rotate the entire blade upon its own axis. By so doing you will find that the cephalic curve will, with the greatest ease, pass along the side of the child's head until it is in exact approximation, provided the presentation is a normal one.

That these methods of forceps introduction are correct from a mechanical point of view, is proved, I believe, by the fact that if you will remove each blade by simply pressing the handle upward in the opposite direction from which it was introduced, you will find that it will repeat in reverse order, the exact motions above described for its introduction.

Craniotomy or embryotomy may become necessary in rare cases, but since a careful antepartum examination and various obstetrical operations have become perfected, one hears of those procedures much less frequently which call for a reduction of the size of the child while still within the parturient canal.

The indications for craniotomy or embryotomy are, the death of the child and the impossibility of delivery by the ordinary means, including version, forceps, or other procedure that will not jeopardize the mother. Cases that come to maternity hospitals for such operations are usually badly complicated by unskilled efforts to deliver the same by main force in which bruising and lacerations of the maternal tissue favor greatly the production of septic infection.

The writer desires to present a simplified procedure for the performance of a craniotomy and a set of instruments that has given very good results in his hands. They are comparatively free from danger in their employment and may be used by the general practitioner who feels himself capable or is unable to secure the assistance of an assistant, for there is no one engaged in obstetrical work but at some time or other has not been forced to resort to a destructive operation to complete a delivery which is honestly believed would have been completed by forceps or version. In such cases the danger to the mother of exhaustion is imminent and when after the usual methods of delivery are exhausted and all signs of life in the child are extinct, immediate delivery becomes necessary, then this operation should be done as soon as possible to preserve the life of the mother.

It would be wise to call upon a confrere to confirm the death of the child and with his aid to proceed with its extraction by reducing the size of the same. As a preliminary to the introduction of the instruments, complete dilatation of the cervix is essential. The patient should therefore be placed on a table and subjected to general anesthesia after which she is placed in the lithotomy position and properly draped in the manner already described. The first instrument to be employed in craniotomy, is the per-

forator, for which purpose the Smellie scissors is the most satisfactory contrivance, as it is light in weight, can be readily sterilized, and when properly used will entirely break up the contents of the cranial cavity. After determining the position of a fontanelle, the operator passes the Smellie scissors protected by the palm and fingers, into the vagina and against the fontanelle, pressure on the head being made from above by an assistant. With the other hand the points of the scissors are pressed against the scalp, then pushed carefully through the fontanelle or suture line. After they have penetrated the skull the blades should be opened to their fullest extent and rotated in both directions so as to break up the brain substance. After removing the scissors, the cranioclast of Simpson is employed for compression and extraction, which are the next steps in the operation. The instrument is composed of two blades, one with serrated sides which is intended to engage in the opening made by the perforator and after the other or fenestrated blade has been applied to the outside of the skull, partakes in the compression of the latter. There is no binding screw in this instrument as in that of Braun and several other makes, but I have found that once the blades are locked, the operator by carefully rotating them on their long axis, is able to fold the crushed head around the forceps, thus reducing its size. At the same time, traction is made in the direction of the pelvic curve, care being exercised not to put any pressure forward against the symphysis, bladder or urethra. During the process of extraction and rotation, the fingers of the free hand must be kept in touch with the collapsed head to make sure that no splinters of bone protrude to damage the maternal soft parts. The operator must also determine at this time whether the shoulders are following the head into the pelvic canal. A warning must again be extended against making pressure towards the symphysis or bladder as this will not only increase the difficulty of extraction but may produce considerable damage to this organ. When a version has been attempted and the after-coming head proves too large to come through the pelvis, perforation must be made through the base of the skull, entering by means of a suture if possible. In some cases after the Smellie scissors have been employed, the cranioclast may not be necessary as a collapse of the skull often follows the evacuation of the brain material. It is only rarely that the body of the child interferes with delivery to such an extent as to call for morcellation, but if such an occasion arises, the blunt hook is a great assistance in drawing down a hand or leg, thereby breaking up the fetal wedge, or in cases where the shoulders of a large child are firmly impacted in a comparatively small pelvis, it may be expedient to cut the clavicles so as to reduce the size of the shoulder girdle. This is best done by inserting the blunt hook in an axilla, then with the heavy Braun scissors cutting through the clavicles at their mid-point. In extracting the trunk after embryotomy, the heavy Braun fenestrated forceps will give a very firm hold and by twisting the same on their long axis during the extraction, the latter is often rendered easier. After the child has been completely delivered it has been the author's custom to remove the placenta manually in case this did not come away spontaneously. For the repair of lacerations occurring during the delivery, the ribbon retractors will be found invaluable, for with these and the volsella forceps, the cervix can be drawn down and any deep lacerations present repaired, thus avoiding the possibility of hemorrhage from this source. The perineum must also be examined and repaired at this time unless the patient is in extreme shock, when such reparative operation may be deferred for twenty-four hours or more, until the woman is in better condition for the same.

Finally every practitioner of medicine should in all his cases, no matter how trivial, keep records so arranged that he may refer to them at any time, either as an aid in his practice or to confirm the testimony that he may be compelled to present to the court, in some suit for damages or other legal procedure. There are many card records printed for just such purposes which can be procured in any city, or he may elect to have his own system, a plan which is easily accomplished by a study of the systems published by many of the large hospitals, or often by individuals.

CO-OPERATION IN MEDICINE.*

By MARTIN B. TINKER, M.D., F.A.C.S.,
ITHACA, N. Y.

THIS is an age of co-operation. On every side, every line of effort has its co-operative schemes. Business men are organizing co-operative banks; farmers co-operative distributing and selling agencies and stores, manufacturers and merchants are co-operating with their employees by profit-sharing. Primitive man found that the only way to survive was to work, fight and live for the common good, and with the crowding competition of modern living and specialization there is even greater tendency to combine effort. In our profession the advance has been so rapid that it is impossible to know more than some small part of our field well, or to do justice either to ourselves or to our patients working single handed. Some few fortunate members of our profession have long had the advantages of co-operation in their connection with medical schools and teaching clinics, with

* President's Address at the Annual Meeting of the Medical Society of the State of New York, held at Utica, April 24, 1917.

the staffs of well-appointed hospitals and dispensaries. In recent times there has been a tendency to form co-operative group clinics, or partnership arrangements, especially in the middle west. In many instances they have proved of great advantage to those connected with them and to patients treated, but it is obviously neither possible or desirable that every doctor should belong to such a group of specialists as it is impossible for us all to be connected with the teaching clinics of medical schools or the better endowed hospitals and dispensaries of the large cities. It is not my intention to advocate group clinics tonight, however great might be the good which would come with a wider adoption of this idea. It is rather my purpose to emphasize the only possibilities of co-operation open to many of us.

At least 98 per cent of the sick of this state and country as a whole must come under the care of practitioners, surgeons, and specialists unattached to any medical organization. To these many questions come for solution. How can the rank and file and the special workers co-operate, and be of material help to each other? How can older, well-established practitioners co-operate with more recent graduates? What is the place of Medical Society in co-operative medicine? What are some possibilities of co-operation between the public and the medical profession?

Laboratory Methods.—The first question confronting one called upon to treat the sick is diagnosis. What do we need to know in order to reach a correct diagnosis? Is some laboratory test desirable or essential? Would an x-ray be of help? Is the advice of a specialist of prime importance? As regards laboratory facilities, fortunately there is little difficulty in the way of any earnest worker in any part of this state at the present time. The State Laboratory at Albany, various County Laboratories scattered about the state; City Laboratories, the laboratories of hospitals, medical schools, private institutions and private laboratory workers in larger and smaller towns, now offer efficient service in almost all localities. They are ready with advice as to the best ways of taking and sending specimens: Many supply culture tubes; tubes for taking blood for Wassermann and mailing cases which can be used in sending specimens. In spite of this many do not take advantage of this important means of co-operation. Some apparently feel ashamed to admit that they do not know all that there is to know about any case or are not in a position to find out, others fear the expense of such examinations; a few others neglect this important factor of diagnosis apparently out of sheer indolence.

The County Laboratory idea, originating in Ontario County, has proved most helpful in many other localities and would seem worthy of wider adoption. Physicians in the larger centers usually have very little to criticise in the way of laboratory facilities available for them. Laboratory workers as a rule are good co-operators and do their share promptly and well. Some of us have had experience, however, with the sort who delay interminably their reports on important cases; whose reports, when they do come, are so indefinite as to be of little value; who, because they are working for an assured salary feel that it is not important to help the man who applied for their special knowledge in some case which to him is a difficult one.

The public need further education to teach them the importance of laboratory diagnosis. Laboratory work naturally gravitates to the most convenient center, and if mutually helpful it may make an interesting and permanent career for a considerable number who through natural bent or training prefer it. Wider use of the laboratory would be of the greatest benefit to the public, the practitioner and to the laboratory worker, and is bound to come.

Specialist and Practitioner.—Considering co-operative relations between the specialists and practitioner: Those entering special practice should not expect the practitioner to refer work to them without they show real aptitude; without willingness to sacrifice effort, time and money to acquire experience and skill; without constant study and effort to keep abreast of the time. The specialist should urge the practitioner to come *with* his patient for examination and treatment. The patient thus gets more intelligent home aftercare and the results are more creditable both to the practitioner and consultant. The specialist should teach the practitioner as far as possible what to do; how to do it; reasons why; what should be his limitations in such cases; what reasonably to expect of the specialist's work. Several of the busiest practitioners who regularly refer surgery to me, recognized among the most prosperous financially, as well as most successful professionally, almost invariably find time to come with their patient for examination and discussion. Their understanding of home surroundings, family and previous history, as well as the course of the disease, has often been of inestimable value in reaching a diagnosis and advisability of treatment. Try to make your experience and knowledge of special help and value to the practitioner as well as the patient. Specialists should be willing to care for the uninteresting, poorly compensated charity work; to be fair to the patient; to deal fairly with the practitioner whose reputation is at stake when he endorses a specialist. On the other hand the practitioner should not forget that he owes some allegiance to the man to whom he refers his disagreeable emergency work, that he cannot send five hundred or a thousand miles to the man whom he considers a big specialist; to the man

who takes his charity patients, his last resort cases; this man who operates upon his wife, upon himself or his children is also entitled to a fair share of better compensated work.

Co-operation in Study of Medical Literature.—Systematic reading and study are essential to medical progress. The average practitioner subscribes to not more than two or three Journals. It is true that some contain reviews of literature, but no one would claim that these are as valuable as the original articles, and even if we read an abstract of interest we seldom find opportunity to read the original. A Journal Club of from six to eight members gives the reading of a much larger number of Journals with no extra expense. If each member subscribes to one or two good Journals not taken by the other members of the club and if these Journals are passed along weekly or fortnightly, it gives the reading of a much larger share of the world's progressive medical literature. If in addition the members bind and file their copies, a valuable medical library can be establishd. Another plan is to have a membership fee which not only pays for the Journals but for stickers printed with the members' names, the sequence in which the Journals are to be distrubuted and the services of a small boy to distribute the Journals weekly or fortnightly. Material reduction in cost of Journals subscribed for by a medical club is usually possible. Among many helpful things which my former chief and friend, Dr. W. W. Keen did for me was to make me a member of the Octagon Medical Club of Philadelphia. The habit of more or less systematic reading, when once formed is apt to stick, even in the rush of a busy practice.

More helpful, but more difficult to carry on successfully, is the medical club in which members present abstracts. I have been a member of three such clubs and the organizer of one, and from experience I believe that they are seldom as permanently successful as the Journal Club which simply distributes Journals.

The Established Practitioner and the Recent Graduate.—In no way, I believe, can the best interests of medicine be promoted more effectively than by closer relation between those well established in practice and recent graduates. Any earnest progressive worker of ten or twenty years' experience should have something to teach the more recent graduate. Experience in any field is of great value; few men are able to attain the highest success without experience. Experience must be gained either by independent work at the cost of the patient or by working with some one of wider experience. The progress of the younger man working with an experienced man should be far more rapid and satisfactory and a small but certain income is worth considering to the beginner in professional work. On the other hand the recent graduate may be of great help to those over-burdened with practice. This association of well established practitioners with recent graduates should be far more common than is at present customary. Any man when he becomes too busy to do routine examinations of urine, blood or to take histories of his patients, should not neglect these important matters, but can well afford to assign this routine to a recent graduate for a sum which, though small, may be of great help to him. Such assignment of work gives time for study, for relaxation, for recreation, for thought as to methods and results which mean progress in our professional work. An honorable recent graduate will not intentionally steal the practice from the man who tried to help him. When he reaches the point that he can do better financially, independently or elsewhere or where he thinks that he knows more, let him go. Others are always available as willing as he was when he came with you originally.

The Place of the Medical Society in Co-operative Medicine.—Medical Societies have always been among the most important forces for progress in the profession. The Society with largest membership, reaching the largest number, has the greatest possibilities for good. Special societies with limited membership have in certain instances been great forces in the progress of medicine, but limited membership usually means limited possibilities for good. In too many cases such limited societies degenerate into social clubs. If we wait until practitioners have established a reputation before admitting them to membership the best years of progressive work are past for the average man. To accomplish the greatest good for the greatest number, society management must not be allowed to drift into the hands of cliques or favored localities. As a means of spreading medical knowledge the Medical Society has few equals. The spoken work is much more impressive than writing and reaches you when you are too indolent or too tired to read. Most of us absorb what we hear more rapidly, understand more clearly and retain it more permanently. The personality of the speaker adds force to his words and an earnest speaker inspires as much as he instructs. He fills us with new enthusiasm to carry out his new ideas.

Other co-operative features in our State Society not offered by local or limited societies deserve mention. Our malpractice defense in this state is more efficient and less expensive to its members than in any state in the Union. General practitioners in small country villages and our most distinguished specialists in the largest cities of the state have availed themselves of it and in several instances have written me enthusiastic letters. Some suits were brought because of the inevitable failures which occur to all of us in spite of our best and most conscientious

efforts. Some were pure blackmail on a par with highway robbery; in none was any real blame or neglect made clear on the part of the doctor; such suits might perfectly well be brought against any one of us great or small. Many states are making a special charge for such defense, ranging from as high as $15 a year in the State of Washington.

Medical Legislation.—Without co-operation, without the organized efforts of the State and National Association we should have no defense against the organized forces of quackery. The sure cures for cancer, tuberculosis and many other incurable diseases; the professional abortionists and sexual specialists; all the opothies, practors, pseudo-scientists; all the anti-vivisectionists, anti-vaccinationists, and all the other antis; all these well-organized forces of unscrupulous quackery, preying upon the public, would have a free field, but for the co-operative efforts of our State and National Association. Whatever your affiliation may be with other medical organizations, however valuable their scientific programs, however useful the cultivation of good fellowship may be to the members, however great their professional prestige, none or all of them together undertake this indispensable work along many fields so essential to medical progress and public welfare. The Medical Society of the State of New York and the American Medical Association, deserve your first and highest allegiance, your unqualified support in all their useful activities. If our society is not accomplishing as much as might be desired in many lines of effort, it may be you are not co-operating and not doing your personal share to make the work better. If in certain localities the management of the branches of the Society are in the hands of cliques is it not in part because of the apathy of the better members of the profession.

The Medical Society of the State of New York wants and needs the co-operation of every earnest, honest physician within the state. It is the special duty of those who have had exceptional opportunities for study, for clinical observation and for research to popularize valuable knowledge for those members of the profession who have been less fortunate; to help educate the public so that they may benefit from our knowledge. Incomplete as is our knowledge, its practical application is always at least ten years behind the times. As I have said several times in District Branch Meetings this year; if the general public in Utica, New York City, Rochester, and Buffalo, would apply modern methods of sanitation as thoroughly as they are carried out in the Panama Canal Zone, the death rate in our communities could be cut squarely in two in one year and disability from illness reduced in still greater ratio.

Co-operation of the Public and the Profession.—It is difficult to speak upon this subject without appearing to be a sentimentalist or an exaggerator. At the risk of being misunderstood I shall call the attention of the laymen here present to some facts regarding medicine as an investment, the work of the medical profession, and some needs of medical education. The amount invested in a medical education and training as a business proposition is very poorly understood by the average layman. Most State Examining Boards are requiring at least two years of college training preparatory to medicine: the student must have at least four years in medical college: and the majority of ambitious graduates take at least a year, many from two to five years of hospital training. In addition to this a considerable number take post-graduate study either in this country or abroad or an assistantship with some prominent man or both. Take the indispensable six years college and medical school training, two years hospital service, a year or two of post-graduate study, and add to this long years of waiting necessary to become established in a lucrative practice and it will be readily seen that the sacrifice in time and money is too great to expect of any but the most devoted students unless wealthy at the start. To advance professionally requires daily study, frequent post-graduate study, travel to society meetings and to see the work of others and a reasonable amount of recreation and relaxation. With an investment of time and money as great or greater than the average business man; with natural ability, education and hours of work fully equal to those of the average business man; few communities show a single practitioner of medicine who could by any possibility be counted among the wealthy men of the town. Some inherit money it is true, some marry money and a few accumulate money by wise investments. The majority live comfortably, but only too often die leaving their families relatively poor or even destitute.

Few laymen stop to consider that when the medical man is at his post he works every day, Sundays and holidays included; that is, fifty-two Sundays and five legal holidays; nearly two months every year more than the average laborer. As to hours of work, few truly successful physicians in any branch of practice, even the least exacting office specialties, could possibly hope to accomplish their essential duties and devote the hours absolutely demanded for study and professional progress within the laborer's hours of work. At all times and in all places with so few exceptions as prove the rule, the medical profession have cared for the poor and unfortunate, frequently at considerable expense for drugs, materials and assistants, aside from the time and personal effort devoted. In time of war, friend and foe alike are cared for. In times of pestilence, few stay by the afflicted like doctors. As a body, the profession has used its best efforts to

forward the prevention of disease, the prevalence of which under present conditions means a livelihood to them and their families. What class of men has so few hours of recreation and relaxation with their families and friends, are so uncertain even of time to eat and sleep, are so constantly exposed to cancer, tuberculosis, and loathsome diseases? Except when ill-health overtakes us few of us realize how great a calamity it is. Not only does it entail suffering and sacrifice to those afflicted; the absence of an important workman or office helper often halts the progress of an important business, and a great epidemic is a public calamity, not only because of loss of life and the suffering entailed, but because of its economic aspect. The organized quacks accuse us of being a trust or monopoly. The medical profession is not a trust or monopoly. We do not come to ask favors but we do want a better understanding with the public and co-operation with us to relieve, cure and especially to prevent disease. With great demands in time and money now required to prepare for medical practice, with uncertain and frequently insufficient compensation, the rewards are not too great. Without public esteem, financial reward, or both, it will not be possible to attract to the profession high grade men who will render most efficient service. The public health, your own health, the health of your wife and that of your children is as important to the general welfare as is progress in agriculture, mechanics and arts, which are supported by public funds. Medical service is largely public service and medical education at least should have public support.

Not only should medical education be placed in the line with other branches of education which concern the public good; there should also be co-operation between the public and the profession for some plan of adequate compensation, so that the young, well educated, well trained, efficient man can avoid the years of starvation now necessary to become established in practice; so that he shall avoid the uncertainty of ever attaining a living income for himself or his family or comfort for his old age; so that the successful may avoid the galling grind of unscrupulous competition, the slavery of over-work, the strain of over-responsibility with frequent early death from angina. Many of these suggestions may seem fanciful, but I believe that by co-operating together as a profession and the profession co-operating with the public, we can work together for the common good and for a better state of affairs both as regards our profession and the public sick.

Among the lessons of the Great War is that of the value of organization: drawing from the world's common store of knowledge, other things being equal, success comes to those who work together. The application to medicine is evident.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Eleventh Annual Meeting.

The One Hundred and Eleventh Annual Meeting of the Medical Society of the State of New York was called to order by the President, Dr. Martin B. Tinker, in the First Presbyterian Church, Utica, on Tuesday, April 24, 1917, at 8.30 P.M.

The invocation was delivered by Rev. Ralph W. Brokaw, D.D.

Dr. Thomas H. Farrell, Chairman of the Committee of Arrangements, delivered the following

Address of Welcome.

Mr. President, Guests of the Society, and Fellow Members: I greet you tonight on behalf of the Committee of Arrangements and welcome you to the City of Utica and to this the one hundred and eleventh annual meeting of the Medical Society of the State of New York.

It is not my intention this evening to make a formal address, but just to say a few words that may seem to be appropriate and necessary.

We hope that you will find the meeting places convenient and comfortable. The fact that so many of the sections are to meet in churches or in the Women's Clubs need not deter any of you from attending. In fact, this is such a free and easy town that lantern slides and even the movies have been brought in to lend interest to the section programs.

Our headquarters are established at the State Armory where you will find a good selection of exhibits, both commercial and educational, which are well worthy of your attention. There also is on exhibition the famous Lewis gun, which is Utica's contribution to the armament of our Allies on all the battlefields of Europe and Asia. While you are at the Armory take a minute or two to put yourselves on record as being attendants at this war time meeting. Do not fail to use the Bureau of Information if you wish to visit any points of interest in or about the city. Those of you whose consciences require you to attend the scientific program which Dr. Lloyd and the members of his committee have so diligently and efficiently prepared for you, should see to it that you register your ladies at the Bureau of Information, so that they may be personally conducted to any of the places which they may wish to visit, whether the department stores, college halls, or parks.

Tomorrow evening we invite you to turn aside from the serious consideration of health and disease and with your ladies be entertained in the ball room of the Hotel Utica by something different. After that entertainment there will be

dancing, which will be entirely informal, and which will not require dress uniform.

Many of you have already felt the genial influence of Dr. Ford and the other members of the reception committee, but we ask that you take this opportunity which will be provided to further the good fellowship of this annual meeting by passing into the parlor of this church, where the reception committee have arranged for a reception to President and Mrs. Tinker, to our President-elect, Dr. Lambert, and to our distinguished guest, Dr. Christian.

THE PRESIDENT: Reading of the minutes of the one hundred and tenth meeting by the Secretary.

THE SECRETARY: As these minutes were printed in full in the NEW YORK STATE JOURNAL OF MEDICINE for June, if there be no objection, I would suggest that they be accepted as printed.

THE PRESIDENT: Without objection, the minutes will be accepted as printed.

ADDRESS OF WELCOME BY HON. WILLIAM ROSS LEE.

Mr. President, Ladies and Gentlemen: I saw by the paper that I was scheduled to deliver here this evening an address of welcome, but inasmuch as Dr. Farrell has discharged that most pleasurable obligation, it seems to me utterly impossible to add anything to what he has so excellently said. I might say, however, that in addition to the points of interest which he has suggested here in the City of Utica, there are some things in Oneida County, of which I am the official representative this evening, which, at this crucial period in our nation's life, are of more than passing interest.

In the City of Rome, our neighboring township, is the site of old Fort Stanwix, over which, in the year 1777, was floated the first flag of stars and stripes. In the northern corner of this county, in the midst of a tangled wood, majestic in its impressive loneliness, there stands a monument by the grave of Baron Steuben, the drilling master of the Revolution, and ten miles to the west rises a plain gray shaft which commemorates the battle of Oriskany, fought 140 years ago.

We are all glad to see you whether professional men or not, and extend to you a hearty welcome.

Some of the members of the medical fraternity here suggested to me some time ago that I speak this evening upon the topic "Professional Ethics."

Inasmuch as I am connected with the District Attorney's office which during the past two years has had considerable dealing with alleged members of your profession, I shall read from notes what I desire to say.

You are gathered here for the most part as physicians, and hence members of a calling than which there is none of more vital interest and importance to humanity.

There are two classes of men in every profession, whether it be the law, or medicine, or the ministry: those who strive to guard zealously the ethics of the profession, and those who do not, and I am frank to say, that yours is the vocation which most imperatively should require of its members the earnest and honest effort to conform to the standards of the reputable and conscientious practitioner, because human life is the most precious possession of the individual having to do with the conservation of human life, and yours is a gravely responsible mission. The man or woman who is sick or in poor health is generally willing to make any sacrifice to regain that which is, at least, temporarily lost, and the most cowardly and despicable being that plys his nefarious trade is the alleged doctor who preys upon the credulity of an ailing patient by magnifying his ailment in order to extort money from him.

The attention of our office has been frequently called to the charlatanism and the charlatanry of men who hold themselves out as experienced and skillful physicians, but who belong to the category of miscreants in which are enrolled the burglar and the thug. The wise and cautious are liable to error, for none of us are infallible. A mistake in judgment is always excusable; a mistake due to ignorance is usually pardonable, but a wilful, false diagnosis made to frighten a victim into the payment of a fee, large or small, is just as much larceny as the theft of a pocketbook containing a certain sum, and it is far more reprehensible.

A year ago this spring there came to Utica three alleged members of the medical profession. They established themselves on Columbia street; they circularized the ailing population of the city and surrounding towns. In these circulars they held themselves as specialists guaranteeing a cure for everything from tuberculosis and infantile paralysis to cancer and bunions, and immediately, as if drawn by some powerful and irresistible magnet, the poor, ignorant dupes began to flock to these offices. The diagnosis made by these so-called specialists, were they not so tragic in their results, would have been positively ludicrous. It is estimated that before the police intervened during the two and a half months of their operations hereabout, they cleaned up substantially $36,000.

The reputable and intelligent physician, like the competent and reputable lawyer, does not have to advertise his qualifications to get patronage. It is usually some gentleman afflicted with moral astigmatism who spreads the bait trap for the gullible and the ignorant, who place more

credence in nonsense than in the trained and tried ability of the known and honorable expert. A study of the psychology of the dupe would be a most interesting and profitable pastime. As the drowning man grasps frantically at the straw that floats by him, so it is the disordered wretch who seizes upon the lure which is jeweled in the promise of the quack. Possibly he has tried the family doctor and found no speedy relief and says, "here is offered a prompt and permanent cure." Most likely he suffers from troubles peculiar to his sex and says to himself, "here is a welcome release without publicity." The most brilliant argument could not persuade the same individual to see the political greed or the unwisdom of the drink habit; but the eagerness to feel better, to regain one's health, is the fertile soil upon which fall the seeds of the fakir. The credulous wretch hies himself to the vaunted specialist to be inoculated with the virus of disillusionment and amputated from the major portion of his bank roll. This subject should merit the serious consideration of both the medical societies of the state and legal authorities. It is painfully manifest that there are scores of these unfortunates in this city and in every community who should be and must be protected from the rapacity of these soulless and unscrupulous imposters.

I have often thought that the reputable and capable element of your fraternity was not sufficiently alert in the censorship of the morals of your profession. It is to your interest from every conceivable standard that the charlatan should be prevented from practicing. Would it not avail, at least in some degree, to inspect more closely the credentials of all newcomers, to take cognizance of information that reaches you through misguided victims, in order to assume a more aggressive attitude toward the health of the community. There is an inclination to let George do it. Authorities are always willing, whether they are members of the police department or of the district attorney's office, to cooperate whenever possible to prove a defendant guilty of a crime beyond all reasonable doubt, but it requires legal proof and considerable corroboration. If a physician is in possession of facts sufficient to warrant prosecution, he should place those facts in the hands of the proper officer. If they reveal conduct unbecoming a licensed practitioner, then under the state law charges may be preferred against the offender and therein may be set forth specific instances of misdoings which would, when isolated, fall short of conviction of criminality. Upon proof of the charges, of course, revocation of the license results. You may be accused of professional jealousy because the public is not yet educated to the gravity of the danger which menaces them. Under the sordid practices of the shyster, it is your duty to educate them; it is your duty and my duty to protect the weak and the sick and the diseased from the clutches of greed in communities.

Dr. Henry A. Christian, Boston, Mass., delivered an address on "The Modern Hospital, Its Form, Function, and Work."*

Owing to the unavoidable absence of Dr. John M. T. Finney, of Baltimore, who was to have delivered the Oration on Surgery, the oration was read by Dr. Samuel Lloyd, of New York.†

The President, Dr. Martin B. Tinker, of Ithaca, then delivered his address. He selected for his subject, "Co-operation in Medicine."‡

Section Officers Elected April 25, 1917.

Medicine—Arthur F. Chace, Chairman, New York City; Malcolm S. Woodbury, Secretary, Clifton Springs.

Surgery—Thomas F. Laurie, Chairman, Auburn; Arthur W. Booth, Secretary, Elmira.

Obstetrics and Gynecology—James K. Quigley, Chairman, Rochester; Henry D. Furniss, Secretary, New York City.

Eye, Ear, Nose and Throat—Henry H. Forbes, Chairman, New York City; Arthur J. Bedell, Secretary, Albany.

Pediatrics—T. Wood Clarke, Chairman, Utica; Frank vander Bogert, Secretary, Schenectady.

Public Health, Hygiene and Sanitation—William G. Bissell, Chairman, Buffalo; William J. Denno, Secretary, Albany.

National Board of Medical Examiners.

A second examination to be given by the National Board of Medical Examiners will be held in Washington, D. C., June 13, 1917, and will last about one week.

The following states will recognize the certificate of the National Board: Colorado, Idaho, Iowa, Kentucky, Maryland, North Carolina, New Hampshire, North Dakota, Pennsylvania and Delaware. Favorable legislation is now pending in twelve of the remaining states.

A successful applicant may enter the Reserve Corps of either the Army or Navy without further professional examination, if their examination papers are satisfactory to a Board of Examiners of these Services.

The certificate of the National Board will be accepted as qualification for admittance into the Graduate School of the University of Minnesota, including the Mayo Foundation.

Application blanks and further information may be obtained from the Secretary, Dr. J. S. Rodman, 2106 Walnut Street, Philadelphia.

* See page 210.
† See page 203.
‡ See page 218.

Medical Society of the State of New York

ANNUAL REPORTS

1916

REPORT OF THE PRESIDENT.

To the House of Delegates:

GENTLEMEN:

This year has been an unusually prosperous one in the history of our Society. From personal visits to local branches of our Society in many sections of the state I can testify that for the most part the Scientific Programs have been of much value and interest; that the meetings have been well attended and enthusiastic. The membership, 8,459, and the surplus in the treasury are greater than at the end of any previous year. If we are to continue prosperous and progressive we must not rest upon our oars, however, but look into the future for changes which will work for the further betterment and good of our members. With this in mind, I have a number of changes to suggest to you. Please do not understand that I recommend that all these changes be put into effect or that I necessarily unqualifiedly recommend them at all. There are certain matters which obviously demand our early and earnest consideration. Some may deserve debate at this meeting, though possibly not immediate action. Some matters might perhaps be best put in the hands of a committee to report to the Council for action or it may be to report to the House of Delegates at the next annual meeting. I shall first outline and suggest possible changes, state reasons why such changes might be desirable and the action which might be desirable at this time.

PROMOTION TO THE PRESIDENCY.

My first suggestion concerns my own office of President. I would suggest to the House of Delegates the possible advisability of a system of promotion to the Presidency. At the time you elected me to this honorable office a year ago, and during my entire tenure of office, I have been greatly hampered by imperfect knowledge of many facts concerning the organization, the previous progress and the present needs of our Society, also the special needs of certain local sections in our Society. This, in spite of the fact that I had at the start a reasonably wide acquaintance throughout the state and that during this year in office I have rapidly added to my acquaintance among the men influential in State Society affairs. It does not seem to me that it would be wise to make any fixed ruling about promotion to Presidency, but I believe it would be for the best interests of the Society if the Vice-Presidents were assigned certain duties in connection with their office, and if these duties were satisfactorily and faithfully fulfilled that they should be promoted from the Third to the Second, and the Second to the First Vice-President, and then to the President of the Society. Details as to the duties of the Vice-Presidents and the method of promotion I would leave entirely to your judgment. In order to insure promotion to the Presidency of a man of scientific achievements and high professional standing, it might be suggested that the Third Vice-President prepare an address to be presented at the Annual Meeting, possibly to take the place of the present oration. To insure familiarity with the Constitution and By-Laws and the general workings of the Society it might be desirable to assign to the Second Vice-President the presiding at one of the meetings of the House of Delegates; this would give him opportunity to demonstrate his knowledge of parliamentary procedure and executive ability. To give a wider acquaintance of the needs of different sections of our state and the men prominently connected with its affairs, it might be considered desirable to assign to the First and Second Vice-President as a duty the visiting of the District Branch meetings and certain of the County Society meetings throughout the State. This plan is not so new and radical as it may at first seem to some of you. It is now in force in a number of local societies in our State, and in more or less modified form in certain of the State Medical Societies throughout the United States. I suggest then, that you either refer to a special committee or take under debate the advisability of promotion through the Vice-Presidencies to the Presidency of the Medical Society in the State of New York.

Re-Districting the District Branches.

Relative to the District Branches, I would suggest that you take under consideration the advisability of re-districting the State, and would suggest that this re-districting be based upon the medical population of the different sections; the local interests and conditions of practice of the profession concerned; and the routes of travel in the different localities of the State. Re-districting might be managed in such a way as to give a larger membership in the Medical Council. As you know, the Council has extremely important duties assigned to it. It has been suggested by several who are familiar with the Society's needs that a larger membership of the Council and more frequent meetings would be of advantage to the Society. With the present methods certain sections of the state are not adequately represented in proportion to membership. In some sections the country practitioner is a member of a District Branch in which the vast majority are metropolitan city practitioners whose interests and needs are radically different than his own. I would call special attention to the influence of routes of travel. In the Sixth District, as an example, it is impossible for members from certain sections to attend a meeting at most other centers of population in the Branch without sacrificing a day to go and a day to come as well as the day of the meeting. This makes it practically impossible for the majority of the members to attend. Transportation, either by railroad or the main highway, makes it almost impossible for the profession in these not distantly separated centers of population to get together without great sacrifice of time and effort.

Amalgamation of Local Societies With County Societies or District Branches.

With regard to the County Societies and District Branches, I would suggest the possible advisability of amalgamation with other local societies. Visiting various District Branch Meetings and County Societies throughout the State, I have discovered that in some cases the branch or county meetings are poorly attended because there are too many local meetings which prove of greater interest to the members. The value of the work of the State Society is so great to every practicing physician that this state of affairs should not exist. In undertaking any amalgamation between local societies and the county or district branches of the State Medical Society, due consideration should be given to the fact that the fees should not be raised beyond what would be within the means of every physician, no matter how young or struggling he might be; that amalgamation should not be made with any society where social lines are strongly drawn or where special or ultra scientific programs prevail. This is obviously a matter that could not be passed upon by this House in definite form, but the members from various sections might recommend such amalgamation in their own sections. The work of the State Society is invaluable to every practicing physician whatever his position or standing may be so that it should not suffer from other local meetings whether of the Academy of Rochester, Buffalo, Elmira or the Association Physicians of Long Island. We need the earnest efforts and help of every man throughout the State.

Compulsory Attendance by Members of the Council and House of Delegates.

In order that important State Society matters receive proper attention, I would recommend that attendance by members of the House of Delegates and members of the Council should be made compulsory. As you know certain States in the Union require that their delegates shall attend the House of Delegates of the American Medical Association; not necessarily the scientific meetings of the A. M. A. or the entertainment or social functions, but that they shall attend the actual business meeting of the House of Delegates. The business transacted at these meetings is of too great importance to us professionally. It concerns not only our professional advancement, but our economic progress. It is a bread and butter matter and I believe that measures could be taken so that every section should be represented either by the regular delegate or councilor or by a suitable alternate. I recommend this for immediate action at this meeting of the House of Delegates, and my reason for such recommendation is, that at the meetings of the Council held this year, not more than half the members have been in attendance.

Duties of Legislative Committee.

In order that we may get more certain and satisfactory action with regard to medical legislation, I would recommend that the members of the Legislative Committee of the County Societies be assigned certain duties. If the amendment to the Constitution which is to be presented at this meeting is carried, the amendment making the Chairman of the County Society Legislative Committee a member of the State Legislative Committee, it will make action much more easy and effective, I believe. The duties which I would suggest assigning to the Legislative Committee of the Counties would be: First, to ascertain the attitude of candidates for election to the State Assembly or State Senate before the campaign has gone too far to make action by the Medical Society for or against undesirable candidates impossible. Second, That each County Legislative Committee shall ascertain from the representative of his district either by personal interview or writing his attitude on

any legislation of a medical bearing. Third, That it be the duty of each County Society Legislative Committee to ascertain who is the family physician of members of important committees in the State Senate and Assembly from their district and that the Societies' Legislative Committee be responsible that the family physicians interview such Senator or Assemblyman committee member and urge him to use his influence for promoting professional interests when important medical legislation is in the hands of such Senate or Assembly committee.

MARTIN B. TINKER,
April 1, 1917. *President.*

REPORT OF THE SECRETARY.

To the House of Delegates:

In compliance with Section 3, Chapter VI, of the By-Laws the Secretary submits the following report for the year ending December 31, 1916:

Membership, December 31, 1915.	7,716	
New Members, 1916	546	
Reinstated Members, 1916	180	
		8,442
Deaths	117	
Resignations	40	
		157
		8,285
Dropped for non-payment of dues, December 31, 1916	291	
		7,994
Elected after October 1, 1916, and credited to 1917	293	
Membership, January 1, 1917.....		8,287
Membership, January 1, 1916.....		7,940
Membership, January 1, 1915.....		7,621
Membership, January 1, 1914.....		7,239
Membership, January 1, 1913.....		6,964

On January 21, 1907, the membership of the State Society was 5,857. Today there is an increase of 2,430. During these ten years there have been 937 deaths, 491 resignations, and 18 expulsions, a total of 1,446. Each year a certain number are dropped for non-payment of dues, but before the close of the next year about two-thirds of these pay their dues and are reinstated. The loss from this source from 1907 to date has only been 1,565, an average of 156 a year.

During these ten years 5,449 new members have been admitted and the membership of the Society is increasing more rapidly than are the accessions to the profession.

The Honor List of Counties whose membership for 1916 is fully paid up is as follows: Chenango, Columbia, Franklin, Jefferson, Oneida, Otsego, Rensselaer, Schenectady, Schuyler, Seneca, Tioga, Tompkins, Warren, Washington, Wayne, Wyoming and Yates. Last year the honor list included but seven counties. This year it includes seventeen counties. The paid membership exceeds that of the largest previous year by 34 per cent. Moreover, the number dropped for non-payment of dues is 40 less than that of the previous year. This is the lowest number dropped for non-payment of dues in any year since the amalgamation, although the membership has steadily increased.

The campaign inaugurated by President Tinker for increasing the membership of the Society is showing most satisfactory results. These results will continue to be shown after the termination of his administration. It is unfortunate that they cannot appear in a way that will now give tangible credit to his very earnest efforts in this laudable campaign.

During the autumn I attended every meeting of the eight District Branches, in company with the President. We became impressed with the growing importance of the District Branch organizations and the results which their meetings are producing. The District Branches seemed for a time to languish, but are now coming to their own. They are agencies of great good to the organization of the profession in this state and I feel, as I know President Tinker feels, after the experiences of the autumn, that greater efforts should be made to advance their efficiency.

FLOYD M. CRANDALL,
April 1, 1917. *Secretary.*

REPORT OF THE COMMITTEE ON SCIENTIFIC WORK.

To the House of Delegates:

The Committee on Scientific Work begs to report that the program for the coming Annual Meeting of the State Medical Society at Utica is practically complete and ready for the printer. The Chairman of the Section on Scientific Work desires to express his thanks to the Chairmen who make up the Committee on Scientific Work for their co-operation and for the promptness with which they have attended to the making up of the program for the different Sections.

The death of Dr. Pilcher threw a great amount of work on the shoulders of the Secretary of the Surgical Section and I wish particularly to thank Dr. Laurie for the willingness and the capacity with which he undertook the completion of the surgical program. My feeling is that Dr. Laurie should be elected to the chairmanship of the Section.

Respectfully submitted.

SAMUEL LLOYD,
April 1, 1917. *Chairman.*

REPORT OF THE TREASURER.

To the House of Delegates:

After eleven years tenure of office, the Treasurer desires to present to the Medical Society of the State of New York a final accounting of his stewardship as Treasurer. In 1906 the capital funds of the Society available for current expenses were, at the end of that year, $5,328.19, as represented by the bank balance on that date. In December of 1916, the bank balance was $12,901.44, an increase of $7,573.25, practically 150 per cent increase in the available funds of the Society. These funds were clear, and the Society has to-day no uncollectible debts to charge off. During the past eleven years there have been four years in which the business of the Society was run at a loss, the total deficits bring $3,831.83, although at the end of two of these years the actual amount of funds available in the bank showed an increase over the preceding year. This was due to charging off bad debts when they were considered uncollectible. During seven of the eleven years, the business of the Society has been run at a profit totalling $11,806.06. During this past year of 1916, the surplus has been $1,734.22. The following table shows these facts in detail:

	Bank Balances December 31st.	Excess of Income.	Deficit.
1906	$5,328.19	$3,234.29	.....
1907	4,788.88	.....	$1,287.37
1908	5,300.30	642.46	.....
1909	9,426.79	3,311.63	.....
1910	10,096.73	.....	479.22
1911	10,608.33	850.85	.....
1912	8,617.78	.....	1,306.09
1913	9,448.08	879.40	.....
1914	9,939.60	.....	759.15
1915	11,381.89	1,153.21	.....
1916	12,901.44	1,734.22	.....
		$11,806.06	$3,831.83

The paid-up membership of the Society at the close of the past year has been greater than ever before, there being only 291 members dropped on December 31st and more than 100 of these have since been reinstated, a percentage of paid membership of 96.5.

The increase in the membership of the Society of 350 during the year has caused an increase in the edition of the JOURNAL each month of 300 or 3,600 more journals for the year and this, together with the rise in the price of paper, has caused an increase in the cost of the JOURNAL over 1915 of $1,170.49. The advertising in the JOURNAL has brought in an increase of $373 over the previous year and $150 of bad debts charged off in 1914 have been collected. The cost of the JOURNAL to the Society was $4,129.80, thereby publishing the papers of the Society at a much lower cost than transactions could have been published.

In spite of the rise in cost of paper and an increase in the edition of the Directory of 500 copies, the total cost of the Directory over 1915 has been but $108.94. The Committee on Publication saved several hundred dollars by purchasing the paper in January instead of waiting until July or August as has been customary. The receipts from advertisements also increased $450 during the year.

The expenses of the Legal Department also increased over 1915 $239.22. The increase in salary in this department did not take place until May so that the expense for this Department in 1917 will be still higher and will be at least $7,200.

The business of the Society and the variations in the expenses necessary to keep up the activities of the Society are but little understood by the average member of the Society. The following comparison in figures and percentages will, it is hoped, be of interest to the Society at large and particularly to the House of Delegates. In 1906 and 1907 the Society was in process of reorganization but from 1908 to 1916 both a fair and accurate yearly comparison can be made.

The main expenses have always been the Directory, the JOURNAL, and the Malpractice Defense or Legal Department. In 1908, the Directory was the chief expense, but this has steadily been reduced until in 1916, in spite of the inevitable increase of the edition to 1,500 copies above that of 1908, the relative percentage of expense to total expense has steadily dropped. In 1908, it formed 41 per cent of the total expenses. In 1916, at has fallen to 21 per cent.

The JOURNAL as an item of expense has varied from 14 per cent to 25 per cent of the total. In 1908, it was 16 per cent and in 1916, 17 per cent. The Malpractice Defense has risen, being in 1908 but 16 per cent of the total expenses to 28 per cent in 1916. It is today the chief item of expense of the Society. That is, the Society is today devoting more of its income to the legal protection of its members than to any other activity. The following tables give these facts in summary and in detail:

COMPARISON OF PERCENTAGES TO TOTAL EXPENSES BY YEARS.

Year.	Directory.	Journal.	Legal.
1908	41	16	16
1909	36	14	18
1910	32	16	21
1911	29	22	17
1912	25	25	17
1913	28	20	23
1914	26	24	27
1915	21	13	29
1916	21	17	28

COMPARISON OF DIRECTORY, JOURNAL AND LEGAL EXPENSES, 1908-1916, INCLUSIVE.

	Expense of	Total Expenditures.	Percentage.
1908—			
Directory	$7,631.86	$18,791.33	41
Journal	2,916.16	18,791.33	16
Legal	3,000.00	18,791.33	16
1909—			
Directory	6,053.09	16,851.02	36
Journal	2,320.71	16,851.02	14
Legal	3,000.00	16,851.02	18
1910—			
Directory	6,865.78	21,375.16	32
Journal	3,514.23	21,375.16	16
Legal (includes $1,000 honorarium)	4,590.79	21,375.16	21
1911—			
Directory	5,951.02	20,837.87	29
Journal	4,553.29	20,837.87	22
Legal	3,613.13	20,837.87	17
1912—			
Directory	5,762.74	23,246.88	25
Journal	5,859.82	23,246.88	25
Legal	3,898.78	23,246.88	17
1913—			
Directory	6,043.95	21,758.36	28
Journal	4,449.58	21,758.36	20
Legal	4,952.58	21,758.36	23
1914—			
Directory	6,380.76	24,531.58	26
Journal	5,763.13	24,531.58	24
Legal	6,522.50	24,531.58	27
1915—			
Directory	5,016.87	23,557.39	21
Journal	2,959.31	23,557.39	13
Legal	6,727.45	23,557.39	29
1916—			
*Directory	5,125.81	24,463.66	21
Journal	4,129.80	24,463.66	17
Legal	6,966.67	24,463.66	28

Taking some of the other details of expenses of the Society, the District Branches have cost from 1 per cent to 2 per cent of the total each year. The cost of the Annual Meeting from 1908 to 1911 inclusive, varied between 2 per cent and 3 per cent; in 1912, it was 5 per cent; in 1913 and 1914, 1 per cent; 1915 and 1916, it was 7 per cent of the total expense. The overhead charges of rent, telephone, postage, and stationery has varied from 7 per cent to 10 per cent. The General Salaries, which includes the clerical work necessary for the President, Secretary, and honorarium to Secretary, Treasurer, all Committees, Chairmen of Sections, Councilors of District Branches, etc., i. e., all clerical work excepting that done for the JOURNAL and Directory, cost from 7 per cent to 12 per cent. The total general overhead charges have averaged, therefore, about 17 per cent.

The traveling expenses of the members traveling on business of the Society, such as attending Council meetings, Committee meetings, and the Delegates to the American Medical Association, which last have varied according to the place of the meeting of the A. M. A. from $1,354.20 to $67.80, has cost the Society from 4 per cent to 9 per cent of its yearly expense.

Against the expenses of the Society is the income derived mainly from the annual dues of the members. Added to these are the varying amounts from sales of the Directory and the income from advertisements in JOURNAL and Directory. This last source of revenue amounts to approximately $10,000 a year and has been used to diminish the cost to the Society of the JOURNAL and Directory. The exact figures have been published each year in each succeeding report of the Treasurer. Any increase in revenue must come from those sources, that is, from increase of business from the publications of the Society, or from dues of new members or from an actual increase of annual dues of the membership. The advertisements possible to obtain for either JOURNAL or Directory are necessarily greatly restricted owing to the standards on which they are judged. While this is as it should be, it prevents any material increase in revenue from this source. The most desirable increase of revenue to the Society must come from growth of membership. The following table shows the general growth of the Society since 1908 compared with the total number of physicians in the state each year. It is noticeable that not till 1912 was a majority of physicians of the state enrolled as members of the Society:

NUMBER OF PHYSICIANS, MEMBERS AND NON-MEMBERS, IN NEW YORK STATE, 1908 TO 1916, INCLUSIVE.

	Physicians in State.	Members Jan. 1.	Non-Members.
1908	12,168	5,980	6,188
1909	12,711	6,221	6,490
1910	13,023	6,370	6,653
1911	13,474	6,681	6,793
1912	13,641	6,865	6,776
1913	13,696	6,964	6,732
1914	13,777	7,239	6,538
1915	14,114	7,621	6,493
1916	14,156	7,940	6,216
1917	14,224	8,287	5,937

Any increase of annual dues to increase the revenue of the Society will require a constitutional amendment which will further require a year's consideration before it is voted upon and is certain to meet with vigorous opposition. There still remain some 5,000 physicians in the state eligible to membership in the Society and not yet members. This is a possible increase of $15,000 annual revenue and if the House of Delegates desires any increase of funds for increase of activities, there must be a persistent and determined endeavor to obtain this desired increase of membership in the Society.

Respectfully submitted,

ALEXANDER LAMBERT,
Treasurer.

December 31, 1916.

* The decrease in the cost of the Directory from $7,631.86 to $5,125.80 was accomplished in spite of an increase in the edition of over 1,500 copies.

REPORT OF THE TREASURER.

ALEXANDER LAMBERT, *Treasurer,* In Account with THE MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Dr. Cr.

CASH RECEIPTS, YEAR ENDING DECEMBER 30, 1916.

To Balance, Jan. 1		$11,381.89
" Directory, 1912	$ 30.00	
" Directory, 1913	51.00	
" Directory, 1914	35.00	
" Directory, 1915	793.13	
" Directory, 1916	2,763.25	
" Clerical Work	168.16	
" Interest on Deposits	431.43	
" Interest on Bonds	90.00	
" Sundry Receipts	25.42	
" Advertising	5,509.77	
" Subscriptions and Sales	283.70	
" Annual Dues and Arrears	78.00	
" Annual Dues, 1914	45.00	
" Annual Dues, 1915	717.00	
" Annual Dues, 1916	23.622.00	
" Annual Dues, 1917	879.00	
		35,521.86
		$46,903.75

CASH PAYMENTS, YEAR ENDING DECEMBER 30, 1916.

By Annual Dues Overpayments		$12.00
Traveling Expenses	$499.79	
Delegates A. M. A. Meeting	269.50	
		769.29
Accountant		200.00
Carfares		15.80
Express		26.19
Treasurer's Bond		12.50
Exchange on Checks		9.85
Sundry Cash Disbursements		230.77
Telephone		134.39
Stationery and Printing		289.51
Postage		154.85
Rent		900.00
Insurance		5.70
Committee on Legislation		567.93
Legal Expense		6,966.67
1915 Directory		40.84
1916 Directory		8,489.06
Journal Expense		246.78
Journal Salaries		1,350.95
Journal Commissions		831.39
Journal Publication		7,665.73
District Branches		488.42
Salaries		2,080.10
Annual Meeting		1,597.29
Secretary		500.00
Interest on Bonds Deposited		90.00
Committee on Medical Research		17.50
Committee on Medical Economics		214.30
Commissions, New Members		94.50
		$34,002.31
Balance in Guaranty Trust Co.:		
General Account	$12,407.97	
Com. on Medical Research	493.47	
		12,901.44
		$46,903.75

ANNUAL DUES, 1916.

County.	*Amt. Paid.*	*County.*	*Amt. Paid.*
Albany	$552.00	Onondago	$591.00
Allegany	114.00	Ontario	213.00
Bronx	843.00	Orange	279.00
Broome	240.00	Orleans	90.00
Cattaraugus	123.00	Oswego	150.00
Cayuga	207.00	Otsego	123.00
Chautauqua	207.00	Queens-Nassau	453.00
Chemung	162.00	Rensselaer	288.00
Chenango	111.00	Richmond	162.00
Clinton	132.00	Rockland	99.00
Columbia	105.00	St. Lawrence	186.00
Cortland	93.00	Saratoga	165.00
Delaware	87.00	Schenectady	318.00
Dutchess	312.00	Schoharie	66.00
Erie	1,824.00	Schuyler	54.00
Essex	66.00	Seneca	93.00
Franklin	144.00	Steuben	243.00
Fulton	102.00	Suffolk	339.00
Genesee	105.00	Sullivan	48.00
Greene	63.00	Tioga	66.00
Herkimer	159.00	Tompkins	192.00
Jefferson	195.00	Ulster	189.00
Kings	2,577.00	Warren	102.00
Lewis	51.00	Washington	111.00
Livingston	117.00	Wayne	129.00
Madison	102.00	Westchester	714.00
Monroe	951.00	Wyoming	102.00
Montgomery	159.00	Yates	57.00
New York	7,995.00		
Niagara	156.00		$24,252.00
Oneida	501.00		

ADVANCE DUES, 1917.

County.	*Amt. Paid.*	*County.*	*Amt. Paid.*
Albany	$21.00	Ontario	$3.00
Allegany	6.00	Oswego	6.00
Bronx	33.00	Queens-Nassau	18.00
Cayuga	6.00	Rensselaer	9.00
Chautauqua	12.00	St. Lawrence	3.00
Chenango	69.00	Steuben	21.00
Columbia	75.00	Suffolk	18.00
Dutchess	12.00	Tompkins	6.00
Erie	162.00	Washington	3.00
Franklin	57.00	Westchester	30.00
Genesee	9.00		
Kings	42.00		$879.00
New York	258.00		

DIRECTORY ACCOUNT.

Expenditures.

Postage		$432.40
Stationery and Printing		155.15
Delivery		618.20
County Clerk's Fees		10.55
Salaries	$1,816.45	
Commission	357.55	
		2,174.00
Printing and Binding Directory.		5,078.76
		$8,469.06

Income.

Advertisements	$2,123.25	
Sales	1,220.00	
		3,343.25
Cost of Directory		$5,125.81

REPORT OF THE TREASURER.

JOURNAL ACCOUNT, YEAR ENDING, DECEMBER 30, 1916.

Income.			*Expenditures.*		
Advertisements	$6,221.79		Publication	$7,665.73	
Subscriptions and Sales	282.70		Expense	246.78	
Doubtful Debts Collected	156.25		Salaries	$1,350.95	
		$6,660.74	Commissions	1,373.28	
					2,724.23
Cost of Journal		4,129.80	Discount		153.80
		$10,790.54			$10,790.54

BALANCE SHEET, DECEMBER 30, 1916.

Assets.			*Liabilities.*		
Cash, Bank	$12,901.44		Annual Dues, 1917		$879.00
Petty	2.54		Committee on Medical Research		493.47
		$12,903.98	Accounts Payable		107.87
Accounts Receivable		330.60	Lucien Howe Prize Fund	$2,101.06	
Furniture and Fixtures	$322.10		Merritt H. Cash Prize Fund	1,033.66	
Directory Catalogue	250.00				3,134.72
		572.10	Surplus, Jan. 1, 1916	$11,192.12	
Directory, 1916		600.00	Gain, 1916	1,734.22	
Union Dime Savings Institution, Lucien Howe	$601.06		Surplus Dec. 30, 1916		12,926.34
Union Dime Savings Institution, Merritt H. Cash	533.66				
Title G. & T. Mtg. Ctfs	2,000.00				
		3,134.72			
		$17,541.40			$17,541.40

I hereby certify that the above Balance Sheet is correct, as shown by the books.

A. H. Wicks,
Certified Public Accountant,
302 Broadway, New York.

INCOME AND EXPENDITURES, YEAR ENDING DECEMBER 30, 1916.

Income.		*Expenditures.*		
Arrears of Dues	$840.00	Expense	$1,326.21	
Dues, 1916	24,240.00	Telephone	133.57	
Interest on Deposits	431.43	Stationery and Printing	289.51	
Clerical Work	168.16	Postage	154.85	
Directory, 1912	30.00	Rent	900.00	
Directory, 1913	51.00	Insurance	5.70	
Directory, 1914	35.00	Salaries	2,080.10	
Directory, 1915	402.29	Committee on Legislation	556.43	
		Legal Expense	6,966.67	
		Annual Meeting	1,597.29	
		District Branches	488.42	
		1916 Directory	5,125.81	
		Secretary	500.00	
		Committee on Medical Economics	209.30	
		Cost of Journal	4,129.80	
				$24,463.66
		Excess of Income		$1,734.22
	$26,197.88			$26,197.88

INCOME AND EXPENDITURES, YEAR ENDING DECEMBER 31, 1915.

Income.		*Expenditures.*		
Arrears of Dues	$720.00	Expense	$2,137.75	
Dues, 1915	23,205.00	Telephone	145.84	
Interest on Deposits	397.86	Stationery and Printing	306.06	
Clerical Work	119.10	Postage	311.50	
Directory, 1912	10.00	Rent	900.00	
Directory, 1913	65.00	Insurance	5.70	
Directory, 1914	193.64	Salaries	1,988.05	
		Committee on Legislation	503.27	
		Legal Expense	6,727.45	
		Annual Meeting	1,726.14	
		District Branches	329.45	
		1915 Directory	5,016.87	
		Secretary	500.00	
		Journal Cost	2,959.31	
				$23,557.39
		Excess of Income		1,153.21
	$24,710.60			$24,710.60

REPORT OF THE COUNCIL.

To the House of Delegates:

The Council of the Medical Society of the State of New York begs leave to present the following report:

During the past year meetings have been held on the following dates:

May 18, 1916, in Saratoga Springs. Minutes will be found in the NEW YORK STATE JOURNAL OF MEDICINE, Volume 16, No. 7, page 373.

December 9, 1916, in New York City. Minutes will be found in the NEW YORK STATE JOURNAL OF MEDICINE, Volume 17, No. 1, page 46.

March 3, 1917, in Ithaca. Minutes will be found in the NEW YORK STATE JOURNAL OF MEDICINE, Volume 17, No. 4, page 190.

Respectfully submitted,

FLOYD M. CRANDALL,
Secretary.

April 1, 1917.

REPORT OF THE COMMITTEE ON PUBLICATION APPOINTED BY THE COUNCIL.

To the House of Delegates:

The Council, at the meeting held in Saratoga Springs, May 18, 1916, appointed the following Committee on Publication for the ensuing year: Drs. Alexander Lambert, John C. MacEvitt, Victor A. Robertson, Samuel W. S. Toms and Alexander Lyle. At the same meeting Dr. MacEvitt was appointed editor.

At the first meeting held by the Committee Dr. S. W. S. Toms was appointed Chairman.

JOURNAL.

THE JOURNAL during 1916 has been issued regularly each month, the edition being 9,000 to 9,300. The cost to the Society was $4,129.80, an increase over last year of $1,170.49. This increase is mostly due to the large increase in the cost of paper, but also to an increase in the size of the JOURNAL which was necessary in order to publish all the State Society papers and to the publication of a larger edition—about 300 per month. The receipts from advertisements have been most satisfactory, bringing in $373 more than in the previous years. There were no bad debts to charge off, and $150 of the doubtful debts charged off in 1914 was collected. The publication of the JOURNAL according to the Treasurer's Report has varied from 14 per cent to 25 per cent of the annual income of the Society. Last year it was 17 per cent—which was a much lower cost than annual transactions could have been published for.

DIRECTORY.

The 1916 Directory was published on time at a cost to the Society of $5,125.81. This was only $108.94 more than in 1915, although an increase in the edition of 500 copies was necessary owing to the increase in the membership of the State Society. This very slight increase was accomplished in spite of the large advance in the cost of paper and labor, by the committee's foresight in purchasing the paper in the early part of the year when the price of paper was much lower than it was in the summer. In addition to this, receipts from advertisements were over $450 more than in 1915, and there was also a slight increase in the amount received from sales.

Referring again to the Report of the Treasurer the cost of the Directory has decreased from 41 per cent in 1908 to 21 per cent in 1916. This decrease in cost, despite the advance in print paper and also the addition of 1,500 more copies of last year's edition, represents a saving of over $2,500. No longer can it be said that the cost of these two publications is the premier expense of the Medical Society of the State of New York.

Respectfully submitted,

S. W. S. TOMS, *Chairman.*
ALEXANDER LAMBERT,
ALEXANDER LYLE,
JOHN C. MACEVITT,
VICTOR A. ROBERTSON.

April 1, 1917.

REPORT OF THE COMMITTEE ON ARRANGEMENTS.

To the House of Delegates:

The Committee on Arrangements believes it has paved the way for a successful meeting of the State Society, so far as its duties are concerned. Suitable meeting places have been provided, the hotel accommodation is adequate and attractive, the clubs are open to the members of the various fraternities, the commercial and scientific exhibits promise to be varied, interesting and instructive, the entertainment of the members and for their ladies has been fully planned for rain or shine. With the approval of Secretary Crandall and the Committee on Publication, we hope to put a small book in the hands of each member to serve as a guide to the chief points of interest in and about the city.

The meetings of the House of Delegates will be held in the ball-room of the Hotel Utica. The delegates will assemble at 8 o'clock P. M., Monday, April 23rd, and the adjourned meeting will be held in the same place Tuesday morning, April 24th. In order that this meeting and the opening meeting may not interfere one with the other, the opening meeting has been placed on Tuesday evening, April 24th, at 8:15 o'clock at the First Presbyterian Church. Following this meeting, a reception will be given

in the parlors in the rear of the church to the retiring President and the President-elect and their ladies.

The State Armory has been selected as the Headquarters. Here will be found the commercial and scientific exhibits, the registration and information booths. It is earnestly requested that all members visit the Armory *first,* register and receive their envelope containing program, button, list of entertainments, guide book, etc., before attending the various sections.

The section on Surgery will meet in the auditorium of the Park Baptist Church, the section on Medicine in the Chapel of the same church. This church immediately adjoins the Armory. The section on Gynecology and Obstetrics will meet in the auditorium of the new Century Club on the corner of Genesee and Hopper Streets, two short blocks from and within sight of the Armory. The section on Eye, Ear, Nose and Throat will meet in Coke Memorial Church, also situated on Hopper Street and only one block from the Armory. The sections on Pediatrics and Public Health will meet in the parlors on the second floor of the Armory.

On Wednesday evening, April 25th, at 8:30, a cabaret entertainment will be given in the ball-room and the Italian Room of the Hotel Utica. The Sub-Committee on Entertainment wishes to anounce that members may feel free to bring their ladies. Several of the musical clubs of Hamilton College will contribute numbers. Light refreshments will be served.

The program and handbook will furnish full information as to hotels with location and rates, location of meeting places, of garages, trolley lines and railroad stations, hospitals, clubs and other places of interest, arrangements for entertainment of members and visiting ladies. To avoid confusion and disappointment, we advise an early booking of your hotel accommodation.

THOMAS H. FARRELL,
April 1, 1917. *Chairman.*

REPORT OF THE COMMITTEE ON PUBLIC HEALTH AND MEDICAL EDUCATION.

To the House of Delegates:

The Committee on Public Health and Medical Education would respectfully report, that no urgent matters have been brought before it during the last fiscal year.

There has been no final action taken by the Legislature upon the proposed Medical Practice Act. To those opposed to the essential changes in this act attention is called to the fact that they tend to certify practitioners against actual loss of income due to the prosperity of fraudulent practitioners, that the annual fee of two dollars for re-registration constitutes a fund for the prosecution of such fraudulent practitioners and that the annual supervision of registered physicians must strengthen their community status and protect the public from the dire results to health and happiness from fraud.

Your Committee would call attention to a paper entitled "Medical Organization Under Health Insurance," read by Dr. Alexander Lambert at the Annual Meeting of the American Association for Labor Legislation in December of 1916.

Careful reading of this very able thesis upon one of the most vitally important subjects coming before the medical profession at the present time reveals the fact that it advocates neither the Mills nor any other insurance bill, but that it makes a clear, concise and succinct presentation of the facts to be considered by the doctors in their relation to health insurance.

Some bill covering the subject is bound to become a law in the near future; and unless the physicians of the state can get together with a definite plan of action before such bill is presented-to the Legislature, they will probably regret their inexcusable neglect.

Your Committee believes that Dr. Lambert's paper forms a basis for such action and would urge that copies of it be sent to all the physicians in the State of New York, including those not yet members of the State Society.

Your Committee would further call attention to a communication from the Merchants' Association of New York, signed by its President, Mr. William Fellowes Morgan, stating alleged "facts about the threatened pollution of the (New York) city's water supply."

In brief it states that the sites of the Mohansic State Hospital and the State Training School for Boys are located on the shores of Mohansic Lake, whose waters are discharged into Croton Reservoir.

"These institutions will eventually have a population of from 5,000 to 8,000 people, a large part of them defective, suffering from syphilis and other loathsome diseases. About 500,000 gallons of sewage laden with the disease-bearing excretions of these patients will daily be discharged.

"The original plans for drainage contemplated purification of this sewage by screening, filtering and chemical treatment, after which the liquid effluent was to be discharged into the lake, thence to mingle with the city's water supply. It was contended that these plans would amply protect the city's water supply against pollutions."

The Merchants' Association of New York further condemns and asks for removal of the following public institutions in the state, act-

ing upon a report of the "State Commission of Health" in 1910. Excerpts from this report are given covering the Western House of Refuge at Albion; New York State School for the Blind at Batavia; New York State Reformatory for Women at Bedford; New York State Training School for Girls at Hudson; New York State Agricultural and Industrial School at Industry; Thomas Indian School at Iroquois; State Custodial Asylum for Feeble-minded Women at Newark, N. Y.; New York State Women's Relief Corps Home at Oxford.

This request is based upon the findings of the State Commissioner of Health, and expert opinions of civil and sanitary engineers and biologists as to the practicability of sewage removal by methods proposed or already in vogue.

The Merchants' Association further expresses as its opinion, "The only thing that will afford complete protection is the removal of the objectionable institutions. In this conclusion Governor Whitman concurs.

"After careful consideration he stopped the work of construction and recommended to the Legislature the abandonment of the sites. His language is as follows: Governor Whitman (in his message to the Legislature, 1916):

"I have included no appropriation either for the Mohansic Hospital for the Insane or the New York State Training School for Boys at Yorktown Heights in the tentative budget proposed, and I recommend that the construction of these institutions be abandoned. Pending decision on this matter I have ordered work on all contracts connected with these institutions stopped."

The bills last year urged by the Merchants' Association for the removal of these objectable institutions failed of passage. They have been reintroduced this year.

Your Committee requests that this matter be placed in the hands of the Committee on Legislation with instructions to investigate its merits and to urge its passage before the Legislature, if in their judgment it be valid.

Finally your Committee would call attention to the fact that the Army and Navy of the United States need the services of competent sanitary experts, pathologists and bacteriologists, as well as surgeons and internists in the event of active war. It is up to the young unmarried men in these branches of medicine to show their patriotism by being the first to volunteer for active service.

Respectfully submitted,

Joshua M. Van Cott, *Chairman,*
Joseph L. Moore, *Secretary,*

April 1, 1917.

REPORT OF THE COMMITTEE ON LEGISLATION.

To the House of Delegates:

The most important matter affecting the medical profession introduced in the legislature since my last report is, as you were informed last year, that of Compulsory Health Insurance.

I have no doubt that each of you is familiar in a large degree with the history of this question. It may not be inappropriate to call to your attention my earnest plea to your honorable body at its last meeting of the menace threatened you by this form of legislation, and the necessity of constant alertness upon your part to prevent the perpetration upon this state of the evils that the profession has suffered from, in the other countries, following in the wake of this legislation.

In the opinion of your Chairman the present bill, both as a whole and in regard to its medical provisions, embodies all of the iniquities of both German and English acts. From the very beginning of the agitation for this legislation, your Chairman has set his face straightly against it, and has opposed it in season and out of season. The Council of the Society, however, at its December meeting, did not agree with his opinion in this matter, although he earnestly protested by letter against their taking a position in favor either of the act as a whole or the medical provisions of this act. At the special meeting of the Council, called at a later date, the action of the Council taken at the December meeting in favor of the medical provisions of the act was withdrawn, and your Chairman appeared against this bill at the hearing held March 7th. Every county medical society of the state that has taken action upon this bill has taken action against it, and most of them took action also against the appointment of an investigating commission at the present time.

The Compulsory Health Insurance bill will not be passed at this session, but two bills have been introduced appointing a Commission to study, investigate and report to the legislature at the next session. The Graves bill will not pass; the other, the Mills-Coffey bill, will probably pass.

At the special meeting of the Council, held on March 3d, at Ithaca, your Chairman asked for authority to oppose the original bill, instituting a system of Compulsory Health Insurance, as well as any bill authorizing the appointment of a Commission at the present time "owing to lack of sufficient study or understanding on the part of both the profession and the public," and stated that a period of agitation and discussion of at least a year should occur before favoring the appointment of an investigating commission. A protestation of this legislation was made by your Chairman because of the fact that, owing to the present conditions in Europe it would be impossible for any investigating commission to have

access to the original sources of information, and that in the lack of these original sources whatever information was procured must inevitably be from data and statistics compiled almost altogether by proponents of this legislation. Your Chairman felt, therefore, that, of all times, this was not the opportune time to favor an investigating commission, because of the fact that its report must of necessity be one-sided; and also having in view the evils that have been done the medical profession by the Wainwright Commission, which "investigated" the subject of Workmen's Compensation, and which proved to be not an "investigating" but a "steering" commission.

I seriously fear, therefore, that if the Mills-Coffey bill, appointing a commission to investigate compulsory health insurance, passes the legislature that it will manage its work in the same manner as the Wainwright Commission did and that its results will be manifested in the same way. If the profession is to save itself it must organize, as it never has organized before, and it must prepare to state its objections, if it has any, upon valid and thorough grounds, and it must be prepared to meet extremely vocal and vituperative campaigns of abuse, which will come not alone from those laymen interested in this legislation but probably directly or indirectly from certain members of its own body.

At the suggestion of your Chairman to Senator G. L. Whitney, Chairman of the Committee on Public Health, in the Senate, at a hearing on bills making changes in narcotic legislation last year, Senator Whitney introduced into the Senate a resolution to appoint an investigating commission to study this subject. This Commission has presented a bill for passage making certain needed changes in the law, in relation to the habitual use of narcotics, which was far in advance of anything that has yet been done, of which your Chairman is aware. The Investigating Commission will probably be continued for another year for the purpose of studying the question further, and has asked to have associated with the Commission, in advisory capacity, a certain number of physicians. This request was made by your Chairman and was acceded to by Senator Whitney and by others having an interest in this legislation. This will mark a most advanced scientific point in the attack upon this great evil, which has been misunderstood for many years, and will undoubtedly throw much light upon the question of the usefulness of various so-called "cures" for the narcotic habit, sanatorial, institutional, and other forms of treatment will probably lead at the session of 1918 to legislation that will be scientific and not emotional, pragmatic and not idealistic.

Various cults, including the anti-vivisectionists and anti-vaccinationists, have introduced the usual number of bills, which will probably fail of passage, although they are all still in committees.

The proposed bill for the annual registration of physicians has been withheld by agreement between the educational department and the Chairman of your Committee, because of the widespread opposition to the measure on the part of the profession throughout the state. It is proposed to conduct a campaign of education of the profession throughout the state during the forthcoming nine months, so that their wishes may be determined in this matter.

Your Chairman would respectfully recommend that serious consideration be given to the question of making a more representative body act for your House of Delegates during the interim between your annual meetings, making that body meet at definite and short intervals of time in order that the profession as a whole may speak directly through its representatives. This will be made especially and immediately necessary in the event of the passage of the bill appointing a Commission to study the question of health insurance.

We would also respectfully recommend that in the event of this bill passing the legislature that the State Society submit to the Governor a list or names from which might be chosen that of a physician who will represent the profession upon that committee.

Your Chairman cannot too strongly state his grateful and sincere appreciation of the co-operation of the secretaries and officers of the various county societies who have been of so much aid and assistance to him, and he wishes to express his feelings for the assistance given him by the members of his Committee.

Respectfully submitted,

JAMES F. ROONEY,
Chairman.

April 1, 1917.

REPORT OF THE COMMITTEE ON MEDICAL ECONOMICS.

To the House of Delegates:

Your Committee on Economics has had an exceedingly busy year.

The two topics which engaged our attention were the practical working of the Workmen's Compensation Law and the proposed enactment of a Compulsory Health Insurance measure in this state.

WORKMEN'S COMPENSATION LAW.

Regarding the practical working of this law, it is the opinion of this committee that sufficient time has now elapsed for a just estimate to be made of certain details of the law of interest to the profession, and we think the time is ripe for certain changes to be suggested by the Society.

Our criticism of the working of the law is in part as follows:

a. In its actual workings the law is such that it permits a certain percentage of pecuniary damage to the carrier company's interests, because no provision is made to set given standards of surgery, and therefore incompetent men may practice surgery under the law. No supervision of the medical services rendered is provided. A premium is placed on incompetent work in that from the practical standpoint expert services, which promptly produce a cure in a given patient, receive less money in fees than incompetent service, which keeps a given patient longer under medical care, and because of its inadequacy this longer medical care is necessary, with resultant larger pecuniary return to the medical attendant. Nor is this the worst feature of this phase of the subject, for, beside financial loss to the insurance carrier, the system possesses an added disadvantage. The speedy return to health and to labor by the workman is hindered, causing economic loss to both himself and his employer. Men unqualified to do surgical work should be prohibited from practicing surgery under the law. To this end the establishment of surgical standards are necessary. This becomes a matter of public health and as such the proper care of this Society.

b. The medical profession has no representative body to which the Industrial Commission can turn for suggestions and advice upon matters affecting the medical side of the law. Of course, there is a chief medical officer and certain medical subordinates, but the functions of these officials are definitely circumscribed and do not fill the requirements we have in view. What is needed is a body which shall represent the profession's interests before the commission.

c. A reasonable amount of "free choice" of the medical attendant should prevail under the law.

Obviously the best medical results are obtainable when there is a limited free choice. The limitations should be governed by the nature of the ailment. Purely medical services should permit free choice among all medical practitioners, while for surgical conditions there should be free choice from among all surgeons in any given locality. Furthermore, the question of free choice has another aspect. In regard to fees for services rendered where the patient exercises the privileges of the limited free choice under the Act now, the courts have held that where the workingman choses as his medical attendant some physician not selected by the insurance carrier, they, the insurance carriers, do not have to pay the bill for medical services, but the workman becomes liable for it to the physician of his choice. Needless to add the bill is usually uncollectible. This whole matter would also end were free choice made legally possible under the law and the carriers of the insurance obliged to pay the bills.

d. In certain localities of the state through some private arrangement with the carrier company certain men have obtained the control of the major portion of the medical work coming under the provisions of the law. It is physically impossible for them to perform the work for which they are under obligation to the carrier company, and there results the so-called "farming out" of the real work. We believe that no physician should be permitted to undertake more work than he can personally physically perform. The practice of medicine is a personal service and the courts have frowned upon corporations attempting to practice medicine. Insurance carriers who permit this "farming out" circumvent this very idea. Not only is individual responsibility to both patient and carrier company lost under such farming out system, but all incentive for good personal medical work is absent, and a condition of medical, political "grafting" results, all of which should be prevented.

e. There should be reasonable remuneration for medical services rendered. From all reports at hand it seems to be agreed that in the matter of handling their fee bills, physicians are subject to both indignity and injustice.

This matter should receive special study to determine:

1. Whether an acceptable fee schedule can be worked out practically.

2. Whether such a schedule if worked out would be accepted as standard by the State Industrial Commission.

3. Whether or not it is advisable to have such fee bill written into the fundamental law.

f. On the practical side in the question of fees another feature is presented which prompts our attention. As matters now stand the payment of a fee which even the Commission approves is not obligatory upon the insurance carrier. The Commission seems to have no power to enforce its decision regarding same. The only resource left to the medical man is to resort to a court of law. This obviously is not desirable.

RECOMMENDATIONS.

1. In view of the possibilities now presented for uncalled-for losses both the insurance companies, the employers, and employees, we suggest that there be established a *State Medical Advisory Board* to the Industrial Commission who shall consist of elected representatives from all state medical societies, the num-

bers from each to be determined upon the basis of the numerical proportion of their respective memberships.

This Advisory Board to establish certain professional standards for the protection of all concerned. That the Board from time to time as in its judgment it deems wise make such recommendations to the Industrial Commission which will tend to better the medical services rendered under the Act; that they take up, study and report upon the questions at issue regarding medical fee bills, and act in all other matters relative to the working of the Compensation Law on behalf of the profession in representing its interests before the Industrial Commission.

2. We recommend that the law be so amended that "farming out" be prohibited, and that "free choice" as outlined above be made obligatory; and finally, that compensation fee bills which are deemed just and proper by the Commission be made a debt whose payment shall be made obligatory upon the carrier companies.

Compulsory Health Insurance.

Your committee has given this topic detailed study. Our activities have taken two principal directions:

A. Propaganda work, educational in nature to spread a knowledge of the details of this subject, by holding meetings under the auspices of this committee, or under the direction of its members, so as to invite public discussion, and to arouse the medical profession to an interest in it so that its welfare and the public health might be safeguarded.

B. Make an independent study of health insurance, examine into its advantages and disadvantages—particularly from the medical standpoint, and be prepared to lay down the fundamentals as to the medical provisions of such a law should its passage become imminent.

A. Under the auspices of this committee or at the suggestion of one or other of its members public meetings were held in New York and in Kings County in November, in Erie in January, and with the co-operation of Dr. James F. Rooney in Albany in January. Many other county societies held meetings which were devoted exclusively to the discussion of this topic. The profession acted promptly and have zealously undertaken to study the Health Insurance measure.

Pursuant to the idea of arousing discussion and interest among the profession, this committee early concentrated its attention upon the medical provisions of a proposed draft of a Health Insurance law.

The committee early decided on certain fundamentals upon which up to that time the profession had expressed its will and desire. These fundamentals, few in number, were assembled in the form of a resolution and presented to the Council of the Society at its meeting in December. The Council approved the fundamentals as expressed in these resolutions.

A great deal of misapprehension resulted. A feeling seemed to be engendered that the Council upon the advice of this committee had endorsed in whole or in part the Mills Bill No. 69 pending in our State Legislature. This idea led to much heated discussion and considerable criticism not warranted by the facts of the situation.

This committee never endorsed, never recommended for endorsement, nor even desired the unqualified endorsement of any part of Mills Bill No. 69.

This committee agreed upon a provisional acceptance of certain fundamentals regarding what would eventually be known as the "Medical Provisions" of such a law. (In this regard see Appendix 1.)

Had we agreed to accept unqualifiedly the medical provisions in toto as tentatively drafted and submitted to us by the proponents of the Compulsory Health Insurance Law, we would not have continued to hold meetings, persisted in our endeavor to elicit constructive suggestions, and continued to hold conferences with the various factors and elements interested in the measure.

Of the medical provisions we shall speak later. Here suffice it to say that we contend that the action of the committee and its approval by the Council at the meeting in December did more than anything else to focus concentration by our profession upon the proposed legislation, and we submit from observation upon the results obtained that as a matter of tactical strategy it was well and fully justified.

The action of the Council at its December meeting was distinctly understood not to commit the Medical Society of the State of New York to any definite position on the question of Compulsory Health Insurance, and to prevent our position from being in any way misconstrued we addressed a letter to the Secretary of the American Association for Labor Legislation to that effect when informing them of the action taken by the Council. (See Appendix 2.)

The objects which this committee sought having been accomplished, no particular harm resulted from the reversal of its prior action by the Council when it met in special meeting in March, because the original action of endorsement did not commit either this com-

mittee or the Council or the State Medical Society to any positive stand upon the bill pending in the State Legislature.

The chairman of this committee attended as many meetings of the county societies as he was physically able to with the idea of spreading a working knowledge of the proposed law. At these meetings, in the discussions in which he participated, as well as in the few papers and statements published by him, he endeavored to represent no partisan or personal viewpoint. He tried to represent the interests of the whole organized medical profession whose particular care is the public welfare, and it was his wish to stem the tide of hasty and ill-considered actions on the part of county societies too often not the result of calm judgment on the merits of the question at issue, but more often the results of argument directed toward the profession's personal pecuniary interests and very often the result of passionate emotional appeals.

The medical profession is still insufficiently conversant with Health Insurance. It should continue to be the work of this committee to spread more light on this topic, to refute misstatements of fact, and to analyze published papers on this topic so that the whole profession may more thoroughly comprehend this great question.

The opposition from medical men may be summarized as follows:

1. Honest objectors who dissent on the questions of the principles involved in Health Insurance.
2. Objectors who are not questioning the underlying principles involved, but who fear a reproduction in America of all the evils which foreign systems have shown obtain in the various foreign countries where Health Insurance is in force.
3. Interested insurance men, or men who are helping the insurance companies either to defeat the proposed measure or cause a compromise between the insurance interests and the proponent of the measure so that private insurance companies may do business under the act. (They are debarred under the tentative draft and under the Mills Bill.)
4. Objectors who are neither considering the public welfare nor the professional welfare, but (a) who are afraid their own incomes may be damaged, and (b) who would suffer no serious pecuniary damage under the proposed act because their private incomes from medical practice are now quite small, but who see in this bill a chance to enlarge them, and who are endeavoring by combining with other objectors to procure for themselves the best possible bargain.
5. Objectors who, while willing to accept the principles and also the suggested outline of the Medical organization, are dissatisfied with one or more details of the plan, and, therefore, condemn the whole question.
6. Finally the great mass of the profession which is uninformed as to Health Insurance, which has not yet studied the question, and opposes the measure for the time being in an effort to gain time to inform itself regarding it.

The respective weight to be attached to the relative importance of these groups of objectors seems to us obvious. No comment is necessary.

Those favoring Health Insurance from the medical standpoint may be grouped as follows:

1. Those who believe in the principles involved in the measure.
2. Those who, whether believing in the principles involved or not, yet hold that it is a measure involving intelligent communal philanthropy which will by levying a small general tax upon the whole community lighten a heavy burden now carried by a part of the community least able to bear it.
3. Those who believe it will mitigate the evils of lodge practice, hospital and dispensary abuse.
4. Those who, whether personally favoring it or not, still do believe that it is the next step in social legislation in this state, and honestly think that sooner or later, and most likely sooner than it is realized some form of this type of legislation will be enacted into law. They firmly hold to the belief that under these conditions and with this situation confronting the medical profession it were best to favor the proposed legislation, and to seek to so modify the medical provisions that the public welfare, the economic condition of the profession as well as the inherent interests of physicians in the maintenance of their high standards and in the advancement of preventive medicine—that all these be properly safeguarded under the proposed legislation.

With the layman's point of view, whether it be in favor of, or opposed to, the proposed legislation, we as a profession have no immediate concern. With the underlying economic principles, with the constitutionality or lack of it, with the question of tax burden upon the State, with the effect which it will have on the position of the so-called labor leaders, and with its influence upon the relations of Capital and Labor and the question of wages,—with all these questions we as an organized profession should not concern ourselves.

As citizens of the state these matters may very properly concern us and enlist our support or opposition to the measure.

B. This committee has studied Health Insurance from many angles. At this time we believe a detailed report upon it to be uncalled for. We publish without comment as an appendix to this report the findings and recommendations of the first American official commission which has studied the subject; that is, the State Commission of California (See Appendix 3).

Your committee feels that Health Insurance legislation is imminent and in the effort to carry out its functions we suggest the following fundamentals as being necessary to safeguard all the interests concerned from the medical viewpoint.

Medical Standards for Health Insurance.

1. The medical profession shall be represented on the Health Insurance Commission.
2. Upon each sub-division of the Administration Departments the profession shall also have definite representation.

3. There shall be co-ordinant representation upon all administrative departments by the Public Health authorities without, however, any increase in the police power of the Health Department.

4. The entire profession shall be eligible to positions under the act. All legally qualified practitioners of medicine shall be eligible to the "panels."

5. That in the actual working of the law provision be made completely to separate the doctor who treats the sick and the physician who (medical officer) serves the funds or carriers as their official in determining the rights to cash or other benefits permitted by the fund.

6. That the medical officer shall be a legally qualified physician who shall have such other qualifications as the State Medical Advisory Board may prescribe (State Medical Advisory Board being elected representatives from all the State Medical Societies), and who shall in addition be approved by the "panel" physicians or their elected representatives.

7. That a limitation be placed upon the number whom any given physician is called upon to treat. This to be equally applicable whether the given fund uses the panel system, the salaried physician or a combination of these two systems.

8. That once the rate of remuneration for the panel physicians is determined the law shall be made to read that where salaried physicians are employed, the salary shall in no case be less than the average sum of money earned by panel physicians in the same community. (This is to prevent the hiring of cheaper priced men to take the work from the panels.)

9. That absolute free choice in regard to their medical attendant be allowed patients.

10. That in every community, especially in such where the so-called "closed hospital" exists, the commission shall either establish sufficient "open hospitals" or the carriers be made to make contracts with enough "open hospitals" so that no legally qualified practitioner be deprived of his right to continue to treat a patient whose removal to a hospital is imperative for any reason, the patient having chosen the given physician to treat him during the given illness.

11. That the physicians on the panel register themselves as general practitioners, surgeons, or specialists, naming their specialty in a manner and form to be determined by this Society, so as to prevent illegal and unethical advertising, and to keep all on the lists upon a given level of equality.

12. That no individual contracts between carriers and funds and physicians be permitted, except when salaried men are employed, and then the ideas given under Paragraph 8 are to obtain; that all contracts be made with the panels as a whole, and that the panels be empowered to enforce their contracts.

13. That a standard of visitation-fees be worked out, promulgated and based upon the prevailing rates of medical fees in any given community so as to give a reasonable annual income to physicians who elect to practice under the Act. Such a standardization of visitation-fees should not necessarily be written into the law, but should be the standard to govern the carriers and the physicians in making contracts.

14. That upon committees having to do with medical matters and disputes between medical men there be provision made that these be composed of medical men.

15. That the Advisory Board of the Commission consist of medical men elected in proportion to their numerical strength from all the State medical societies.

RECOMMENDATIONS.

1. The Committee *again* recommends that no action be taken at this time either for or against Health Insurance as a whole.

2. That the Committee on Economics be empowered to continue its conferences with the proponents of the Health Insurance measure to the end that the medical fundamentals and standards as enumerated above be embodied in the Act.

3. That this Committee be further instructed to continue its efforts to elicit constructive suggestions and make further report as more details are worked out, in the interest of this Society.

4. That tentative draft of an insurance law which conforms to the essentials and standards laid down above be approved, but that such approval shall not be construed as approving any specific bill before the Legislature.

5. That in the event of a bill being introduced in the Legislature that a specific study and report upon same be first submitted to the House of Delegates before the Society is committed either for or against such a bill.

6. That in the event of there being created in this State an official investigation commission upon Health Insurance that this Committee present to such commission the essentials and standards which this Society regards as necessary to protect both the public welfare and the interests of our membership.

7. That there be added to this Committee in an advisory capacity, and for purposes of closer co-operation, one member from each County Society selected by the President of the County Societies for such position.

8. That for the purposes of closer co-operation the Chairman of the Committee on Legislation be made an ex-officio member of this Advisory Committee during the time that Health Insurance matters are pending in our legislature.

In conclusion we desire to thank the President and other officers of the Society for their hearty co-operation, and in addition to thank the Bureau

of Municipal Research of the City of New York for very valuable work rendered this Committee gratis on their part.

Respectfully submitted,

SAMUEL J. KOPETZKY, *Chairman*,
GEORGE F. COTT,
EDWARD D. FISHER,
JOHN A. LEE,
RALPH WALDO.

April 1, 1917.

APPENDIX I.

December 5, 1916.

Dr. John B. Andrews,
American Association for Labor Legislation,
13 East 23d Street, New York.

DEAR DOCTOR ANDREWS:

I take pleasure in informing you that at a stated meeting held today, the medical provisions of the tentative draft of an Act for Compulsory Health Insurance with the suggested changes in Section 11, on page 11, were endorsed and approved by this committee.

Furthermore this committee intends recommending the draft for the approval and endorsement of the Council of the Medical Society of the State of New York at the latter's meeting on Saturday next.

The committee reserves for itself the right to suggest further changes as constructive criticism warrants.

Respectfully,

(Signed) SAMUEL J. KOPETZKY.

The draft referred to is under date of November, 1916.

APPENDIX II.

December 12, 1916.

Dr. John B. Andrews,
Committee on Social Insurance, A. A. L. L.

DEAR DOCTOR ANDREWS:

I take pleasure in informing you that the report of the Committee on Medical Economics presented to the Council of the Medical Society of the State of New York, on Saturday, December 9th, was approved and adopted.

I have already informed you of the action of the Committee on Economics, and the adoption of the report by the council is to be understood as follows:

There was no action taken on the question of Compulsory Health Insurance, but the action of the council is limited to the medical provisions of the Tentative Draft which we have studied, and these medical provisions were approved in the following resolutions:

". . . *Therefore, be it Resolved,* That the Council of the Medical Society of the State of New York, considering that these essentials safeguard the public interest, the public health and the welfare of the medical profession, hereby endorses and approves the Medical Provisions of the tentative draft of the Compulsory Health Insurance Act, and instruct its Commission on Medical Economics in conjunction with its Committee on Legislation to act in accordance with these resolutions."

Respectfully,

(Signed) SAMUEL J. KOPETZKY.

APPENDIX III.

Extract from the Report of the Health Insurance Commission of California, under date of January 25, 1917.

FINDINGS AND RECOMMENDATIONS OF THE COMMISSION.

On the basis of all the information collected the commission finds, as follows:

1. Social insurance in its various branches represents a world-wide movement which embraces not only all of Europe, but a large portion of the British empire, and has made its beginnings in Asia and America. It is at the present one of the most important movements in modern social and labor legislation. All modern, civilized and industrial countries have some social insurance legislation in force. The most important and progressive foreign countries also possess the most comprehensive social insurance systems.

2. Social insurance methods represent a practical and effective means of counteracting at least some of the harmful results of modern industrial conditions upon the well-being of wage earners, and especially of preserving those persons who for some reason or other cease being independent producers either temporarily or permanently.

3. While no country in the world has as yet succeeded in abolishing poverty or even destitution and the need for charitable relief, much has been accomplished toward that goal in several countries by means of the existing social insurance systems.

4. In addition to this relief of destitution, social insurance has proved to be a powerful factor for the preservation of life and health, through the "safety-first" movement, through improved care of the sick and invalids and through regularization of employment. In several countries the increased span of life and improved health conditions are largely ascribed to the influence of social insurance institutions.

5. The success of the social insurance institutions appears to be largely dependent upon their compulsory character. Both in the number of the persons protected and in the quality of services rendered, compulsory insurance systems appear to be vastly superior to the voluntary ones.

6. Different racial and national conditions and different political organizations seem to have had little effect upon the existence and extension of social insurance institutions in various countries.

7. Next to compensation for industrial accident, compulsory health insurance is the most highly developed form of social insurance in Europe and it has followed accident compensation in several countries as the next step in the extension of social insurance.

After investigation of conditions throughout the United States the commission further finds that:

1. Millions of wageworkers recognize the advantages of the insurance method in general for protection against the hazards of the wageworker's existence. This is demonstrated by the numerous insurance institutions which they have created and in which they participate, as, for instance, trade unions, benefit funds, fraternal orders, and other benevolent societies.

2. Nevertheless, in absence of legally established systems, the benefit of voluntary insurance has as yet been extended to a comparatively small part of the American wageworking population except for funeral insurance. However, the benefits rendered by these vol-

untary institutions are far from sufficient to meet the need.

3. Since the industrial accident compensation movement has swept the country there has been considerable discussion of all other branches of social insurance by governmental commissions, voluntary committees and labor organizations as well as public opinion at large.

4. There has been a decided change in the attitude of American students of economic and sociological problems towards social insurance methods, so that instead of the general opposition of ten years ago the commission finds among them at present an almost unanimous support of the compulsory social insurance method of coping with the problem of destitution in this country.

Of the experts on economic and social problems consulted the majority agreed that health insurance is the particular branch of social insurance which can and should be developed next in this country.

Finally, on the basis of statistical information gathered in its California investigation toward which the greatest part of the efforts of the commission were directed, the commission finds that:

1. While the rate of weekly wage is higher in California than in Eastern states, the earning power of the majority of the wageworkers is not sufficiently high to enable them to go through an attack of serious illness without a very grave hazard to their economic well-being.

2. The loss of earnings through unemployment is very large, thus materially affecting the annual income.

3. The expenses of treatment of the sick are heavy in California, as they are throughout the Pacific coast, and considerably heavier than in other parts of the country.

4. The commission has no intention of criticizing the charges made by the medical profession for its services. Comparison of the standards of payment for medical services with the incomes of the large proportion of the wageworkers leads to the conclusion that medical aid at the ordinary rate of payment is not within the means of a large number of wageworkers

5. The cost of private hospital service is beyond the reach of the paying capacities of most wageworkers, and with the exception of a very few county hospitals and a few private hospitals to which free patients are admitted, the available beds in the ordinary county hospitals offer facilities which are recognized by the proper authorities to be unsatisfactory and are not acceptable to the large number of wageworkers.

As a result free hospital facilities are decidedly inadequate. In comparison with a standard of five hospital beds per thousand of population, California has only one free hospital bed per thousand.

6. As a result of these conditions, the commission finds there is a rapid increase in the use of free clinics, lodge practice of medicine, mutual hospital associations and commercial hospital associations, patronized largely by wageworkers.

7. In investigating the relief work which charitable organizations, public and private, are called upon to perform, sickness was found to be the largest single cause of dependency.

8. Despite the hardship which illness brings to the individual wage earner, investigations disclosed the fact that California has a comparatively low sickness rate—an average of six days per person is lost each year because of sickness.

9. A full investigation of the existing insurance facilities shows conclusively that health insurance is an institution with which the people of California, and especially its working men and working women are familiar through fraternal orders, benefit societies, trade unions and to some extent through commercial insurance companies.

Probably not more than one-third of California wageworkers have voluntarily insured themselves against the hazard of sickness, and these voluntary efforts reach only an extremely small proportion of the people who need it most. In most cases the entire financial burden is placed upon the wageworkers themselves and therefore the funds collected are usually inadequate to provide support during illness and scientific medical care. This is particularly true of medical and hospital services furnished, except in a very few large corporations.

As a result of these findings, the commission has arrived at the conclusion that legislative provision for a state-wide system of compulsory health insurance for wageworkers and other persons of small incomes would offer a very powerful remedy for the problems of sickness and dependency in the state of California.

In selecting health insurance as the particular branch of social insurance best adapted for earliest action, the commission was guided by the following conditions:

a. Health insurance appears logically to be the next step in development after accident compensation.

b. It offers the least actuarial and organizational difficulties as compared with other more complicated branch of social insurance which require provision of substantial reserves.

c. While the grave character of the problem of unemployment cannot be denied, no system of unemployment insurance in California would appear practicable until further measures are taken to reduce the amount of unemployment. Moreover, unemployment insurance is a comparatively new institution with a very limited amount of experience available at present.

d. Old age insurance presents such serious actuarial and financial problems that the commission does not feel in a position to make any recommendation concerning it at this time. Further study of the problem, especially as to the comparative merits of the methods of compulsory insurance and straight old age pensions, would be required.

e. It is claimed, and with some justice, that in both the field of old age and unemployment insurance national action may be necessary; while the problem of dependency due to sickness is largely a local problem amenable to state action.

In the opinion of the commission the principle of health insurance is familiar to the people of the state of California. Undoubtedly a system of public compulsory insurance introduces certain elements of comparative novelty, but even during the existence of the commission growing understanding and approval of this novel principle could be easily observed. This was brought out very clearly in the hearings held in San Francisco, where the predominating majority of witnesses representing employers, organized labor, social workers, the medical profession and students of economics, went on record as approving the general principle of compulsory health insurance.

There are essential provisions upon which the commission has reached an agreement. In order to meet the problems of destitution due to sickness and in order to make health insurance a valuable adjunct to the broad movement for the conservation of public health, any legislation on this subject should, in the opinion of the commission, provide (a) for a compulsory system for the conducting of the insurance by nonprofit making insurance carriers; (b) for a thoroughly adequate provision for the care and treatment of the sick and (c) for contributions from the insured, from industry and from the state.

Conclusions.

Having examined the burden which illness brings to the individual wage earners and the burden which this illness spells to the public funds, having investigated the ways by which wage earners are seeking to protect themselves against the results of illness, as well as the efforts of employers to provide such protection for their men, with the facts of the field surveys analyzed

and with the equipment of the hospitals and clinics of the state in mind—what are the conclusions that inevitably form themselves?

The cost of scientific medical attention and hospital service, beyond the means of most wage earners, is forcing an increasing number of persons to seek medical charity and financial assistance when ill. Loss of earnings due to illness reduces more wage earning families to destitution than any other cause. *Individual responsibility for illness threatens hardship and economic dependency to wageworkers.*

The annual loss which the individual will suffer because of illness cannot be foreseen. It may be nothing. It may be disastrously heavy. Yet the annual loss to the community consequent upon illness is a steady computable loss. The comparatively low sickness rate in California, an average of six days in contrast to nine days found by the federal Public Health Service in other communities, would be a decided asset under a system of group responsibility. It means that the annual loss to the community due to illness is comparatively low and the pro rata cost of health insurance would be correspondingly low in California as compared with other communities. *Group responsibility for illness through health insurance is the practical way to meet the problems created by illness in California.*

Illness is a possibility, not a certainty, in the life of any individual, and most persons to whom every dollar counts, are inclined to rely on the chances of escaping. Though many wage earners, recognizing the advantages of health insurance, organize in various ways to protect themselves, the great majority of poorer paid wage earners, most in need of protection, will not voluntarily seek it. Even among persons of better earning capacity who are still in the group who cannot afford a long illness, there are many who do not see the advantages of the insurance method. *Health insurance to be effective must be made compulsory upon the individual workers.*

An adequate protective system would guarantee the wage earner medical attention, including specialists' care, surgical, hospital and dental care for himself and his family in time of illness as well as a substantial part of wages for the maintenance of himself and family during his disability due to illness. The protection afforded by existing health insurance facilities, useful though it is, is not and cannot be made adequate for what the wage earners can and do pay. *Some contribution from other sources than the wage earners themselves is necessary to secure adequate health insurance for wage earners.*

The greater part of the day is spent by the wage earner at his job. The conditions under which he works and which vitally affect his susceptibility to illness, are to a great extent under the control of his employer. The contribution by employers to the health insurance of their employees would give employers a financial incentive to make conditions at the job, as far as possible, conducive to good health. Thus prevention of disease, one of the desired ends of health insurance, would be stimulated.

Investigations made of the sickness rate in various industries by the federal Public Health Service have convinced that body that the strain of modern industrial life contributes toward the general illness of the workers, so from the standpoint of partial responsibility, contributions from industry would be justified.

Furthermore (as, indeed, California employers who have experimented with health insurance funds at their own establishments, testified), health insurance of wage earners would react to the decided benefit of industry through increased efficiency and a steadying influence on the average duration of employment. And as indirect beneficiaries, the employing group rightfully should contribute. *Contribution from industry to the health insurance of wage earners is just and desirable.*

Since the community can control general conditions which affect the health of the wage earning group, it would be well for the community to have a direct financial interest in the bettering of conditions in place of the general interest it now has in public health; second, contribution of the state would give the state the right to regulate and control, and co-operation between health insurance and other official bodies interested in public health could be then worked out to advantage; third, the contribution to a scheme calculated to prevent destitution, would be an admirable substitute for the present expenditure of large sums of public funds for the relief of destitution. *Contribution of the state to the health insurance of wage earners is desirable.*

The present laissez-faire method of ignoring the great problem of illness among wage earning families until actual destitution demands public attention, is socially wasteful in the extreme. It means a heavy financial burden on public funds for relief, which at best is a most unsatisfactory palliative of the disease of destitution.

Health insurance offers a sensible, practical method of eliminating in part the most distressing features of the present social system, economic dependency and charitable relief. Health insurance would distribute a burden which now means hardship, suffering and lavish public expenditure, in such a way that it would be a burden no longer.

Through its beneficial effect upon two-thirds of the population, health insurance would mean a tremendous gain in public health. *Health insurance of wage earners would mean a tremendous step forward in social progress.*

REPORT OF THE COMMITTEE ON MEDICAL RESEARCH.

To the House of Delegates:

The Committee on Medical Research begs to report that during the Legislative season of 1917 the following bills to regulate animal experimentation were introduced in the Legislature:

By Mr. Boylan, in the Senate, "An Act to Amend the Education Law, in Relation to Experimentation Upon Living Animals in the Common Schools of the State."

By Mr. Boylan, in the Senate, "An Act to Prevent Cruelty by Conferring Upon the Board of Regents of the University of the State of New York the Power of Supervision of Experiments on Living Animals."

By Mr. Mahony, in the Assembly, "An Act to Amend the Education Law, in Relation to Experimentation Upon Living Animals in the Common Schools of the State."

By Mr. Mahony, in the Assembly, "An Act to Prevent Cruelty by Conferring Upon the Board of Regents of the University of the State of New York the Power of Supervision of Experiments on Living Animals."

The two Senate bills were referred to the Committee on Judiciary of the Senate, and the Assembly bills conferring upon the Regents the power of supervision of experimentation on living animals, was referred to the Committee on Judiciary of the Assembly, and the Assembly bill in relation to experimentation on liv-

ing animals in the common schools was referred to the Public Education Committee of the Assembly.

A hearing was held in Albany on the two bills introduced by Mr. Boylan into the Senate, before the Judiciary Committee of the Senate on March 6, 1917. At this hearing the State Society was represented by Mr. Henry James, Jr., General Manager of the Rockefeller Institute, and by Mr. R. S. Richardson representing the high schools. The usual arguments were presented by the anti-vivisectionists, but were successfully refuted by Mr. James and Mr. Richardson. Up to April 1st the bills had not been reported out of committee.

The bill introduced by Mr. Mahony into the Assembly conferring the power of supervision upon the regents, has not been reported out of committee. The one introduced prohibiting experimentation in the common schools was adversely reported.

Respectfully submitted,

FRANK VAN FLEET,
Chairman.

April 1, 1917.

REPORT OF THE COUNSEL.

Dr. Martin B. Tinker, as President Medical Society of the State of New York, the Council, and the House of Delegates of the Medical Society of the State of New York.

Sirs:

I have the honor to transmit to you herewith my report as the legal representative of the Medical Society of the State of New York, for the year 1916:

I am very glad to announce that three cases less than in 1915 were brought in 1916—forty-one in all this year. For the past five years the number of cases brought has diminished slightly each year.

Your Counsel has had the good fortune to come out unscathed during 1916; not a single case was lost. More cases were finally disposed of during 1916 than during any previous year, covering cases which were brought as far back as 1913, six cases having been disposed of during one month, which is the record. The appeal of the case lost in 1915 is now on its way to the Court of Appeals. I have just learned that it will be at least two years before this appeal can be heard. I am extremely sanguine of the outcome of this case.

There were many cases of especial interest tried during 1916, and the case which stands out more plainly than any other is one resulting from an operation on a child for ptosis. The operator had the misfortune to break a steel needle during the course of the operation, and was required by the exigencies of the case to discontinue his search for one of the pieces, which afterwards appeared in the scalp some three or four inches away from the seat of the operation. It is always difficult to explain to a jury the necessity or propriety of leaving materials in wounds.

It will be satisfying to note that inquiries have been made from various states with reference to the method of conducting malpractice defence, and your Counsel believes that several states have been added to the list of those who are now conducting this organized defence. Communications have been had also with law-makers of the State of Ohio with reference to medical decisions.

Your Counsel is very glad to report that there have been no appeals from the decisions of any of the County Societies of the state brought to the attention of the State Society. The appeal from the Supreme Court's decision in reference to the Oneida County appeal which was disposed of by the State Society in 1915, was heard in the Appellate Division where the Court was evenly divided, and the case is now on its way to the Court of Appeals. The decision in the suit brought by the physicians of that county against the State Society was in favor of the State Society, by the court dismissing the complaint. I believe I referred to this in my report of 1915, because the report was written in 1916.

I should be unmindful of my duty if I did not take this opportunity to thank the various distinguished members of the profession in all parts of the state for their uniform, valuable and self-sacrificing co-operation in the defence of those who are unfortunate enough to have a malpractice action brought against them. Without their support, co-operation and counsel, my work would be overwhelming.

The following is a list of cases begun during 1916:

1. This case was begun in Onondaga County and transferred to Madison County, on motion. The plaintiff complained that he received a fracture of his right shoulder, and that the doctor failed to discover that the bones were fractured, and failed to reduce the fracture and adjust the bones because of his failure of diagnosis. This case will probably be tried in 1917.

2. This action was two-fold—one action brought in the Supreme Court on behalf of the wife, and the other in a Municipal Court on behalf of the husband. The negligence complained of was that the doctor, in sewing up lacerations of the cervix, cut into and pierced the wall of the urinary bladder, and that she still suffers with a fistula from the bladder into the vagina, with the ordinary accompanying distress. The husband's case is for loss of services and money expended. New attorneys have been substituted, and the husband's case is likely to be tried in the Municipal Court early in 1917.

3. This is an action brought against a doctor by the husband of a woman who claims that the defendant performed an illegal abortion upon her, and that by reason of the alleged illegal and negligent acts of the defendant, he has been deprived of her services, com-

fort and society. This is a civil action only, and no charge of a criminal nature has been made against the defendant.

4. The claim in this case is based on a charge that the defendant was negligent and careless in his assistance, attendance and care of the plaintiff during her confinement. An action was also begun by the husband, and both actions were tried during 1916.

5. This action was based on a charge of negligence against the defendant, wherein it was claimed that the doctor in attempting to remove superfluous hair from the face of the plaintiff, caused abscesses to form and that she was disfigured. The plaintiff in this case was a nurse.

6. The foundation of this action was alleged improper treatment during childbirth. There are two defendants, but Counsel only represents one. It is claimed that the woman died because of hemorrhage at the time of childbirth, the defendants failing to arrest the hemorrhage.

7. This action was begun by the doctor suing for his bill in an inferior Court, and a counterclaim was set up for malpractice. Your Counsel did not represent the defendant except as counsel, and advised the insurance company who did represent him, to discontinue that suit and begin their action for services again in the Supreme Court, which they did. When the new action was begun Counsel advised the defendant and the insurance company's attorneys until just before the trial, when the insurance company employed your Counsel on their behalf to defend the action and paid him for it. The claim was two-fold, in that it was charged that no consent was had for the operation, the plaintiff being a minor, and secondarily that he had facial paralysis following a mastoid operation.

8. The claim in this case was based on a fracture of the radius and ulna and a sprained ankle and shoulder resulting from a severe fall. This case was tried and finally disposed of during 1916. This was the ordinary case of an action following a Colles fracture, which is a very frequent occurrence.

9. This case was brought for alleged negligence after an abdominal operation, wherein it as contended that through the carelessness of the doctor a fistulous opening occurred into the intestines. Your Counsel was only acting as counsel for the defendant, he having a policy of insurance and being represented by attorneys for the insurance company. I am informed that the insurance company settled this case without my knowledge.

10. This action is based on a charge of heedlessness and carelessness in a wrong, improper diagnosis given to a father as to the condition of his child. It is claimed that he advised the parent that the child had mumps, when it is alleged he had diphtheria and died. This claim is perhaps the most ridiculous one I have ever known. I believe it will never be brought to trial.

11. The defendant in this case was sued for $25,000, because of his alleged negligence in not properly bandaging, disinfecting and cauterizing certain lacerations and injuries to plaintiff's right wrist and arm. He claims that the doctor's negligence has rendered him unable to perform any kind of labor. I am counsel only in this case. It occurred in this case that the doctor, part of the time, was in the position of not being entitled to malpractice defence because of non-payment of dues.

12. The foundation of this action was a charge that the doctor had been careless in failing to properly take care of what was claimed to be an acute suppurative appendicitis, and that the doctor diagnosed the condition as "stiff belly-ache." The patient was operated on at a hospital after the treatment by the defendant, and died. This case was tried during 1916.

13. This action is two-fold—one brought by the husband and the other by the wife. The plaintiffs charge that the defendant was so negligent in his care of the patient in delivering her child, that he dislocated her hip and failed thereafter to set and adjust it.

14. This action was begun early in 1916, and involved an operation on a child's tonsils. The child died. No complaint has yet been served in this case.

15. The basis of this action is an alleged claim that the defendant sent from his home a servant girl while she was suffering from pneumonia, and that as a result of his sending her away she died. This case will be disposed of probably in 1917.

16. There are two defendants in this case, one a surgeon who applied a plaster cast to a child's leg after operation for bow-legs. On the day that the operation was performed the service in the hospital where the child was, changed and another surgeon took over the case. Both these surgeons are sued, and your Counsel only represents one, the insurance company representing the other. The child's leg was subsequently amputated.

17. The husband of the plaintiff in this action has written to the defendant demanding that he respond in money for his carelessness in the treatment of his wife. The case had only gone so far as the correspondence, which was begun apparently in April, and has not at the end of the year developed into anything further. The doctor applied for defence soon after he received these letters. He sent some X-ray pictures, which would indicate that the question at issue has some reference to an injury to the hip.

18. There are two defendants in this case and I represent one. The gravamen of the case is that the defendant whom I represent, operated on an adult for removal of the tonsils, with the result, it is claimed, that she had a hemorrhage and died.

19. The basis of this action is a claim that the doctor was negligent in setting a fractured wrist. Your counsel had an opportunity to talk with the plaintiff's attorney in this action, and it turned out that the X-ray showed that the result obtained was perfect, so there was little chance for him to succeed in his case and the action was discontinued.

20. It is claimed in this case that the doctor who administered ether or chloroform, dropped some of it on the face of the child who was being operated upon, and burned her. The action is brought by the infant's mother. It is claimed that the injuries are permanent and that she has been badly disfigured.

21. The patient in this case was suffering from a disease known as "chloasma" which affected both cheeks and her forehead. The doctor used the ordinary treatment of acetic acid solutions and once or twice a mild fulgurization. She claims that she has been disfigured by her treatment.

22. It is claimed in this action that the defendant failed to diagnose the condition of the child, that his treatment was therefore careless and negligent, and as a result the child died. The question involved here is one as to whether or not the child had diphtheria.

23. This case is one brought against a public institution and against one of the doctors in it, wherein it is alleged that the defendant doctor, in treating a patient in the institution, dislocated her sacro-illiac joint. As Counsel for the State Society your Counsel is defending the physician personally, and is also acting as attorney for the defendant sanitarium.

24. This action is based upon the treatment for a fracture of the thigh. It was claimed that the femur had been broken between the knee and hip, and was not properly set, so that the bones overlapped and were not in alignment. This action may be tried during 1917.

25. It is charged in this case that the defendant was negligent in the use of radium and X-ray in attempting to cure a cancer. It is charged that the plaintiff was burned and his reproductive organs injured. Your Connsel is simply acting in an advisory capacity in this case, the insurance company defending the doctor.

26. It is claimed that the defendant in this case had venereal trouble. The treatment accorded this individual was the ordinary treatment for his cure, and he was benefited. I believe this case will never be brought on for trial, as the charge seems to be absolutely absurd.

27. This is a death case, in which it is charged that prescriptions for medicines were wrongfully given and that the medicines were taken, and it is claimed that it was subsequently found that death was caused by morphine poisoning and it is charged that the defendant is responsible.

28. I have never received any pleadings in this case at all. It is entirely in the hands of the insurance company. The doctor sent me a very brief statement, and evidently the action relates to treatment of the eye.

29. This action is based on a charge of negligence for failure to properly set, adjust and splint a fracture of the plaintiff's left wrist. Plaintiff claims $10,000.

30. The plaintiff in this action is a woman residing in Pennsylvania. Although the surgeon has applied for defence no action has actually been begun. It is claimed that pieces of gauze were left in the wound after operation. As no action has been begun, it is only conjectural what course will be followed by the plaintiff.

31. This action was begun by the service of a summons without a complaint, and no complaint has ever been served. I was about to move to dismiss this case for failure to prosecute, when the plaintiff consented to discontinue the action, and inasmuch as there was no complaint served I cannot state the theory of the plaintiff.

32. The plaintiff in this action charges that the defendant, having decided that the patient had appendicitis, gave him medication instead of operating on his first visit, and on his second visit diagnosed the condition as gall-stones, and that he then prescribed another course of treatment with the result that the patient had only temporary relief, and subsequently the patient went to another physician and was operated on.

33. This action is brought against another physician by the same plaintiff as in the foregoing action, based upon the same alleged claim. Although this doctor has applied to the State Society for defence, he is being represented by an insurance company.

34. The plaintiff in this action alleges that he was suffering from a compound fracture of both bones of his right wrist. There are two defendants in this action, one of whom is represented by an insurance company and the other by your counsel. It is contended that by reason of the improper, unskillful, negligent and unprofessional treatment of these two defendants, the plaintiff has been permanently deprived of the use of his right arm.

35. This case represents simply a threatened suit. It has not yet reached the dignity of a summons and complaint. The question involved is apparently the treatment of a fracture of the wrist. The correspondence was started in July, and it would appear that there is little likelihood of the case ever being started.

36. Here are two actions, one brought by an infant by her guardian, and one by the mother. It is contended by both these plaintiffs that the young woman went to the doctor's office for an examination of her eyes, and that he used a creosote combination which was so strong that it injured her eyes and burned her cheeks. The mother sues for loss of services and expenses of treatment, and the child for personal injuries.

37. This action was brought by a child by her guardian against the defendant, who it is claimed in the complaint, treated her at a hospital for a broken arm, broken at the elbow. The plaintiff asserts that the defendant stated that his predecessor in the treatment of the arm had failed to take care of it properly, and that he would have to rebreak the arm, and he did so. The complaint alleges that the arm was not wrongfully set in the first instance and that it was bad treatment to rebreak it and care for it as it is claimed the defendant did.

38. This doctor simply made an application to the State Society for malpractice defence, signed his application blank, and attached a slip of paper thereto saying that all the papers were with the insurance company. Why the doctor took the trouble to apply for defence, I do not know.

39. The defendant in this case is sued for $15,000, because as plaintiff alleges, having broken both bones of his left forearm, the doctor was negligent, careless and unskillful in attempting to reduce the fracture and setting the bones, and failed to use proper appliances, with the result that the fractured bones were never replaced and had never united.

40. The plaintiff contends in this case that while he was being treated with violet rays for an affection of his reproductive organs, he became infected.

41. The plaintiff in this case alleges that within six years last past and on or about the 4th day of February, 1915, he broke his leg, that the defendant was so negligent, careless and unskillful that the plaintiff is still caused to suffer great pain and anguish, and the bones were allowed to override and project, all of which caused a deformity. Plaintiff finally adds in his complaint that the overlapping and projecting was not caused by the difficult fracture or condition of the plaintiff.

It is important that you should note that in approximately 20 per cent of the cases defended by me, the insurance company has had some relationship; sometimes it has been to represent one of two defendants while I represent the other, sometimes to act as counsel where the insurance company defends and takes the responsibility, and in one case the insurance company employed me outright to defend the case.

I believe it is imperative that the State Society take some decided stand at once with reference to defending members who are making use of insurance policies. These insurance companies receive anywhere from $15.00 to $25.00 a year as premiums, and I am convinced that perhaps 10 per cent of the medical profession of this state is now making use of these policies. Such practice acts diametrically in opposition to the effort of the State Society.

The establishment of malpractice defence in the State of New York was for one purpose only, and that was to stem the tide of blackmailing malpractice cases which had for upwards of fifty years been on the increase. That end was in a fair way of accomplishment until the insurance companies got into the field and began importuning doctors to accept insurance against their own negligence and carelessness, with the result that lawyers nowadays, and patients as well, have begun to attack physicians with the knowledge that many have insurance policies, expecting and hoping that they will get a settlement.

The profession has not yet realized the danger of these policies. When a doctor is once defended by an insurance company, his policy may be promptly cancelled, all other insurance companies notified that he has been sued and recovery against him; if that is so, he may

not be asked again to take a policy, and then he will be left in the predicament of having lost a case and in the unenviable plight, should an accident again befall him, of having the question asked him of how many times he had been sued for malpractice and how many times recovery had been had against him.

Many of the doctors of the State Society, to my knowledge, have asked the insurance companies to employ me to defend them, knowing that it is practically impossible for insurance companies all over the state to have men with any special knowledge of this class of cases. The attitude of the insurance company seems to have been that if their own counsel or correspondents are not competent to try a case of this kind, the company will find someone who is, with the result that their lawyers in the various districts are embarrassed and the doctor is left between two influences—on the one hand, to run the chance of losing his case when the jury knows that he is insured; and on the other hand, with the policy in his pocket, to apply to the State Society with the chance always of your Counsel not being successful.

Your attention is also called to the fact that the members of the State Society are in increasing numbers making inquiry of Counsel on all sorts of subjects pertaining to medical law and in other directions. The influence of the State Society is becoming more and more broadly felt not only throughout this state, but throughout the adjoining sister states. This is most gratifying.

Finally, I would say that the year 1916 has been one of the most satisfactory years in the history of organized malpractice defense in this state, but I deplore the loss of Dr. Wisner R. Townsend, one of the most ardent, considerate and thoughtful workers that the State Society has ever known.

All of which is respectfully submitted.

JAMES TAYLOR LEWIS,
Counsel.

December 31, 1916.

REPORT OF THE COUNCILOR OF THE FIRST DISTRICT BRANCH.

To the House of Delegates:

The work of the First District Branch of the Medical Society of the State of New York has been carried on very successfully during the past year, and the tentative report given you one year ago to the effect that the only County in our District, namely, Putnam County, that was without a County Medical Society is now well cared for by reason of the fact that its neighbor, Dutchess County, extended an invitation to the medical fraternity of Putnam County to amalgamate with them under the name of the Dutchess-Putnam Medical Society.

A committee was formulated to perfect this work, and during the summer of 1916 the Dutchess-Putnam Medical Society was formally established.

This eliminated the last gap in our ranks and it insures for each County of the District a proper medical organization, and the twenty physicians practicing in Putnam County are thereby given a recognition which they have not heretofore possessed.

It is fitting that at this time due recognition for able assistance rendered, in perfecting this amalgamation of Dutchess and Putnam Counties, be given to Dr. Richard Giles of Cold Spring, President-elect of the First District Branch of the Medical Society of the State of New York, and to Dr. William Stanton Gleason, ex-President of the Medical Society of the State of New York. Without the assistance given me by these two physicians I doubt if the work could have been accomplished.

The scientific work done throughout the year in the individual County Societies of the District has been of an excellent standard. The attendance and the spirit of the discussions in the County Societies has indicated good organization and scientific interest.

The Annual Meeting, the tenth in the history of the organization, was held October 14, 1916, at Poughkeepsie, with the following program:

"President's Address," James E. Sadlier, M.D., Poughkeepsie.

"The Crucial Age of Man," W. Stanton Gleason, M.D., Newburgh.

Discussion opened by Henry Lyle Winter, M.D., Cornwall.

"Early Diagnosis of Cancer," Parker Syms, M.D., New York.

Discussion opened by S. W. S. Toms, M.D., Nyack.

"Address by President of the Medical Society of the State of New York," Martin B. Tinker, M.D., Ithaca.

"Experiences in Serbia During the War," Ethan Flagg Butler, M.D., Yonkers.

"Experiments in the Use of Moving Pictures in Teaching the Technic of Surgery," John A. Wyeth, M.D., New York.

"Colonic Stasis," William Seaman Bainbridge, M.D., New York.

"Diagnosis and Treatment of Acute Infection of the Nasal Accessory Sinuses," Milton A. McQuade, M.D., Newburgh.

Discussion opened by James E. McCambridge, M.D., Poughkeepsie.

"Some Clinical Experiences in Heart Disease," J. H. M. A. von Tiling, M.D., Poughkeepsie.

Discussion opened by Daniel B. Hardenbergh, M.D., Middletown.

"Report of a Milk Born Epidemic of Infantile Paralysis," John C. Dingman, M.D., Spring Valley.

Discussion opened by John S. Wilson, M.D., Poughkeepsie.

All papers were read and ably discussed. The attendance was one of the largest in the history of the Society. The all-day session, while it disposed of the excellent scientific program which had been prepared, did not deter us from having an evening session, which was also largely attended, at which Dr. William Seaman

Bainbridge, of New York, gave a most entertaining talk upon his experiences in Europe during the war.

As I return to the ranks and hand over the Presidency to the able successor who has been elected to that office, I am conscious of taking a just pride in the fact that the First District Branch is becoming a decided factor in the State Medical Organization, that its influence is of moment, and the attendance at the meetings is increasing each year, also that the scientific work done by the members is of a high grade.

I feel that there will be a continuation of progress from year to year until the lethargy which formerly existed shall have been entirely dissipated.

Respectfully submitted,

JAMES E. SADLIER,
President.

April 1, 1917.

REPORT OF THE COUNCILOR OF THE SECOND DISTRICT BRANCH.

To the House of Delegates:

As President of the Second District Branch and a Councilor of the Medical Society of the State of New York, it becomes my duty, at this time, to render a report for the year closing with your Annual Meeting.

There is little of general interest to tell you. At our end of the State, we have so many organizations, which claim the interest of the members of our profession, that it has been difficult to arouse much enthusiasm for the District Branch, or to secure attendance upon its meetings. This is not because our members are lacking in loyalty to their profession or are indifferent to opportunities for improvement. But in these crowded twentieth century days, with the work of a busy practitioner to care for, the physician with us, cannot find time and opportunity for too many gatherings, no matter of what scientific interest these gatherings may be.

Our Annual Meeting was held in the commodious assembly hall of the Kings County Medical Society, on October 30, 1916. The Secretary was unavoidably absent and Dr. W. H. Bayles was appointed Secretary, pro tem.

Officers were elected for the two-year term, commencing at the adjournment of the Annual Meeting of the State Society, this spring, as follows:

President, Dr. Arthur H. Terry, of Patchogue; First Vice-President, Dr. Frederick C. Holden, of Brooklyn; Second Vice-President, Dr. Arthur D. Jaques, of Lynbrook; Secretary-Treasurer, Dr. Richard F. Seidensticker, of Brooklyn.

The President's address urged greater efficiency for the County Societies. The topic for the scientific program was "Acute Anterior Poliomyelitis," which was considered from three aspects.

Its Symptomatology, by Dr. Bernhard A. Fedde, of Brooklyn; its Laboratory Diagnosis, and Serum Treatment, by Dr. Abraham Zingher, of New York City; the Orthopedic after care of resulting Paralysis, by Dr. Jaques C. Rushmore, of Brooklyn.

Dr. Tinker, President of the State Society, was present and urged a larger membership in the parent Society. Dr. Crandall, the State Secretary, who also was present, spoke briefly upon the value of District Branch meetings. The papers were of unusual scientific value and should have had a larger audience.

Owing to distance and unexpected interference, your Councilor has been absent from some of the meetings of the Council, much to his regret. As he now leaves the Chair, he would extend sincere thanks for all courtesies received, for kindly forbearance shown, and for timely assistance given.

Respectfully submitted,

JAMES S. COOLEY,
President.

April 1, 1917.

REPORT OF THE COUNCILOR OF THE THIRD DISTRICT BRANCH.

To the House of Delegates:

The Annual Meeting of the Third District Branch was held at Cobleskill on September 26, 1916.

The meeting was well attended and the following instructive program was given:

President's Address, Alvah H. Traver, M.D., Albany.
Address, Martin B. Tinker, M.D., President Medical Society of the State of New York, Ithaca.
"Infective Arthritis," William T. Shields, M.D., Troy.
"Poliomyelitis." Augustus B. Wadsworth, M.D., Director, State Hygienic Laboratory, Department of Health, Albany.
Discussion, Herman C. Gordinier, M.D., Troy.

After the meeting the members and friends attended the Cobleskill Fair as guests of the Schoharie County Medical Society.

Respectfully submitted,

ALVAH H. TRAVER,
President.

April 1, 1917.

REPORT OF THE COUNCILOR OF THE FOURTH DISTRICT BRANCH.

To the House of Delegates:

The second annual meeting of the Fourth District Branch under my presidency was held at Plattsburg on August 24, 1916. The date having

been changed from October to August so as to make possible a visit to the military training camps then in full swing at Plattsburg.

The officers elected for the ensuing two years were: President, Lew H. Finch, Amsterdam; First Vice-President, Thomas A. Rogers, Plattsburg; Second Vice-President, Richard A. Hutchins, Ogdensburg; Secretary, Frederic J. Resseguie, Saratoga Springs; Treasurer, George H. Oliver, Malone.

Drs. Charles Stover, Charles S. Prest and Alexander W. Fairbanks, as a Committee on Resolutions, reported as follows:

Resolved, That the Council of the Medical Society of the State of New York be requested:

(a) To consider the advisability of uniting, or at least co-ordinating, the work of as many as possible of those whose influence may be of service in securing the passage of such legislation as is favorable to the improvement of the standards of medical practice throughout the state;

(b) And the employment of a legislative secretary for such time each year as is thought advisable.

Resolved, That this Society expresses its hearty approval of the steps taken by the medical societies of the nation that have been crystallized in adequate preparedness legislation, and we do further urge every member of this Society to add his individual effort to this movement by attending the schools of instruction that are being conducted by the military authorities of the United States at such camps as the one at Plattsburg, now open to all medical men.

Resolved, That this Society, while urging the prompt registration of births and deaths by physicians and recognizing this function as his obligation and duty, also is of the opinion that the service rendered thereby is deserving of a commensurate fee.

Resolved, That this Society declares its opposition to the arbitrary practice of life insurance companies that in the face of increasing services required by modern methods of medical examination, still refuse to pay the long-established fee of $5 for medical examinations. It also opposes the recognition by companies of two grades of examinations based upon the amount of insurance rather than upon equal service to be rendered in all cases.

A very excellent scientific program* was given which was greatly augmented in interest and instructiveness by the members of the Medical Reserve Corps, United States Army, of whom upward of forty were in attendance, and many of whom took part in discussions of important medical and military affairs.

President Martin B. Tinker and Secretary Floyd M. Crandall, of the Medical Society of the State of New York, favored us with short addresses and entered into the discussion of papers, much to our pleasure and profit.

After the completion of the program and discussion of cases, a visit was made to the training camps, where the entire attendance was taken in charge by Major Wallace C. DeWitt, of the Medical Corps, who gave demonstrations and instructive talks upon the many interesting features of these camps.

The Branch, including the ladies, were guests of the Medical Society of the County of Clinton, who served a most elaborate lunch and also provided a cruise of Lake Champlain with luncheon on one of the islands of the lake for the ladies.

A vote of thanks was extended to the Medical Society of the County of Clinton for this most unusual and delightful entertainment.

During the past year, I have been in close touch with the different county societies by way of correspondence or personal presence, and I can happily say that the programs of these societies were a credit to those organizations, covering nearly, as they did, all of the many new and up-to-date features of medical and surgical research and practice.

Much interest was also manifested by the several county societies in the matter of Compulsory Health Insurance and the matter was thoroughly discussed and resolutions passed by nearly all the county societies.

In closing my two years of office, I can truly and pleasurably say that in making up programs for meetings, and in response to every request for support, I have always been most cordially met more than half way.

I can assure the House of Delegates that the affairs of the county societies making up the Fourth District Branch are in a healthy state of life and activity, and I wish to express my appreciation of all the many courtesies received at the hands of the officers of the State Society, and the members of the Fourth District Branch.

Respectfully submitted,

JULIUS B. RANSOM,
President.

April 1, 1917.

REPORT OF THE COUNCILOR OF THE FIFTH DISTRICT BRANCH.

To the House of Delegates:

In reporting on the work done and conditions in this district, I beg to say that I think the work done in the County Societies during the year has been good and conditions are fairly healthy except in Lewis County where a stimulus of some kind is needed to stir the men up to greater interest and activity in society matters.

The Annual Meeting was held in Watertown on Wednesday, October 4, 1916, and was un-

* See NEW YORK STATE JOURNAL OF MEDICINE, November, 1916, page 563.

sually well attended, about 125 being present, ll of whom took an active interest in the roceedings. At this meeting we were par-icularly favored by having with us the Hon. Clon R. Brown, of the State Senate, who gave is a very timely address on "The Higher Duty of the Medical Profession to the State." He spoke particularly of the individual in-ctivity of the members of our profession in egislative matters affecting Public Health and ur own interests; and that the legislators look to us to guide them in such legislation. I all attention to this as not only of importance o this district but to the state at large. No busi-ess of importance was transacted. The officers old office for another year under the new By-aws passed at the last annual meeting.

Respectfully submitted,

JAMES F. MCCAW,
President.

April 1, 1917.

REPORT OF THE COUNCILOR OF THE SIXTH DISTRICT.

o the House of Delegates:

The Annual Meeting of the Sixth District ranch was held at Cortland, October 3, 1916. he following scientific program was presented:

"New Methods of General Anæsthesia with Exhibi-on of Apparatus," John J. Buettner, M.D., Syracuse.

Discussion, Charles H. Gallagher, M.D., Ithaca; Anna I. Stuart, M.D., Elmira.

"X-Ray Diagnosis with Stereopticon Demonstra-ons," I. Harris Levy, M.D., Syracuse.

Discussion, John A. Bennett, M.D., Elmira.

"Cardiac Functional Tests," Clarence William Lieb, M.D., The Glen Springs, Watkins.

Discussion, Charles D. Ver Nooy, M.D., Cortland; Stuart B. Blakely, Binghamton.

"The Relation Between Infectious and Intraocular onditions, Lee Masten Francis, M.D., F.A.C.S., Buf-alo.

Discussion, George M. Case, M.D., Elmira; John S Arkendall, M.D., Ithaca; George M. Cady, M.D., wego; Benjamin A. Barney, M.D., Hornell.

"The Prevention of Insanity," Edward Gillespie, M.D., tate Hospital, Binghamton.

Discussion, Arthur J. Capron, M.D., Glenmary, wego.

"Specific Immunization against the Tubercle Bacil-s," Ross G. Loop, M.D., F.A.C.S., Elmira.

Discussion, Walter K. Quackenbush, M.D., Trumans-urg.

"Plastic Surgery of Fallopian Tubes, with Presenta-on of an Instrument to Facilitate the same," Harvey Jack, Hornell.

Discussion, William A. Moore, M.D., F.A.C.S., Bing-amton; Asbury H. Baker, M.D., Elmira.

"Brain Abscess, with Report of Cases," Daniel P. urphy, M.D., Elmira.

Discussion, Thomas F. Manley, M.D., Norwich; Roy-n Mandeville Vose, M.D., Ithaca.

"Problems of a Rural Health Officer," Merrill B. Dean, M.D., Candor.

Discussion, Robert P. Bush, M.D., Horseheads; Paul B. Brooks, M.D., Norwich.

It is to be noted that with one or two exceptions, all of the papers were the product of the men of the Sixth District Branch.

It appeals to us that the District Branch Meetings should, as far as possible, embody this idea rather than invoking the aid of noted men from abroad to enhance the program.

The various County Societies in this District are in flourishing condition. Efforts are being made to enlarge the membership, as suggested by our State President, Dr. Tinker.

Throughout the District there is a desire to increase the support, by added dues if necessary, of the legal defense department of the state. The district is decidedly against the proposed Compulsory Health Insurance law in its present form.

The next meeting will be held at Watkins, N. Y.

Respectfully submitted,

ARTHUR W. BOOTH,
President.

April 1, 1917.

REPORT OF THE COUNCILOR OF THE SEVENTH DISTRICT BRANCH.

To the House of Delegates:

I beg leave to present the following report of the Seventh District Branch.

This branch which comprises the County Societies of Cayuga, Livingston, Monroe, Ontario, Seneca and Wayne and Yates has passed through an unusually active year. They are all awake to the fact that the constituent societies are a very vital part of our State Society and are enthusiastic in their work. While it may be difficult to get a true measure of the whole of an organization by the survey of a single portion, yet the increased activity of the various societies in this portion of the State and the pronounced interest of the individual physician in the various matters relating to the profession and to society in general would seem to me to be significant of an awakening in our Society of that individual sense and spirit of responsibility, which is so essential to the healthy life of any large democratic organization.

Each County Society has held its four regular and various special meetings. A large amount of progressive scientific business has been considered and many subjects of general interest have been discussed.

The Annual Meeting of the Branch was held in Rochester last September and more than a thousand physicians were in attendance. The attendance at the various County Society meet-

ings has been about sixty per cent of the membership and there has been throughout the District a healthy growth in membership of about twelve per cent.

All the Societies are recorded in opposition to "Compulsory Health Insurance" and there has been expressed an unanimous demand that some means be found whereby the present and future efficiency of our malpractice defense may be maintained.

The next Annual Meeting of the Branch will be held at Canandaigua, September 27, 1917.

Respectfully submitted,

WILLIAM MORTIMER BROWN,
President.

April 1, 1917.

REPORT OF THE COUNCILOR OF THE EIGHTH DISTRICT BRANCH.

To the House of Delegates:

During the past year I have attended at least one meeting of each of the County Societies of this District. Each time it has been my privilege to address the members on some of the economic questions now before the Society.

In compliance with the request of the President of the State Society, an effort was constantly made to stimulate the County Societies to increase their membership. I am pleased to state that a marked addition has been made to the membership rolls in this District, the percentage being now in the neighborhood of seventy-five as compared to that of seventy and one-half one year ago.

The meetings are very well attended, averaging about thirty per cent of the membership. It has been interesting to note that the younger members of the profession are active in the work of the Societies, and that there is marked evidence of harmonious relations existing among the members. The strictly professional papers presented have all been of high character and wide range, while the discussions indicated a very progressive and up-to-date state of affairs. The annual meeting in Batavia in September, 1916, was very well attended, notwithstanding the severe atmospheric conditions. Deep interest was maintained to the end of the program, and the discussions were crisp and to the point.

There is no doubt that the membership in this District will insist upon being informed in regard to matters touching their economic welfare in advance of action taken thereon by the constituted officers of the State Society, and that the membership is in a condition of open-mindedness, ready to be informed upon any topic affecting the profession as a whole.

Respectfully submitted,

ALBERT T. LYTLE,
President.

April 1, 1917.

HOUSE OF DELEGATES.

The regular annual meeting of the House of Dc gates of the Medical Society of the State of N York was held at the Hotel Utica, Utica, Monday, A 23, 1917, at 8.30 P. M. Dr. Martin B. Tinker, Itha President, in the Chair; Dr. Floyd M. Crandall, N York, Secretary.

THE PRESIDENT: The first order of business is roll call by the Secretary.

THE SECRETARY: Inasmuch as the registration delegates is more accurate than the roll call, I m that we accept the registration of delegates in pl of the roll call.

The following Delegates have registered: Arthur Bedell, Thomas W. Jenkins, James N. Vander Ve Chauncey R. Bowen, Cornelius J. Egan, John J. Deck Henry A. Dodin, Edmund E. Specht, Frank Prest Edward Torrey, Louis F. O'Neill, Vernon M. Gi wold, Garnet L. Hunter, Charles H. Haase, Thomas Manley, Alexander W. Fairbank, Hamilton M. Sou worth, Franklin H. Forshee, Robert W. Andre Richard Giles, Irving D. Le Roy, Franklin Barrows, Arthur G. Bennett, George F. Cott, Artl W. Hurd, Irving W. Potter, Julius Richter, Cha G. Stockton, Harry R. Trick, Grover W. Wende, Jc A. Grant, Edwin F. Hagedorn, Edgar Bieber, Rob Selden, Charles H. Glidden, Joseph D. Olin, Elgin McCreary, Robert F. Barber, Elias H. Bartley, Willi F. Campbell, Claude G. Crane, William J. Cruiksha Thurston H. Dexter, Robert L. Dickinson, James Fleming, Edwin A. Griffin, James C. Hancock, O. P Humpstone, John A. Lee, William Linder, Joseph Malone, Sylvester J. McNamara, John O. Polak, M E. Potter, Charles E. Scofield, John J. Sheehey, W ter A. Sherwood, Harry R. Tarbox, Paul H. von Z rolshofen, G. Kirby Collier, Nelson O. Brooks, Jar M. Flynn, Charles W. Hennington, Owen E. Jor Myron B. Palmer, Charles C. Sutter, Archibald M Gilbert, Emil Altman, George Barrie, Seymour Bas Louis F. Bishop, William H. Bishop, Walter L. C Arthur F. Chace, John P. Davin, Eden V. Delph Daniel S. Dougherty, Ten Eyck Elmendorf, Edward Fisher, Henry D. Furniss, William S. Gottheil, E. E Harris, Harold Hays, Ward B. Hoag, George W. K mak, Christian F. J. Laase, Alexander Lyle, J. Mil Mabbott, Calvin S. May, Maurice Packard, Charles Peck, Wendell C. Phillips, Alfred C. Prentice, Fred E. Sondern, J. Bentley Squier, Henry S. Stark, Ra Waldo, Orrin S. Wightman, Henry H. Mayne, Ed Shoemaker, Willis E. Ford, Earl D. Fuller, Edw M. Hyland, Frederick H. Flaherty, William A. Gr Albert E. Larkin, Alfred W. Armstrong, Walter Davis, W. Stanton Gleason, John Dugan, James Mansfield, Bennett W. Dewar, Charles B. Story, C Boettiger, Harry W. Carey, Edgar R. Stillm Charles R. Kingsley, Jr., Charles D. Kline, Willi G. Cooper, Grant C. Madill, G. Scott Towne, Fr erick C. Reed, David W. Beard, Palmer H. Ly Adolphe Letellier, Leon M. Kysor, Frank Overt Luzerne Coville, Alexander A. Stern, Alfred S. Vr man, Benjamin J. Singleton, John Millington, Jc F. Myers, Merritt W. Barnum, Edwin I. Harring George A. Peck, William H. Purdy, William R. Th son, E. Carlton Foster.

The following officers and chairmen of committ were present: Martin B. Tinker, President; He Lyle Winter, First Vice-President; J. Richard Ke Second Vice-President; Floyd M. Crandall, Se tary; Alexander Lambert, Treasurer; Samuel Ll Chairman Committee on Scientific Work; James Rooney, Chairman Committee on Legislation; San J. Kopetzky, Chairman Committee on Medical Ec omics; Thomas H. Farrell, Chairman Committee Arrangements; Frank Van Fleet, Chairman Commi on Medical Research. Also the following Council James E. Sadlier, First District Branch; Alvah Traver, Third District Branch; Julius B. Rans Fourth District Branch; James F. McCaw, Fifth I trict Branch; Arthur W. Booth, Sixth District Bran

W. Mortimer Brown, Seventh District Branch; Albert T. Lytle, Eighth District Branch.

THE PRESIDENT: If there is no objection to this, it will be so ordered.

The next order of business is the reading of the minutes of the 1916 meeting.

THE SECRETARY: The minutes of the previous meeting were published in full in the June number of the NEW YORK STATE JOURNAL OF MEDICINE. I would move that they be accepted as printed. Seconded and carried.

THE PRESIDENT: The next is the President's Report. This report was also printed, and I believe sent to the members some days ago, so that you are familiar with my recommendations with regard to the business of the Society. What is your pleasure in regard to this report?

DR. E. ELIOT HARRIS: I move that a committee of three be appointed to consider the recommendations in the Report of the President and report at the meeting of the House of Delegates tomorrow morning. Seconded and carried.

THE PRESIDENT: I will appoint on that committee Drs. Grover W. Wende, Buffalo; Charles H. Peck, New York, and Luzerne Coville, Ithaca.

The next order is the annual report of the Council. What is your pleasure in regard to this report?

DR. LYTLE: The minutes of the Council meeting in March are incomplete in that the aye and nay votes are not recorded.

THE PRESIDENT: You have heard the suggestion with regard to the report of the Council. Shall we take any action?

DR. LYTLE: I move that the Secretary be instructed to insert the ayes and noes in the minutes of this meeting of the Council.

Seconded by Dr. Brown and carried.

THE PRESIDENT: Report of the Secretary. There are no recommendations in this report. What action do you wish to take on it?

DR. HARRIS: I move that it be adopted as printed. Seconded and carried.

THE PRESIDENT: The next thing in order is the report of the Treasurer. What disposition do you wish to make of it?

It was moved that the report be adopted as printed. Seconded and carried.

THE PRESIDENT: The next in order is the reports of standing committees. The first report is that of the Committee on Scientific Work. What is your pleasure in regard to this report?

It was moved that the report be adopted as printed. Seconded and carried.

THE PRESIDENT: Shall we go over these committee reports separately, or are you willing to accept them as printed?

DR. HARRIS: Let us take them separately.

THE PRESIDENT: Report of the Committee on Publication.

DR. HARRIS: Are there any recommendations in that report?

THE PRESIDENT: I do not think so.

DR. HARRIS: Then I move that it be adopted as printed. Seconded by Dr. Van Fleet and carried.

THE PRESIDENT: The next order is the Report of the Committee of Arrangements. There are no recommendations as regards this report.

DR. JAMES N. VANDER VEER: I move the report be accepted. Seconded and carried.

THE PRESIDENT: Report of the Committee on Public Health and Medical Education. What is your pleasure in regard to this report? It contains recommendations.

The Secretary read the following from the report: "Careful reading of this very able thesis upon one of the most vitally important subjects coming before the medical profession at the present time reveals the fact that it advocates neither the Mills nor any other insurance bill, but that it makes a clear, concise and succinct presentation of the facts to be considered by the doctors in their relation to health insurance."

THE PRESIDENT: I expect this matter will come up in connection with the Report of the Committee on Economics.

DR. HARRIS: One of the sections in this report refers to the Mohansic State Hospital and the State Training School for Boys, the report stating that the sites are located on the shores of Mohansic Lake, whose waters are discharged into Croton Reservoir, etc.. I move that this report be adopted as read. Seconded by Dr. Phillips and carried.

THE PRESIDENT: Report of the Committee on Legislation. There are recommendations in this report? What is your pleasure?

The Secretary read the following recommendations from the report:

"Your Chairman would respectfully recommend that serious consideration be given to the question of making a more representative body act for your House of Delegates during the interim between your annual meetings, making that body meet at definite and short intervals of time in order that the profession as a whole may speak directly through its representatives. This will be made especially and immediately necessary in the event of the passage of the bill appointing a commission to study the question of health insurance.

"We would also respectfully recommend that in the event of this bill passing the legislature, that the State Society submit to the Governor a list of names from which might be chosen that of a physician who will represent the profession upon that committee."

DR. HARRIS: I move that the recommendations be referred to the same committee that considers the President's report. Seconded by Dr. Phillips and carried.

THE PRESIDENT: Report of the Committee on Medical Economics.

DR. HARRIS: This House of Delegates represents the medical profession of the State of New York. There are 14,124 registered physicians in the State of New York, according to the last directory published by this Society. There are 8,287 members of this Society, according to the report of the Secretary now before us, showing that this Society represents the majority of the physicians of this state, and this House of Delegates represents the Medical Society of the State of New York; therefore, the action of this body speaks for the majority of the medical profession of the state, and by that good American doctrine of majority speaks for the profession of the state. There is no question before the medical profession of this state today that is so deeply connected with the material and other interests of the medical profession as this report of the Committee on Medical Economics in the matter of health insurance, and in order that we as delegates may have all the knowledge that these learned gentlemen have collected during the year of their investigation, I move that this House now resolves itself into a Committee of the Whole for the purpose of considering the report and recommendations of the Committee on Medical Economics. Motion seconded and carried.

THE PRESIDENT: I will appoint Dr. Harris, who made the motion, Chairman of the Committee of the Whole.

Dr. Harris called the Committee of the Whole to order, and asked Dr. Floyd M. Crandall to act as Secretary.

The Chairman stated that the business before the meeting was the Report of the Committee on Medical Economics.

Dr. Samuel J. Kopetzky, Chairman, read the report.

After discussion, which was participated in by Drs. Stark, Dougherty. Rooney, Gottheil, Mabbott, Mansfield, Barrie, Kevin, Delphey, Kopetzky, Altman, O'Neill, Van Fleet, Lambert, Davin, Lytle, McNamara, Winter, Dr. Altman moved that the Committee rise and report to the House of Delegates. Seconded and carried.

President Tinker resumed the chair and called the House of Delegates to order.

The Committee of the Whole reported the following through its Chairman, Dr. E. Eliot Harris:

Dr. James F. Rooney moved that the Committee of the Whole recommend to the House of Delegates that a special committee be appointed to make a revised draft of the present Workmen's Compensation Law, which revised draft shall be submitted at the next annual meeting of the House of Delegates of the Medical Society of the State of New York, or at a special meeting called for the purpose thereof. Seconded by Dr. Delphey.

DR. ALTMAN: I move that the recommendation be adopted as read. Seconded and carried..

Dr. William S. Gottheil moved that the Committee of the Whole report to the House of Delegates that they have received the second part of the report and are opposed to the present scheme of compulsory health insurance. Seconded and carried.

It was moved and seconded that this report be adopted. Carried.

DR. HARRIS: I move that the thanks of this body be extended to the Committee on Medical Economics for their work, although it was not approved by this body. Seconded and carried.

THE PRESIDENT: Report of the Committee on Medical Research. What is your pleasure in regard to it?

DR. WENDELL C. PHILLIPS: I move that it be adopted as printed. Seconded and carried.

THE PRESIDENT: Report of the Counsel.

DR. EDEN V. DELPHEY: I move that the report be received and placed on file. Seconded and carried.

THE PRESIDENT: Report of the Councilor of the First District Branch.

It was moved that the report be received and placed on file. Seconded and carried.

THE PRESIDENT: Report of the Councilor of the Second District Branch.

It was moved that this report be received and placed on file. Seconded and carried.

THE PRESIDENT: Report of the Councilor of the Third District Branch.

DR. GOTTHEIL: If the reports of the other branches contain no special recommendations, I move that they all be received and placed on file. Seconded and carried.

THE PRESIDENT: Report of Special Committees.

DR. W. M. BROWN, Chairman, presented the following report:

Mr. President and Members of the House of Delegates, Medical Society of the State of New York:

At a meeting of your Council held on May 18, 1916, a special committee was appointed for the purpose of studying matters relating to the work of our attorney and more particularly that part of his work which has to do with the defense of such of our members as may be charged with malpractice. This committee entered upon its duties at once and has pursued them with diligence throughout the year.

At a meeting of the Council which was held in New York on December 9, 1916, was rendered a partial report which was received and discussed. At that time the Council directed the committee to continue its work and to present to you at this time the result of its studies and to make such recommendations as might seem proper.

In compliance with those instructions the committee herewith presents its report together with recommendations.

We have felt that the survey of this subject involved the answer to two principal questions.

First: Is the legal work for our Society, particularly that part which has to do with the defense of malpractice actions, entirely satisfactory and efficient at the present time? and Second, if so, is that efficiency adequately safeguarded for the future?

The further function of the committee—to make recommendations—must depend on the answers which we may find to the above queries.

Our Society early recognized that the wise and safe conduct of our affairs, as does that of any large corporation, requires the guidance of a skilled attorney, but beside the ordinary services which might be required of our Counsel we have instituted and developed an organized system of malpractice defense for our members.

Now this malpractice defense, as a branch of legal practice, is peculiarly special in character. No ordinary legal practitioner can conduct these cases without exhaustive preparation and long training. In our Counsel, Mr. James Taylor Lewis, we have a man who by reason of native ability, environment and long training, has developed this line of practice to its ultimate perfection. He now stands alone and his position is recognized and conceded throughout our country. Year after year does the result of his work in defense of our members attest the truth of that statement. In the report which he places before you today is recorded another year without a defeat in court. Thus are we shown that our first query is answered in the affirmative. "The defense of our members from malpractice actions is entirely satisfactory and efficient at the present time." But what of the future? The future is of infinitely more importance to us than the past. Woe unto him who rests supinely on the success of the past and takes no thought of the morrow. The immunity from damage which we have sustained in the past rests solely on the ability and efforts of one person. Can we expect that life and will to be indefinitely at our command? No reasonable excuse may be offered for continuing to rest such an important branch of our corporate life on the continued health and goodwill of one individual. No valuable possession should remain without more than one line of protection and inasmuch as we are without any provision for our malpractice defense beyond the present moment we are forced to conclude that our second question is answered in the negative. "The efficiency of our malpractice defense is not adequately safeguarded for the future."

Any "recommendations" which your committee may make must be predicated on an intimate knowledge of all the circumstances under which this work is carried on.

It is difficult for any of us to form any conception of the immense labor involved in the preparation and trial of one of these cases. The Chairman of this committee has had some opportunity to observe this work. He has traveled back and forth each day for a week at a time sitting with our Counsel throughout the whole session of court each day and he has a vivid recollection of a much frazzled condition at the end of the week. How any one person can keep this up day after day and week after week through the year bearing the burden of responsibility as well as the physical labor involved is beyond our understanding. For the protection of our Counsel, for the protection of the rights of our members and further for the protection of our Society itself, inasmuch as the protection which our system of malpractice defense affords its members is the most valued asset of that membership and any impairment of the protection must result in a decrease in our roll, your committee recommends that sufficient funds be provided for the employment of an additional attorney who shall be required to give such part of his time to the assistance of Mr. Lewis as may be necessary to the end that he shall enhance the service that our Counsel is rendering and that he shall be trained in this very special form of work.

Another phase of the subject is worthy of your earnest consideration. It is the adequate provision for the preparation of these cases for trial. Our Counsel spends nearly his whole time in traveling through the State attending the trial of these actions. It is not uncommon for him to go from one case to another without the opportunity to get to his office. It is not unknown for him to reach the place of trial of a case without any previous knowledge of what the action is for. It is often necessary for him to try a case during the day and to spend the most of

the night in preparing two or three other cases. This condition of things has been caused by the inadequate salary which we have paid to our Counsel. Nine years ago he received $3,000 and this has been gradually increased until he will receive this year $7,200. Out of this sum he is required to pay all of his expenses. It is estimated that his traveling and hotel expenses alone are considerably more than half of that sum. We have learned that one item of increase in his expenses this year will be an increase of $500 for office rent. All other expenses have increased in proportion. Your committee realizes that it is impossible for Mr. Lewis to employ further help with the funds that are now provided, and we hereby recommend that sufficient funds be provided for the employment of such additional office help as may be necessary for the efficient conduct of that office.

The committee feels that the money which each member pays for his liability insurance, viz., about $ .90 a year, bears an absurd relation to the value he receives and we recommend that our Constitution be amended and the annual dues be made four dollars instead of three.

We further recommend creation of a standing committee on counsel. Respectfully submitted,

W. Mortimer Brown, *Chairman.*
Arthur W. Booth.

Dr. W. F. Campbell: I move that this report be received and the recommendations discussed *seriatim.* Seconded by Dr. Gottheil and carried.

Dr. Brown read the first recommendation.

The President: What will you do with this recommendation?

Dr. Altman: I move that the remuneration of the Counsel be increased 25 per cent. Seconded by Dr. Cruikshank.

Dr. Kevin: I move as a substitute that we adopt the recommendation of the committee. Seconded by Dr. Van Fleet.

After discussion by Drs. Booth, Phillips, Brown, Lambert, Delphey, Bennett, Kevin, the substitute motion of Dr. Kevin was put and declared carried.

Dr. Altman: I now move that this House of Delegates request the Council to increase the salary of the Counsel 25 per cent for the current year. Seconded by Dr. Phillips and carried.

Dr. Samuel Lloyd: I move that the House of Delegates take a recess until tomorrow at 10 o'clock. Seconded and carried.

The House thereupon adjourned to the time designated. Floyd M. Crandall, *Secretary.*

ADJOURNED MEETING OF THE HOUSE OF DELEGATES.

An adjourned meeting of the House of Delegates was called to order at 10 A. M., Tuesday, April 24, 1917, by the President, Dr. Martin B. Tinker.

The President: At the time of adjournment we were considering the report of Dr. Brown's special committee. The first in order will be the consideration of further recommendations of this committee.

Dr. Brown: The second recommendation relates to the employment of additional office help. This needs no special consideration, as it is embodied in the first recommendation.

Dr. Altman: Before making the motion last night to increase the salary of the counsel, I took into consideration that fact, and the motion I made covered this second part.

The President: We will pass on to further consideration of the recommendations of the committee.

Dr. Brown: We further recommend that the annual dues be $4.00 instead of $3.00.

Dr. William F. Campbell: Kings County has instructed its delegates to vote against any suggestion to raise state dues.

Dr. Frank Van Fleet: I move that this recommendation take the usual course and lie over until next year as it is an amendment to the Constitution.

Dr. Brown: I have prepared the following *amendment* to the Constitution:

Amend Article VII, Section 2, by substituting $4.00 for $3.00, in the second line which will then read: "The state annual per capita assessment shall be $4.00 and shall be collected by the county treasurers at the same time and as part of the county dues and shall be remitted to the state treasurer by the treasurer of each county society on or before the first day of June of each year." (To lie over until next year.)

Dr. Brown: The next recommendation is the creation of a standing committee on Counsel. This is an amendment to Chapter VII, Section 2, of the By-Laws, which reads as follows:

"The Committee on Counsel shall consist of three members including the chairman. It shall confer with and advise the Counsel of the Society and receive and act upon any reports or requests made to it by the Counsel. It shall consider and determine such questions as are presented to it by the Counsel or by the Society and shall made a report to the House of Delegates at its annual meeting."

Dr. Harris: I would like to ask whether ten days' notice has been given of this change in the By-Laws, so that it may be acted upon at this time.

The Secretary: Ten days' notice has been given.

Dr. Harris: I move the adoption of the amendment. Seconded.

After discussion by Drs. Altman, Harris, Lambert, Brown, Mr. Lewis and Dr. Gleason, Dr. Gleason moved that this matter be referred to the Council with the advice that the Council appoint a sub-committee on Counsel. Seconded by Dr. Polak.

After further discussion by Drs. Brown and Altman, the motion of Dr. Gleason was put and carried.

The President: Are there any further reports of special committees?

Dr. Winter: There should be a report of the Intermediary Committee, but that report could not be completed, and I would ask that it be deferred until the meeting of the Council.

Dr. John O. Polak: I move the report be received, the request granted, and the committee continued. Seconded and carried.

Dr. Fisher presented the Report of the Committee on Prize Essays.

Report of the Committee on Prize Essays.

To the House of Delegates:

The Committee on Prize Essays would respectfully report that two essays have been presented, one for the Merritt H. Cash Prize, and one for the Lucien Howe Prize.

After giving the subject very careful study, and consideration, they are unanimously of the opinion that neither essay is of that high order of merit that would warrant the granting of the prizes, in compliance with the wishes of the donors, or the Medical Society of the State of New York.

Respectfully submitted,
A. Vander Veer, *Chairman,*
Edward D. Fisher,
Charles G. Stockton.

April 23, 1917.

It was moved that the report be accepted. Seconded and carried.

Under "Unfinished Business," Dr. Charles H. Peck, a member of the Advisory Board of the Council on National Defense, was accorded the privileges of the floor, and spoke on medical preparedness. He referred to the urgent need at present for the enlistment of more men in the Medical Corps of the Army and Medical Reserve Corps, both of the Army and Navy. An attempt is being made to raise the enlistment in the Medical Reserve Corps to approximately 20,000. The Medical Corps is in need of recent graduates who have had one year of internship. Men under thirty-five are especially needed. The age limit for the Medical Reserve Corps is from 22 to 35. It is not the

policy of the Surgeon-General's office to call older men in well established practices to whom it would be a great sacrifice to do this work when younger men are available, but they may be forced to call upon them, and if that is done they will be released as soon as it is possible to do so. He urged upon the representatives of the different county medical societies that the presidents or proper officers form committees to go over their membership lists and send checked lists to the state committee of which the President, Dr. Tinker, is a member. In the last issue of the *Journal of the American Medical Association* there is an editorial explaining the situation very well; it also contains two application blanks printed in the *Journal* and which are available for any one to fill in at once and send to the Surgeon-General's office as an application with the required two letters of recommendation.

DR. J. BENTLEY SQUIER presented the following resolutions from the medical section of the Council for National Defense:

PUNISHING PATRIOTISM.

A Suggested Method of Meeting This Evil.

Undoubtedly in the past civilian doctors who have been patriotic, and who have served their country in the Army or Navy, have been in a measure punished for such service by finding their practice dissipated and gone on their return home. The knowledge of this has naturally acted in preventing many a physician entering the Officers' Reserve Corps of U. S. at this time.

To meet this situation the committee proposes to have offered the following resolutions at the Annual Meetings of the State Societies:

(1) "Resolved that the (name of State Society) recognizes the patriotism of those members of the medical profession resident in ————, who volunteer for the service of the U. S. Government, and in appreciation of this we recommend that should these members of the profession be called into active service, the doctors who attend their patients should turn over one-third of the fees collected from such patients to the physician in active service or to his family."

(2) "Resolved that the secretary of the Society shall have prepared letter-blanks according to the form attached, to a number sufficient to supply those physicians who are called into active service, with a sufficient number, so that they can send a filled-out form-letter to each patient or physician referring a patient, a carbon copy going to the doctor who has agreed to look after the physician's practice, and a second carbon copy to be sent to the secretary of the State Society.

"The secretary of the State Society is instructed to file the carbon copies received by him, and on notification by a physician that he has terminated his service with the Government and has resumed his practice, the secretary of the State Society shall then send out to each of the patients of this physician and doctors who have referred patients whose names and addresses he has received in the filed letters, a letter stating that the physician has resumed the practice of medicine, and requesting the patient and the physician in the name of the society to recognize the physician's patriotism by summoning him should he be in need of medical attention.

(3) "The Secretary of the State Society is further instructed to have printed and sent to each member of the profession resident and licensed in the State the card entitled 'Agreement,' and on return of each signed card to him, to file it."

This method is the only one which we have been able to devise which can in any way meet the situation that confronts the doctor who is patriotic, and who is penalized for his patriotism by the loss of his practice. By this method the profession at large is "put upon its honor" the patients of the physician are urged to retain his services, and this urging is done, not in the doctor's name but in the name of the profession and as a patriotic duty.

It is further recommended by the committee that after three notices have been sent, at intervals of one month, to each physician, a list of those doctors accepting such agreement shall be published in *State Journal* or otherwise.

"AGREEMENT."

I agree to abide by resolution adopted in relation to fees for attendance on patients of doctors ordered into active service for the Government, and to keep such books as will readily show collection of such fees. I further agree to ask every patient whom I have not previously treated, the name of his usual or last medical attendant and if such doctor is in the active service of his Government, to turn over monthly or quarterly to such physician, or his family if he so directs, one-third of the fees collected by me from this patient.

I further agree that when patients are referred to me by a physician or person who has not heretofore referred patients to me, to find out from such physician or persons to whom, in the immediate past, they have usually referred their patients requiring the special services I can render, and if such physician is in the active service of his country, to turn over to him one-third of the fee collected from such patient. This paragraph shall likewise apply to consultations.

I further agree not to attend any patients referred to above, for a period of one year following the resumption of active practice by the physician who has been in active service.

In the remote chance of misunderstandings or disagreements arising under this resolution, I agree to submit the facts to the Board of Censors of the County Society and abide by their decision.

(Signed)

Date.....

"After signing please mail this to Secretary of State Society."

Dr.....

Address.....

PROPOSED FORM LETTER.

(Regular Letter-Head of State Society)

M .....

Street .....

Post Office .....

Dear.....:

As a member of the Reserve Corps of the United States Army—Navy, I have been ordered into active service by the Government, and on that account I am writing to you of this fact, so that, in case of illness, you may summon Dr.....

In my absence Dr.....

of .....Telephone No.....

has kindly consented to attend my patients, and I can heartily recommend him. Sincerely,

Resolution adopted by (Name of State Society):

"Resolved, That the (Name of State Society) recognizes the patriotism of those members of the medical profession resident in.....who volunteer for the service of the U. S. Government, and in appreciation of this we recommend that should these members of the profession be called into active service, the doctors who shall attend their patients should turn over one-third of the fees collected from such patients to the physician in active service or to his family."

PLEASE PRESENT THIS LETTER TO ANY DOCTOR YOU MAY CALL IN TO ATTEND YOU.

Dr. Squier moved the adoption of the resolutions. Seconded by Dr. Lambert and carried unanimously.

DR. CHARLES G. STOCKTON: I desire to offer the following:

The Medical Society of the State of New York, recognizing the need of physical fitness for those about to undertake hospital work, urge that men, and especially women, purposing to take up this work, begin at once regular physical training, so that they may be properly qualified; and the Governor of the State is respectively urged and requested by this Society to bring this matter to the attention of the people.

I move its adoption. Seconded by Dr. Phillips and carried.

The Secretary read the following amendment to Article IV of the Constitution:

To amend the Constitution (Article IV) by striking out the words "each county society shall be entitled to elect to the House of Delegates as many delegates as there shall be state assembly districts in that county at the time of the election; except that each county society shall be entitled to elect at least one delegate and except that whenever at the time of election the membership of a county society shall include members from an adjoining county or counties in which there shall be no county society in affiliation with this society, such county shall be entitled to elect, from among such members, as many additional delegates as there are assembly districts in the county or counties so represented in its membership."

And inserting the words: "The delegates shall be apportioned among the constituent societies in proportion to their actual active membership, except that each constituent society shall be entitled to elect at least one delegate. The House of Delegates may from time to time fix the ratio of apportionment."

Dr. Henry S. Stark: I move that this amendment be submitted to a special committee of three which shall report at the next annual meeting of the House of Delegates. Seconded.

After discussion by Drs. Phillips, Kevin and Altman, the motion of Dr. Stark was put and declared lost.

Dr. Daniel S. Dougherty: I move the adoption of the amendment. Seconded by Dr. Altman.

After discussion by Drs. Phillips, Polak, Mabbott, Dougherty, Altman, Thomson, O'Neill and McNamara, the motion to adopt the amendment was put and declared lost.

The President: We will proceed with the next amendment.

The Secretary read the following: To amend Chapter VII, Section 4, of the By-Laws, by striking out the words "three members, including the Chairman," and inserting the words "a Chairman to be elected by the House of Delegates and of the Chairmen of the Legislative Committees of the constituent county societies." The section will then read: "The Committee on Legislation shall consist of a Chairman to be elected by the House of Delegates and of the Chairmen of the Legislative Committees of the constituent county societies."

Dr. William J. Cruikshank: I move the adoption of this amendment. Seconded by several delegates.

After discussion by Drs. Rooney, Brown, Lambert and Cruikshank, the motion to adopt the amendment was put and carried.

The Secretary read the following:

"Amend Chapter X of the By-Laws by adding a new Section 3: 'All legally qualified graduates in medicine, licensed to practice in the State of New York in conformity with the law and requirements of the Board of Regents, are eligible to membership, except those admitted by special enactment of the Legislature, with evasion of the educational requirements either preliminary or professional.'"

Dr. Arthur G. Bennett: I move that the amendment be adopted. Seconded.

After discussion by Drs. Van Fleet, Bennett and McNamara, the motion was put and carried.

The Secretary read the following:

"Amend Chapter XII of the By-Laws by striking out Section 1 and substituting the following: 'No article of these By-Laws shall be amended except by a majority vote of the delegates present and voting at any annual meeting, nor unless notice of the proposed amendment shall have been given at a previous annual meeting and shall have been published twice during the year in the official bulletin or journal of the society, or sent by order of the House of Delegates to each county society in affiliation with the society at least two months before the meeting at which final action shall be taken thereon.'"

Dr. Harris: I move the adoption of the amendment. Seconded by Dr. Phillips and carried.

Dr. Harris: There is a perennial motion under "Unfinished Business" that will have to continue unless the Legislature makes a change, and I therefore offer it again for the eleventh time:

Action on notice presented at the last meeting to change time and place of annual meeting. (See Constitution, Article VI, Section 1.)

Dr. Phillips: I move it be adopted. Seconded and carried.

The Secretary read an extract from the By-Laws in regard to retired membership.

It was moved that Dr. Rollin L. Banta, Newfane; Dr. Samuel B. Childs, Brooklyn, and Dr. Oswald Joerg, Brooklyn, be placed on the retired list. Seconded and carried.

Dr. George Barrie offered the following amendment to the By-Laws, Chapter III, Section 1:

"The House of Delegates shall meet annually on the day before the annual meeting of the Society at 2 P. M." (To lie over until next year.)

Dr. William S. Gottheil: I beg to introduce the following proposed amendment to the Constitution, Article VIII, Referendum:

To add the following after Section 2.

"Section 3. In the interim between the sessions of the House of Delegates, unless and except referred to it for action by the House of Delegates, the Council shall order a general referendum vote in the manner prescribed in Section 1 of this Article, on all important legislative and economic matters affecting the general welfare of the medical profession; and until and after decision by the members of the Society, the Council shall take no action on such matters." (To lie over until next year.)

Dr. Edward Harrington offered the following amendment to the Constitution, Article IV, Section 1:

Add after the words "in affiliation with the Society," the words "all ex-presidents of this Society." (To lie over until next year.)

Dr. Grover W. Wende, Chairman, presented the following report on President's report:

The Committee to consider the recommendation of the President have the honor to submit, after due and careful study, the following:

I. It approves of the suggestion to establish by precedent the promoting of the Vice-President and the assigning of certain duties to each, thereby preparing them for candidacy to the important office of President, as well as for greater efficiency in office.

II. It approves the recommendation that the State be redistricted upon the basis of medical population, local interest and condition of practice of the profession concerned, and routes of travel in the different localities so that there may be more compact branches and more adequate representation of the membership, and to this end recommends that a committee of three be appointed to report at the next meeting of the house of delegates.

III. It approves the recommendation that local societies be requested to amalgamate with the county medical societies, and the county societies be requested to take this matter under consideration.

IV. It approves the recommendation that compulsory attendance at business meetings on the part of the councilors and delegates be secured by such changes in Branch and County By-Laws as will provide alternates or substitutes, ready to serve.

V. It approves the recommendation that County Legislative Committees ascertain and report to the State Legislative Committee and to the County Societies the attitude of the candidate for the legislature upon medical and health legislation before their election so that the societies may take appropriate action and that such committees secure a statement of and likewise report on the attitude of legislators upon proposed medical and health legislation for like purposes.

Grover W. Wende,
Charles H. Peck,
Luzerne Coville.

The President: What will you do with this report?

Dr. Louis F. O'Neill: I move the adoption of the report. Seconded.

Dr. James N. Vander Veer: I move to amend that we take up these recommendations *seriatim*. Seconded and declared lost.

After discussion by Drs. Phillips and Winter, Dr. Samuel J. Kopetzky moved to amend that the report be adopted with the exception of the first recommendation.

The amendment was seconded, accepted, and the original motion as amended was carried.

Dr. Wende: The committee to consider the recommendations of the Committee on Legislation begs leave to report as follows:

That only in the event of the failure to pass the amendment to Chapter VII, Section 4, of the By-Laws, it recommends the appointment of a committee from the House of Delegates composed of two members from each district branch to meet in the months of February, May, October and December, in order that the profession may speak through its representatives upon legislative matters, and particularly upon the subject of health insurance if the bill appointing a commission to study the question of health insurance become a law.

The President: This is only contingent on this amendment which was passed, so that the House does not need to take this up for further consideration.

Dr. William S. Gottheil offered the following resolutions and moved their adoption:

Whereas, The recent momentous revolution in Russia has gladdened the hearts of all lovers of freedom; and the physicians of Russia have done their full share in the work and borne their part of the burden during long years of oppression;

Resolved, That the Medical Society of the State of New York, in regular meeting assembled, at Utica, April 24, 1917, sends cordial greetings to the medical fraternity of Petrograd and of Russia, and congratulates them on having so successfully contributed to the overthrow of the autocratic regime and the establishment of a healthy democratic government.

Resolved, That this resolution be cabled to Dr. Shingareff, the Minister of Agriculture in the Provisional Government, with the request to convey it to the medical fraternity of Petrograd and of Russia.

Dr. Delphey: I second the motion. Carried.

Dr. Luzerne Coville offered the following amendment:

To *amend* the Constitution and By-Laws by adding the words: "The President and one Vice-President of each district branch shall be members of the Council of the Medical Society of the State of New York." (To lie over until next year.)

Dr. Henry S. Stark: I move that the House of Delegates in this great crisis offers its loyalty to the government and pledges its services in every respect. Seconded.

Dr. James N. Vander Veer: I move to amend that the Secretary of the Society be instructed to send such a resolution to the President of the United States and to the Secretary of War.

The amendment was seconded, accepted, and the original motion as amended was put and carried.

Dr. G. Scott Towne: I have a resolution to present which concerns the drug salvarsan, and I move its adoption:

Whereas, Salvarsan is a drug which is of vital importance to the protection of health and the saving of life, and

Whereas, The patent rights conferred on salvarsan and its congeners have created a monopoly which has permitted a price to be placed on the drug which makes it unavailable to tens of thousands of indigent sick in this country, and

Whereas, The drug has hitherto been supplied this country from foreign shores and the supply duri the war has been uncertain and insufficient, and

Whereas, The patents have prevented the preparati and distribution of the drug in this country by Ame can laboratories, and

Whereas, The patents conferred are operati against the health interests and the public welfare this country, therefore, be it

Resolved, By the House of Delegates of the Medic Society of the State of New York, in session assemble that Congress be earnestly urged through our Senato and Representatives in Congress to abrogate, or, least, suspend the patents on salvarsan and its close related products.

Seconded and carried.

Dr. Harris: I move we proceed with the election officers. Seconded and carried.

Dr. Dougherty: I move that nominating speech be limited to two minutes. Seconded and carried.

The President: Nominations for President are no in order.

Dr. Arthur J. Bedell nominated for President D James F. Rooney.

The nomination was seconded by Dr. James N Vander Veer and by Dr. William S. Gottheil.

Dr. Frank Van Fleet nominated Dr. Alexande Lambert.

The nomination of Dr. Lambert was seconded b Drs. Frederick H. Flaherty, Frederic E. Sonder Willis E. Ford, Wm. F. Campbell, W. Stanton Gleaso After which, on motion, nominations were closed.

The President appointed as tellers Drs. Collie Squier, Brown, and Vander Veer.

Total number of votes cast, 149. Of this number Dr Lambert received 83, Dr. Rooney 64, and blank 2.

Dr. Bedell moved that the election of Dr. Lambe be made unanimous. Seconded by Dr. Rooney an carried.

The following officers were nominated and declare duly elected:

First Vice-President, Dr. Thomas H. Halsted, Syra cuse; Second Vice-President, Dr. Albert Warre Ferris, Saratoga; Third Vice-President, Dr. Marcus B Heyman, Central Islip; Secretary, Dr. Floyd M. Cran dall, New York, re-elected; Assistant Secretary, Dr Edward Livingston Hunt, New York; Treasurer Dr. Frank Van Fleet, New York; Assistant Treasurer Dr. Harlow Brooks, New York; Chairman of Com mittee on Scientific Work, Dr. Samuel Lloyd, New York, re-elected; Chairman of the Committee on Public Health and Medical Education, Dr. Joshua M. Van Cott, Brooklyn; Chairman of Committee on Legislation Dr. James F. Rooney, Albany, re-elected; Chairman of the Committee on Medical Economics, Dr. Henry Lyle Winter, Cornwall; Chairman of Committee on Medical Research, Dr. Frederic E. Sondern, New York; Committee on Prize Essays, Drs. Albert Vander Veer, Albany, Edward D. Fisher, New York, and Charles G. Stockton, Buffalo.

Dr. Wendell C. Phillips invited the Society to hold its next annual meeting in New York City.

Dr. Thomas W. Jenkins invited the Society to hold its next annual meeting in Albany.

Dr. W. Mortimer Brown moved that the next place of meeting and the selection of Chairman of the Committee on Arrangements be left to the Council. Seconded and carried.

The following were elected delegates to the American Medical Association for a term of two years: Dr. Floyd M. Crandall, New York; Dr. John O. Polak, Brooklyn; Dr. William F. Campbell, Brooklyn; Dr Grover W. Wende, Buffalo; Dr. W. Stanton Gleason, Newburgh; Dr. E. Eliot Harris, New York.

The following were elected alternates to the American Medical Association for a term of two years: Dr.

W. Mortimer Brown, Rochester; Dr. Owen E. Jones, Rochester; Dr. A. Walter Suiter, Herkimer; Dr. G. Scott Towne, Saratoga; Dr. Robert W. Andrews, Poughkeepsie; Dr. Alfred C. Prentice, New York. Dr. Albert E. Larkin, Syracuse, was elected an alternate for a term of one year.

Dr. Albert T. Lytle moved that a vote of thanks be extended to the officers of the Society for the efficient manner in which they had discharged their duties. Seconded and carried.

As there was no further business to come before the meeting, on motion, duly seconded, the House of Delegates adjourned *sine die*.

FLOYD M. CRANDALL, *Secretary*.

MEETING OF THE COUNCIL.

A meeting of the Council of the Medical Society of the State of New York was held at Utica on Thursday, April 26, 1917, at 12 o'clock, noon. Dr. Alexander Lambert, President, in the Chair; Dr. Floyd M. Crandall, Secretary.

The meeting was called to order by the President, and on roll call the following answered to their names: Drs. Martin B. Tinker, Alexander Lambert, Albert Warren Ferris, Floyd M. Crandall, James F. Rooney, Henry Lyle Winter, Richard Giles, Arthur H. Terry, James P. Marsh, Lew H. Finch, James F. McCaw, W. Mortimer Brown, Albert T. Lytle.

A quorum being present, Dr. Lambert announced the meeting open for business.

It was moved, seconded, and carried that the Council appoint a committee of three on New Membership, whose duty it shall be to devise methods and take action for increasing the membership of the Society. Dr. Martin B. Tinker was appointed Chairman, the remaining members to be appointed by the President.

Dr. James F. Rooney made a verbal report for the Committee on Legislation, which was accepted.

Dr. Henry Lyle Winter, Chairman of the Committee on Medical Economics, asked permission of the Council to appoint, without expense to the Society other than for stationery, an Advisory Committee on Medical Economics. Upon vote the request was granted.

Moved, seconded, and carried, that the Intermediary Committee be re-appointed.

Moved, seconded, and carried that the Committee on Scientific Work and the Committee on Medical Economics take measures to introduce into the next program papers on Medical Economics, not to exceed two in number.

Moved, seconded, and carried that a meeting of the Council shall be called on May 31st, with the understanding that it be adjourned to June 2d.

Invitations to hold the next annual meeting of the State Medical Society having been received from Albany and New York, it was unanimously decided to accept Albany as the next meeting place. The selection of a Chairman of the Committee on Arrangements was referred to the Finance Committee with power.

It was voted to postpone the selection of a date for the Albany meeting to the next meeting of the Council.

The following Finance Committee was appointed: Drs. Frank Van Fleet, Henry Lyle Winter, and Richard Giles.

The following Committee on Publication was appointed: Drs. S. W. S. Toms, Frank Van Fleet, Alexander Lyle, John C. MacEvitt, Martin B. Tinker.

Dr. John C. MacEvitt was unanimously elected Editor.

Moved, seconded, and carried that the question of increase of salary of the Counsel be considered at the next meeting of the Council.

Moved, seconded, and carried that the question of legal defense and Casualty Insurance be considered at the next meeting of the Council.

FLOYD M. CRANDALL, *Secretary*.

American Medical Association

JUNE 4TH TO 8TH, 1917.

Attention is again called to the coming meeting of the American Medical Association.

A glance at the programs of the Sections published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,* show a rich feast of papers on live topics. The arrangements for the clinical sessions which will be held Monday and Tuesday, June 4th and 5th, have resulted in twenty-six complete programs of clinics covering every phase of medicine, surgery and allied topics, some of which have exhibits of unusual interest.

ADMISSION TICKETS to the Clinics, Demonstrations and Exhibits incorporated in the Clinical Sessions program will be issued *only* to members and guests who register and make application at the American Medical Association Headquarters.

GUESTS, other than physicians and dentists, will not be admitted to the Medical and Surgical clinics.

SPECIAL BADGES and BUTTONS will be issued to guests (other than physicians and dentists) of the Clinical Sessions and of the American Medical Association who wish to attend the demonstrations, moving pictures and exhibits or inspect the different nursing, medical, municipal and public health institutions arranged for in the program by the Committee on Preventive Medicine and Public Health and the Committees on Allied Topics, including Trained Nursing and Training Schools, District Nursing System, Hospital Social Service, and Planning and Financing of Municipal and Non-Municipal Hospitals.

FELLOWS OF THE AMERICAN MEDICAL ASSOCIATION may apply in advance by mail for tickets of admission to the Clinical Sessions. In writing for the three sessions (Monday afternoon, Tuesday morning and Tuesday afternoon) give first, second and third choice, as seating capacity of amphitheatres is limited. Tickets of admission will be delivered after registration at the American Medical Association Headquarters.

In place of the usual social gathering in the form of the President's Reception and in view of the war situation, the Committee on Arrangements have planned a patriotic demonstration which will be held in one of the great auditoriums. At this time Col. Theodore Roosevelt and other men of prominence will speak upon the issues of the day.

* May 5, 1917, page 1378.

County Societies.

BRONX COUNTY MEDICAL SOCIETY.

REGULAR MONTHLY MEETING, April 18, 1917.

Very interesting and instructive lessons were presented to the society by Medical Inspector George A. Lung, of the U. S. N., "How the Medical Man in Civil Life May Be Useful in the Navy," and Captain A. N. Tasker of the U. S. A. M. C., "The Need of the Regular Army for Medical Officers in the Present Crisis."

The Scientific Session was devoted to pediatric papers, being as follows:

"Rheumatic Manifestations in Infancy and Childhood," Sidney V. Haas, M.D. (by invitation).

"The Treatment of the Cardiopathic Child," William L. Rost, M.D.

The following motion was presented to the Society by Dr. William A. Wovschin:

WHEREAS, A monumental historical event has taken place in Russia—the recent Revolution;

WHEREAS, Most legislatures, cultural and other prominent organizations and liberty-loving men have cabled

their congratulations to the representatives in Russia encouraging their gigantic accomplishment,

Be It Resolved, That the Bronx County Medical Society at a regular meeting on April 18th, unanimously extends its congratulations to the Medical Fraternity of Petrograd for their share in the successful operation for the removal of the malignant growth of civilization, the autocratic monarchical Russian Government, and hopes for a speedy convalescence and the establishment of a healthy democratic regime for their sake and that of humanity.

Be It Further Resolved, That the above resolution be cabled to Dr. Shingareff, Minister of Agriculture of the Provisional Government, and through him conveyed to the medical fraternity of Petrograd, Russia.

This motion was carried and the cablegram sent the following day.

Another motion by Dr. F. Loughran to purchase one or more U. S. Bonds when issued, so that this Society may go on record as doing its share in the general subscription for these bonds.

MEDICAL SOCIETY OF THE COUNTY OF ERIE.

A regular meeting of the Medical Society of the County of Erie was held in the Buffalo Medical College on April 16, 1917, at 8.45 P. M.

In the absence of the President, Vice-President Dr. George F. Cott presided.

The minutes of the regular meeting held in February and also the minutes of the Council were read and adopted.

The following new members were elected: Drs. Charles B. Handel, John A. P. Millet, Byron D. Bowen, M. Carlton Vaughan, Clifford Rowell, Adam R. Johnson, Jane R. Breese, William P. Clothier, Alexander Mulki and John A. Metzen.

The following were reinstated: Drs. George Schaefer, Bruce L. D. Cook and George B. Stocker.

The Society instructed its delegates to the State Society to oppose any move which would change the ratio of representation in the State Society.

It also instructed its delegates to oppose the candidacy of any person who had formerly been active as a proponent of the Mills Bill.

The speakers of the evening were to have been Dr. Thomas W. Salmon, Medical Director of the National Committee for Mental Hygiene, and Dr. Ethan A. Nevin, Superintendent of the State Custodial Asylum for Feebleminded Women, Newark, N. Y. At the last moment, however, Dr. Salmon, who is on the Medical Reserve List of the War Department, received orders which made it impossible for him to come to Buffalo, and he therefore requested Dr. Frankwood E. Williams, Association Medical Director of the National Committee for Mental Hygiene, editor of the new magazine on mental hygiene, and former secretary of the Massachusetts Mental Hygiene, to attend in his place.

Dr. Nevin accompanied his remarks by stereopticon slides and motion picture reels.

A hearty vote of thanks was tendered to each of the speakers, after which adjournment was made to the College Library, where a collation was served.

RICHMOND COUNTY MEDICAL SOCIETY.

REGULAR MEETING, ST. GEORGE, N. Y.

Wednesday, April 11, 1917.

The meeting was called to order at 8.45 P. M. by the President, Dr. Max Krueger.

Miss Boyd, of Henry Street Settlement, spoke, explaining the work of the Nursing Department, and asked the support of the physicians, in case such a Branch was established on Staten Island. After a brief discussion, it was regularly moved and carried that the Richmond County Medical Society indorses the work of the Nursing Department of Henry Street Settlement, and recommends it to Richmond County for its cordial support.

Drs. James D. Dickson and Herman Friedel of Stapleton were elected to membership, and the application of Dr. Vincent Catalano for membership was received.

A letter was read from the Auxiliary Medical Committee for National Defense of the City of New York, drawing attention of physicians to the large number of vacancies in the Medical Department of the United States Army and Navy. Also a letter from the New York State Committee for Medical Preparedness, urging the formation of an Auxiliary Medical Defense Committee of Richmond County. The President appointed Drs. Bryan, Coonley, Johnston, Jessup and Wisely on this Committee.

Dr. E. H. Mullan of the United States Public Health Service read a paper on the "Diagnosis of Mental Deficiency." The members extended a vote of thanks to Dr. Mullan for his instructive and interesting paper.

Mr. James P. Heaton, Secretary of the New York Committee on Feeble-mindedness, spoke in regard to the lack of accommodations for the feeble-minded in New York State Institutions, and the Society adopted the following resolutions:

WHEREAS, Mental defect is one of the commonest causes of poverty, crime and disorder.

WHEREAS, The only means of dealing effectively with the great majority of the mentally defective is by segregation, training and care in institutions, and

WHEREAS, The present State Institutions for the feeble-minded are full and have many applications on their waiting lists, and

WHEREAS, The Legislature now in session, realizing the urgent need in this direction, has made provision in the Appropriation Bill for the enlargement of Letchworth Village and the Newark Asylum for Feebleminded Women,

Be It Resolved, By the Richmond County Medical Society, that the Governor be requested to approve the appropriations voted by the Legislature in providing relief for the present situation, and

Be It Further Resolved, That the Legislature, the Governor and other responsible authorities are urged to devise and carry out a comprehensive plan for the systematic development of institutions for the feeble-minded, year by year, until provision is adequate for the thousands of mental defectives now uncared for in the community.

The meeting then adjourned to the Staten Island Club, where a collation was served.

Deaths

EVELYN BALDWIN, M.D., Rochester, died March 24, 1917.

WILLIAM E. DOUGLAS, M.D., Middletown, died April 21, 1917.

JOSEPH S. LEHMAN, M.D., Clarence Center, died March 4, 1917.

GEORGE E. MCDONALD, M.D., Schenectady, died March 8, 1917.

THOMAS A. MACNICHOLL, M.D., Brooklyn, died April 9, 1917.

ADELBERT E. MOODY, M.D., St. Regis Falls, died April 22, 1917.

STEWART W. OUTWATER, M.D., Saranac Lake, died April 15, 1917.

E. E. RULISON, M.D., Amsterdam, died April 2, 1917.

RICHARD P. WILLIAMS, M.D., Farmingdale, died April 12, 1917.

NEW YORK STATE JOURNAL OF MEDICINE

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ORIGINAL ARTICLES

POLIOMYELITIS AS A PUBLIC PROBLEM.*

By ARMITAGE WHITMAN, M.D.,
NEW YORK CITY.

THE question of the immediate after care of cases of anterior poliomyelitis is one that hitherto, except in private practice, has received slight general consideration.

The size of the recent epidemic, together with the amount of publicity that it has received, has roused public interest to such an extent that the Health Department of the State of New York has been able, through the action of the Governor, to obtain special funds for examination and treatment of the recently paralyzed patients.

In New York City large sums have been raised by private subscription and the cases referred to the various existing orthopædic institutions for treatment. There have been differences of opinion as to the methods of treatment, and no uniform system, either of examination or records. Naturally this has not proven altogether satisfactory.

The State Department has had an entirely different problem to face, not only the adoption of a standard method of examination and theory of treatment, but the evolvement of a peripatetic orthopædic clinic. In thus offering free consultation and treatment it has taken a new departure, and had to meet the objections of those who considered the plan the entering wedge of Socialistic Medicine, designed eventually to separate the physician from his private practice.

The State of Vermont had experienced the same situation in 1914, and met it in a way that had apparently proven satisfactory. It was therefore decided that the simplest way out was to invite the man who had conducted the work there, and was accordingly familiar with its difficulties and its necessities of organization, the details of field work, etc., to apply his knowledge to the present emergency. Dr. Robert W. Lovett, Orthopædic Surgeon to the Children's Hospital, Boston, and Professor of Orthopædic Surgery in the Harvard Medical School, was accordingly invited to take charge of the work as Consulting Orthopædic Surgeon to the New York State Health Department. Under him have been working Dr. John T. Hodgen of Boston and myself as visiting orthopædic surgeons, each at the head of a separate unit.

The personnel of the units is as follows: Surgeon, nurse who is an expert muscle trainer, and two muscle testers trained in the technique of the spring balance muscle test. These units have worked separately or together, according as the number of patients at a clinic demanded. During the second round of clinics their work has been entirely separate.

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 26, 1917.

All patients in a particular district are brought to the clinic, which is held at some central point, and where they receive a minutely thorough examination. Every effort has been made to have the doctors attend with their patients, so that they might have the advantage of a personal consultation. When, however, the doctor is unable to attend, a letter is written him containing the orthopædic surgeon's suggestions as to treatment, and offering him the services of the supervising nurse in that district, if he desires them. He is also furnished with a complete copy of the case record. Emphasis, however, is laid upon the fact that the suggestions are merely suggestions, and that the family physician is at liberty to adopt them or not, as he sees fit. Under no circumstances is there any element of coercion, or attempt to interfere with the function of the family physician.

Five nurses, who had received a six weeks' course in the details of muscle training in the Children's Hospital, Boston, and in Dr. Lovett's office, originally accompanied the clinic. Four more nurses have been trained by actual experience in the clinic and eight of these have now been left behind in charge of the eight districts into which the State has been divided. Their duty is to report to the attending physician and if he desires it to visit the case, investigate the social conditions in the home if necessary, see that the instructions as to the treatment are being properly carried out, give muscle training, keep up the parents' interest and make reports from time to time and consult with the visiting surgeon on the progress of the case. They also make weekly reports to Albany on their work as a whole. In the social aspects of their work they are assisted to an invaluable degree by the local representatives of the State Charities Aid Association.

The work was begun October 17th, and the last available statistics of January 20, 1917, show that at that time 1,854 cases had been seen. Of those 149 were old cases, 75 had other orthopædic conditions, leaving 1,078 1916 cases to be seen. The others have required a somewhat longer period to cover as they are scattered in the less thickly settled districts, often in places difficult of access. Nevertheless, the work has been in operation long enough to be working smoothly, and for some conclusions to be drawn as to the success of the enterprise.

While there is always some room for difference of opinion as to methods of treatment, there can be no argument as to the desirability of a thorough physical examination in all cases of all disease. This every patient has had, thereby providing a firm foundation for any subsequent procedure.

In the question of treatment there have been several obstacles to overcome. In order of their importance these are:

First, the natural and perfectly comprehensible desire of both parents and doctors to get patients on their feet as soon as possible. If, in the most severely paralyzed cases, the movement of a single finger or toe is the occasion for general rejoicing, how much more spectacular is the sight of the previously helpless patient beginning to walk about! City practitioners and city dwellers in general have little idea of the interest taken by the inhabitants of a village or town in the daily progress of these patients. The disease was unknown to them before last summer and the occasional "cripple" is universally known and universally commiserated. The advertisements of quacks are passed about, and frequently funds are raised by subscription to pay for a brace or for some course of treatment for which the advertiser offers extravagant claims. The news of any success travels with extreme rapidity and often hundreds of dollars are spent on treatment that in New York City ought to be had for a few dollars or for nothing. How different is this attitude from that of the city dweller who sees nothing of extraordinary interest in the passing of the omnibus taking the crippled children to school!

Under such circumstances, therefore, it is not surprising that if for no other reason than to save his reputation, the doctor as well as the parent is anxious to get the patient about as soon as possible. The village gossip with her "Doctor A's patients are walking now; why is Doctor B. holding his back?" is a danger to practice that few can afford to ignore.

Leaving aside this aspect of the question, which perhaps may seem too unscientific and material, the average practitioner's knowledge of the principles of after care is slight. The danger of "wasting of the muscle" is the factor dominant in his mind. Wasting follows disuse, therefore activity should be encouraged. The parents voice the same idea in their fear that the child may become bedridden, or forget how to use the affected limb.

Second. Persistence of muscular tenderness. Though no cases have been examined until the six weeks' period of quarantine has elapsed, there were, last fall, many in whom this symptom, indicative of meningeal irritation, had been present as a contraindication to any active measure. This might not seem a serious complication, as it will almost always disappear, provided the patient is let alone, but the treatment—intelligent neglect—is the one most difficult to enforce. Parents naturally become discouraged, as they see nothing done, and only constant reassurance and supervision will prevent them from seeking the ever-present and ever-

preferred, services of the quack. In such a contingency the case is either completely lost, or returns after weeks or months, usually in a worse state than that in which it was originally. The most persistent cases of tenderness that we have seen, tenderness often extending over period of months, with no tendency to improve, have almost always ultimately disclosed a history of early and prolonged manipulative treatment.

Third. Age of the patient. In many cases that presented favorable anatomical conditions for muscle training we have been unable to do anything because their extreme youth made intelligent co-operation impossible. These cases offer the same subsequent difficulty as the class previously mentioned.

Fourth. Lack of co-operation on the part of parents or physicians. This class has fortunately, and rather unexpectedly, proved small. The doctors have almost invariably shown every desire to work in harmony with the suggestions of the Department Surgeons, and the parents to do everything possible for the welfare of their children. Indeed I should be tempted to omit this class as a difficulty at all were it not for the fact of the chronicity of the cases. The doctors are busy men and we have all of us, in addition to the pressure of work, experienced that feeling of uncertainty which hampers us when attempting a line of work with which we are not by practice, or at least by observation, familiar, be it in performing a new operation or in fitting a pair of spectacles. We would rather wait for the man who is expert in that particular line. On the parents' side large families, poverty and household work, all interfere with the daily performance of exercises that very likely originally seemed meaningless, and to which constant repetition has brought monotony and consequent neglect. It is both to the doctor and the family in such circumstances that the nurse left in the district must be of the greatest use, and I do not think I overestimate the importance of her services when I say that in my opinion the ultimate success of the whole enterprise rests on her. Working at top speed it will be impossible for the Department Surgeon to visit each case oftener than once every four to five months, and it is during these intervals that her work will assume its true value.

These four then, represent the classes of obstacles which we have encountered—none of them very serious if our follow-up system proves efficient.

I should say that up to the present date there have been three general theories of treatment.

(1) Whose foremost exponent is probably Mr. Robert Jones of Liverpool, absolute rest in plaster of Paris, or metal splints, with no manipulation or massage of any sort whatever.

(2) The application of apparatus to prevent deformity when such might be necessary. Rest during the period of irritation of the spinal cord, followed by massage, manipulation, etc., and by application of braces to allow locomotion as soon as was practicable; the theory being that functional use with the muscle guarded against overstrain, was the best stimulus to repair.

(3) Electricity.

Of these theories there is no doubt that the last one is the most popular. Electricity is mysterious. Mystery is always appealing. No one can say whether or not it does good or harm in any positive degree, therefore its use is always justified. It pleases the patient and his family. And here it would not be at all superfluous to say that pleasing the patient and his family is not a factor to be dismissed lightly or satirically. An unscientific method of treatment applied daily may suffice to keep the patient from the quack and under observation of a competent man, whereas scientific treatment with its apparent neglect, will often lose the patient. This is a fact capable of infinite abuse and calling for the nicest discrimination on the part of the doctor, but it is a fact in the treatment of all diseases, and particularly in that of anterior poliomyelitis.

The first theory has not hitherto been very widely put into practice, and it requires an exceptional degree of confidence on the part of the physician, and of the parents in the physician, for its application.

The second theory, more or less loosely applied, is probably the most prevalent. The principles which the Department is trying to carry out differ from those given in the second class above, in that locomotion with braces is not advised except as a final resort. It is felt that the time of convalescence in the majority of cases should be considered as secondary to completeness of muscular repair. Most of the cases are children. Three to six months of rest, inactivity or enforced recumbency, make little eventful impression on a child. A permanent limp, however slight, classes him for the rest of his days as abnormal—always a cruel distinction—and one particularly so to a child.

The treatment recommended may be outlined briefly as follows: In cases where tenderness persists, rest, supplemented by various forms of apparatus for the prevention of deformity. In such cases where deformity has already developed, apparatus has been recommended to prevent its progression, but no attempt at correction made in the presence of sensitiveness.

In cases too young, or for other reasons not eligible for muscle training, rest, supplemented by daily warm saline baths and gentle massage, with movements of the joints of the affected

limbs through their full range of motion, and frequent changes of posture to prevent the habitual attitudes leading to the development of deformity.

In cases adapted to muscle training, exercises have been prescribed. They are gone through in the presence of the doctor and the parents whenever possible. Copies of the required movements are given to both, and the exercises are to be performed as much as possible under supervision, either of the doctor, or, at his request, of the visiting nurse.

Here it might not be out of place clearly to define what this class of cases is, as many misapprehensions in regard to muscle training persist. It cannot restore power to a completely paralyzed muscle, nor, on the other hand, does it aim to overdevelop those remaining at the expense of completely or partly paralyzed groups, thus inevitably leading to deformity. The purpose is to develop a partly paralyzed muscle by means of exercises adapted to its strength. The strength may be ascertained by various tests, most accurately by that of the spring balance. Suppose for example, that the quadriceps extensor be partly paralyzed—a muscle which, depending on the age of the patient, normally should be capable of raising from 25 to 105 pounds. The spring balance, let us say, shows it to have a remaining power of 20 pounds. Walking puts it to its normal requirement of strain, which in such a case, is obviously too great. The patient is therefore required to keep off of his feet, and given exercises calling for an expenditure of energy not greater than 20 pounds. These he does ten times each day, and as the power in the muscle increases, the strength of the exercise is correspondingly increased. Readings by means of the spring balance test are taken at frequent intervals.

If the muscle shows a loss, instead of a gain, in power, the loss is taken as an indication of overstrain, and the exercises immediately omitted. After a suitable interval they may be recommenced, but always under such circumstances, starting for the second time with exercises weaker than those at first prescribed. The simplicity of the principle is apparent. In its application, however, it cannot be over-emphasized, that accuracy is essential, and that so-called muscle training, based upon hasty or imperfect examination, and loosely or carelessly applied, is worse than useless.

Electricity has not been recommended. No advice either for or against it has been given. As an expression of the opinion which has been given when asked for, I cannot do better than to quote from Dr. Lovett's recently published book on the "Treatment of Infantile Paralysis." "In short, the belief of the writer, founded on experience of treatment with and without electricity, is that faradism is a means of inducing mild muscular exercise and possibly in that way somewhat useful. That galvanic electricity and the newer currents have not been proved to be of any value, and in his experience have not appeared to be of any value whatever, but in his opinion, when parents have heard of the wonders of electrical treatment and desire to use it they should be encouraged to do so provided they use at the same time the other treatment, the value of which is universally admitted."

In cases showing a complete paralysis of an extremity, or of an entire muscle group, which after an interval of several months of rest supplemented by bathing and massage, shows no sign of return of power, braces are applied and the patient allowed to walk about. In cases of abdominal, back, neck and shoulder paralyses, various corsets, braces and other apparatus have been recommended, and the greatest stress laid upon the danger of allowing locomotion, or even sitting up, until the spine be efficiently supported.

The question of apparatus has been one of the most difficult that we have had to meet. In the present emergency the department has felt that little could, or indeed should, be done in the way of its actual application, and in none but a few cases of special urgency, and at the request of the doctor, has any plaster been applied. Tracings and measurements have been taken for braces, and the braces sent to the doctor to be applied by him. Such practice is not ideal, but it was the best possible under the circumstances, and the second round of clinics has shown that braces fitted and applied under such adverse conditions have served their purpose in the great majority of cases.

At first we made no attempt to do anything in the way of the application of plaster. For more than the past two months, however, the State Charities Aid Association has kept me supplied with plaster bandages and the other necessary accessories, so that in cases in which its use seemed advisable, and where the doctors have requested its immediate application, it has been possible to apply it at the clinic.

A number of men have expressed their appreciation of this practical work, particularly when they themselves were not in the habit of using much plaster and had forgotten many of the details of its application. There is also no doubt that in cases where families are indifferent, and gradual methods of correction of deformity must fail because there is no one properly to supervise their details, that a plaster bandage that can not be removed is the most—if not the only—efficient means of correction.

The question of operations on old cases

brought to the clinics has been much discussed, and a wholly satisfactory solution has not yet been reached. It has been cleared up to a certain extent by the appointment of Dr. Royal Whitman as Consulting Orthopædic Surgeon to the Department, which opens the wards of the Hospital for Ruptured and Crippled to as many cases as can be sent to New York for operation. Orthopædic surgeons in Albany, Troy, Utica and Syracuse have volunteered their services whenever there has been an opportunity, and already have done, and will do, much for many patients. The State Hospital at Haverstraw has a very large waiting list, and was designed primarily for the treatment of the tuberculous, so that it does not seem likely to play a great part in caring for this class of patients.

To any one familiar with the problems of Orthopædic Surgery, it will at once be evident that it is of the utmost importance that the patient remain constantly under the care of the same surgeon who makes the original examination, does the operation, supervises the after treatment and examines the patient at least every six months as a matter of routine. He will then be entirely familiar with the patient's past, and therefore best equipped to deal with whatever subsequent difficulties may arise. In this connection it may not be out of place to emphasize the point that difficulties always will come—that with growth of the child conditions are constantly changing—that neglect of after-care will set at naught the potential advantages of the best operation. In short, that a case of infantile paralysis should never be discharged as cured, but always be regarded as a constantly changing pathological condition, and as such be kept under supervision for an indefinite period.

Naturally this is a high ideal, which would seem only possible of attainment by the establishment of a small hospital for the exclusive treatment of these cases. Such a foundation does not seem likely, and no doubt I shall be classed as a visionary merely for suggesting it. I can only say, however, that this whole enterprise is such a great step in advance that no development of it seems too Utopian ultimately to be realized.

I mention the operative question only as a side issue, one which was not originally foreseen. It has proved unexpectedly important, and I know how much disappointment there has been in cases in which operation has been recommended, the patient's and the doctor's enthusiasm roused, then months have elapsed and nothing been done. This state of affairs has given rise to criticism, no doubt partly just, and I feel that a statement of our difficulties may make our shortcomings pardonable.

The first round of clinics, held in 72 different centres, was finished January 20th. By that date we had seen 1,427 of the 1916 cases, and 351 cases of previous epidemics, besides 76 cases of conditions other than poliomyelitis—mostly spastic paraplegia—making a total of 1,854 patients examined, or an average of 26 patients to a clinic. This left still to be seen after January 20th, 1,078 1916 cases. Figures to date are still not available, but the second round of clinics has been completed, so that the entire number must very nearly have been covered. The detailed statistics will be presented later by the department and by Dr. Lovett. At present I merely wish to mention a few points brought out by the follow-up work.

In the first place, the deficiency of funds for the work necessitated the discontinuance of one unit on April 1st. This is unfortunate, naturally, as we shall be able to see the cases only once in five or six months instead of every three months, as we had hoped. Incidentally, the department has lost the services of a most valuable assistant, Dr. John T. Hodgen of Boston, of whom professionally and personally I am sure a number of you have the most pleasant recollections.

While the work is still going on, it is a most difficult thing to give an unbiased opinion of its success. An occasional unfortunate day, when bad roads have made it impossible for the patients to get to the clinics, or when the supervising nurse has not been able to visit them, so that they lose interest and do not come, will make one feel that the whole enterprise is waste. The next clinic, perhaps with a 100 per cent attendance, instructions carefully followed out, excellent results, will raise one to a corresponding hyper-enthusiasm. Only time spent away from the work, thereby giving an opportunity for one's impressions to crystallize, and careful revision of the statistics of improvement, will permit the formation of any valuable decision.

However, I can say at this time to what some of our unfavorable results are due. Putting the medical profession first, the occasional indifference of the doctors may be due to their not having received their letters from Albany, containing the consultant's advice, or not having received them till so long after the clinic that they have lost interest in the whole affair. This is, of course, to be deplored, but I beg the aggrieved ones to remember that such errors will occur even in a business enterprise, especially in its initiation, and that they are getting steadily fewer as our machinery runs more smoothly.

Secondly, due to the same cause, the parents have become disgusted when they received no instructions from their physician and sought the

chiropractor or the osteopath in the effort to get something done. We have always tried to give the parents as much instruction at the clinic as possible, but when we began our work we were exceedingly careful not to violate the relationship of practitioner and consultant. Therefore, when the doctor, for one reason or another, could not attend the clinic, it did not seem proper to give direct instruction when he was not present, except when we were able to get his permission to do so. Lately the physicians have made it clear in almost every case that they were glad to have us deal directly with the patients, whether or not they themselves were present, so that we have felt at liberty to do so and have been getting much more satisfactory results by this means. No braces, however, have been applied without the consent of the family doctor, and it is always made clear to the patient that the department is only acting in the closest relationship with him.

I have already spoken of the tremendous importance of the supervising nurse. It is superfluous to say that parents appreciate the personal element, and that they are invariably pleased by the nurse's visit, and by her effort to see that all instructions have been understood, that the treatment is being properly given and that any changes in the patient's condition occurring since the clinic are being properly dealt with. As they are pleased with a visit, so are they correspondingly disappointed when, after having been told at the clinic that they would be visited, weeks and perhaps months go by without their having heard from the nurse. It is quite natural for them to assume that they are forgotten, and to seek relief from any means at hand.

This state of affairs is unfortunately frequent. The reason for it is obvious. The State is only able financially to provide for eight supervising nurses. Local organizations in the Westchester district have provided three specially trained assistants, Dutchess County one, Long Island two, and the city of Syracuse one untrained assistant for a period of three months.

The nurse having her headquarters at Ithaca has twenty-six counties in her district, in which are included the cities of Binghamton, Rochester and Buffalo. The one at Syracuse has 300 cases in that city alone, besides being responsible for 200 more in the cities of Utica, Oswego and large outlying districts. The one at Albany has that city, Troy, Schenectady, Oneonta and ranges south to Dutchess County and north to Saratoga and Glen Falls. The nurse at Watertown has 250 patients in a district of 6,500 square miles, in a country of notoriously poor transportation facilities and with the roads covered with snow to a depth of from two to fifteen feet. She has travelled sixty-seven miles in one day in sleighs and on snowshoes. This simple statement of the nurses' situation speaks for itself, and I think they are highly to be commended for the work they have succeeded in doing.

It will hardly be necessary for me, therefore, further to emphasize the great assistance that local organiaztions can give, first in raising funds for more nurses, or if that be impossible, to provide an automobile for the nurses' use, be it nothing more than a second-hand Ford. The roads from now on will be in fair condition, and it is most important that every energy be bent toward good follow-up work before winter again makes the difficulties excessive.

So much for the main obstacles to the success of our work as seen from our standpoint. I am convinced that in a majority of cases our services have been of value. If we do nothing more, and I place this as the lowest estimate of our success, we are going to prevent the bad deformities that have made it necessary to recommend operation in 165 cases of the 351 patients seen whose paralysis was due to previous epidemics. I should be most grateful for criticisms and suggestions from any of the doctors who have attended the clinics, or who have heard of them from their patients.

Incidentally, 536 health officers and 930 other physicians attended the first round of clinics, among whom we hope to have raised a more than passing interest in orthopædic surgery, and in the basic principles of treatment.

This paper is an attempt to give a fair picture of a new and interesting experiment—an experiment in treating the results of a disease as a combined medical and social problem, with the object of restoring the individual to his maximum efficiency as a member of the community.

EPIDEMIOLOGY OF POLIOMYELITIS.*

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THERE exists practically no controversy or difference of opinion as to the actual picture of an epidemic of poliomyelitis. The manner of its dissemination is not, however, so thoroughly understood. The few observations and notes here contained may possibly furnish a little extra food for thought and perhaps suggest further investigation along these lines. The study of the disease as a whole is one of the gravest and most important subjects that exists today in the field of preventive medicine, and no factor which can in any way increase our knowledge of the disease should be overlooked.

Ever since the appearance of Wickman's classical description of the first great Swedish epi-

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 26, 1917.

demic of poliomyelitis occurring in that country in the fall and late summer of 1905, the now well known characteristics of the epidemiology of poliomyelitis have been thoroughly understood and appreciated.

Confirmatory study by Wernstedt and his associates in the great 1911 Swedish epidemic comprising some 3,800 cases, and the subsequent and contemporary investigations by American and European investigators, have served but to confirm the views and findings of this investigator.

The history of the disease in our own country and its subsequent dissemination coincides almost identically with that of the European epidemics. At first, for a number of years, or about twenty years preceding the 1907 epidemic, there occurred small outbreaks in different sections of the country, perhaps only isolated cases or small foci, comprising nests or centers of some five to fifty cases or over.

It was not until the extensive New York City and vicinity outbreak of 1907, just mentioned, comprising some 2,000 cases, that the medical profession in our country was aroused to the terrific ravages and extreme seriousness of the infection.

Following this epidemic, each year the outbreaks have been more extensive and more generally distributed throughout the country, not always of equal severity or extent, and not a continuous increase from year to year, but varying and irregular, however, on the whole, a general increase in the yearly report of cases.

The disease spreads rapidly, for the most part along lines of travel, not, as is the case with measles, affecting practically every community in its path, but occurring in separate foci, missing large sections and occurring in almost devastating proportions in others.

Usually in this latitude the history is this: A few cases are reported in June or early July. These may be in small foci or considerably scattered over a district. Within a few weeks the curve shoots abruptly upward, reaching its height in late August or September, exhausting itself as in the great epidemic just passed a little earlier in the locality first infected. Its spread has been likened to the lesion of ring-worm spreading at the periphery and healing at the center. A better simile might be the irregular healing and outcropping of a patch of lupus.

This seems to be the typical picture of an epidemic whether it be one of the extent and proportions of the recent epidemic of 1916, or of a small localized epidemic comprising a few dozen cases.

The special character of the epidemiology of poliomyelitis has been so thoroughly discussed in the medical magazines that I will consume no more time on the subject of the epidemiology of poliomyelitis in general, but will confine myself to a brief study of one or two localized foci investigated during the recent epidemic.

The particular outbreak to which I wish to call your attention occurred in Tompkins County, N. Y., with its most extensive prevalence in the city of Ithaca.

There was nothing out of the ordinary in this epidemic, but from its more or less definite isolation presents perhaps, a better opportunity for epidemiological study than is often found, especially as to some features of the manner of its extension.

The city of Ithaca is about 240 miles northwest of Brooklyn, the original focus of the epidemic. The area involved represented about 2,500 square miles, irregularly infected, comprising a population of about 40,000, 16,500 of whom reside in the city of Ithaca, the remainder being represented principally by a rural population and small villages.

In this foci, 97 cases were investigated: 58 males; 39 females; 74 were more or less paralyzed at some time during the attack; 25 abortive, or no paralysis noted.

*Number of deaths 18 or 17.5 per cent.

Number of cases with one in family, 60; number of cases with two in family, 10; number of cases with three in family, 3; number of cases with four in family, 2. Total 97.

Number of cases in family with simultaneous onset (same day), 11.

Number of cases with onset 1 day after last case in family, 4.

Number of cases with onset 2 days after last case in family, 5.

Number of cases with onset 3 days after last case in family, 2.

Number of cases with onset 6 days after last case in family, 1.

Number of cases with onset 7 days after last case in family, 3.

Number of cases with onset 9 days after last case in family, 1.

Number of cases with onset 10 days after last case in family, 1.

The extreme variation of the incubation period of the experimentally produced disease in monkeys, and its more or less definite confirmation clinically in human beings, has made it almost impossible to state how many of these secondary cases were due to the simultaneous infection, and how many were due to direct contact with the previous cases. Only six of these secondary cases had their onset more than four days after the primary case.

Chart No. 1 and the accompanying sketch map represents very well a picture of the outbreak. The chart, as you will note, gives the progress

* Four other deaths might properly be laid to the disease, as six cases of penumonia developed, with four deaths during the late fall in partially paralyzed victims of the epidemic.

of the epidemic by weeks. The map shows Tompkins Co., with some adjacent towns; the circles denote the number of miles distant from Ithaca.

The first case reported, Leo L., age 4½, nationality Finlander, came directly from the infected district in Brooklyn on July 14th, to a farm in the town of Van Etten about sixteen miles south of Ithaca; the cross on the map shows the location. This child, who was complaining on the train and ill the day after arrival, died three days later. Six other children in the family living on this farm, and in very intimate contact with the case, did not develop the disease; neither was a case reported in over thirty children, who, with their parents, dined with the family the second day after the onset of illness and were in more or less intimate contact with the child for most of the day. All of these children were visited by the health officer and quarantined on their farms for a period of two weeks.

The second case within the circle reported—female, age 15, onset July 28th. This case occurred in the country in a tenant farm house about six miles from case one, and apparently could not be directly traced to the previous case as she had not been near any known contacts of the case. About one week before the onset, the patient had handled a stray kitten which she had picked up along the road, playing with the cat for a considerable part of the afternoon. As an exception to the rule, no cats were harbored by this family, for which reason the incident was better remembered.

During the next two weeks, as indicated by the chart, no cases were reported; the third week marked the first week of onset of the real epidemic, eight cases being reported almost simultaneously in two foci about fifteen miles apart; five cases in the city of Ithaca and three in the town of Groton, representing apparently two different centers of infection.

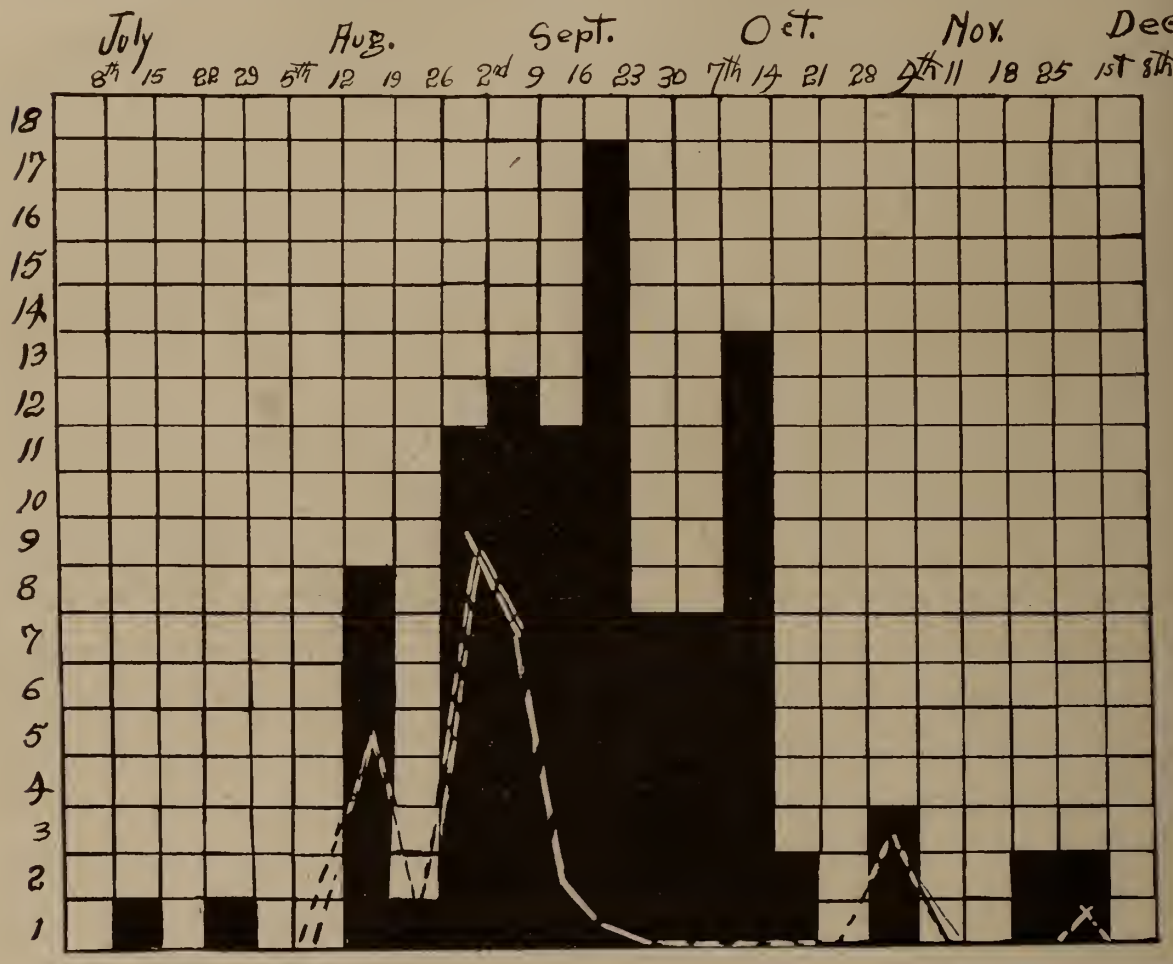


CHART SHOWING TOMPKINS COUNTY OUTBREAK OF POLIOMYELITIS BY WEEKS

First case July 14th. 1916.

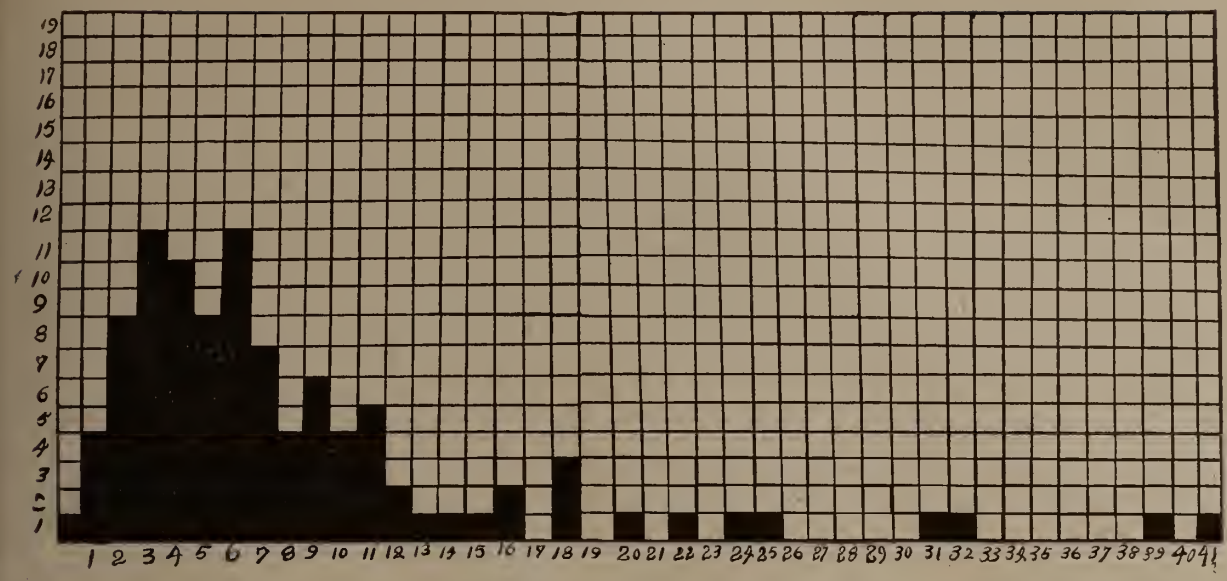


Chart Showing Age of Onset.

The epidemic in the city of Ithaca reached its height during the third week, followed by an abrupt subsidence, as noted by the broken line on the chart. The apex in the first group of nearby towns was reached between two and three weeks later, when the epidemic had practically ceased in the city. A secondary apex occurred in another group of these towns three weeks later or six weeks after the apex of the disease occurred in the city. But two subsequent outcropping cases were observed, three in the city of Ithaca and three in one outlying town not previously infected.

The epidemiological picture is characteristic of nearly all outbreaks; the sudden flare up in a section of a city, a village, or a certain localized section of a community extending over a period of two or three weeks, secondary outcroppings, spreading to other more or less contiguous localities and lasting like intervals when the whole is checked by some apparently definite cause, not absolutely, as in the case of yellow fever or malaria, with the first severe frost, but with enough definition to rate the disease as a seasonal prevalence.

We know that some epidemics have gone over into the winter months and even reached their apex at that time; in fact the four last cases in this outbreak occurred in the cold weather of late November. However, I believe it is admitted by the most competent authorities that the disease, strictly speaking is seasonal.

With the appearance of this first case on July 14th, about a month after the onset of the epidemic in the city of Brooklyn, and at a time when the daily press was filled with "Scare Headlines" of the ravages of the disease, the fear and excitement even in this community, especially among families with young children, were most intense, and even before any quarantine regulations were instituted, very few children were allowed to travel, and all children from infected districts were isolated at their homes for a period of two weeks.

With the appearance of the first cases in Ithaca, children under sixteen years of age were not allowed to attend theatres, Sunday Schools, public or private gatherings, and were requested to remain in their own yards. At this same time, or about the last week in August, nearly all the surrounding towns and villages were subjected to similar rules instituted by the different local boards of health. Copies of the regulations adopted by these boards were published in the local papers, and in most instances, large placards were posted along the highways and in conspicuous places requiring all children under sixteen years of age to remain at their own homes.

The alarm of the people for the safety of their children demanded the adoption of some such regulations; the residents themselves acted as excellent police for their enforcement, reporting promptly all violations.

On September 6th, and for two weeks following, guards were placed night and day on all roads leading to and from the city of Ithaca, at railroad stations, etc.

Still, with all these precautions, the disease continued to spread, even to the remote and isolated farm homes from where the children had not been absent for periods of from four to six weeks. A number of cases have been observed where none but the adults, and in several, the father only, and he very infrequently had been away from the farm, yet the disease visited these homes.

In addition to the above quarantine regulations, all actual cases were quarantined for a period of six weeks and all contacts under six-

teen years of age, for a period of two weeks. Strange to say, no cases were reported in these contacts.

If we consider poliomyelitis wholly a disease of humans and transmitted by direct contact or contact with human carriers, then adult carriers, who of a certainty could not all have recently had the disease or even have been in close contact with actual cases, must be guilty in a considerable measure of conveying the virus.

It is somewhat difficult to state what effect, if any, was produced on the course of the epidemic by the methods employed. The vertical line on the chart represents the date of the placing of guards and the enforced restriction of the movements of all children under sixteen years of age. However, as further noted on the chart, the disease continued to spread in a normally typical manner.

The following among the isolated cases are worthy of note: Two cases on a farm, six miles from Ithaca; house about one-half mile from nearest neighbor. Case I, age two; onset September 30th; Case II, in same house; onset October 1st, probably simultaneous infection. Two adults and two other children in family. The children had not been away from the farm since July 1st, nor had any other children visited that home. Father in Ithaca about once a week. Numerous cats and a dog besides the usual farm livestock; an old "tom-cat" had been missed for several days and returned all "chewed up," as was expressed by the family, about ten days to two weeks previous to the illness of the children.

In another group of six cases in a small hamlet, five miles southwest of Ithaca, infected possibly from the same source, the following history was obtained:

Case I. Male, age two and one-half. Tenant house on farm. Onset October 5th, died October 8th.

Case II. Age seven, female in same house as Case I. Onset October 8th.

Case III. Male, age seven; farm house 200 feet from home of Case I. Onset October 8th.

Case IV. Female, age five; lived in the same house as Case III. Onset October 9th, died October 12th.

Case V. Male, age thirty-nine. Onset October 11th, miller, worked at mill owned by father of Case I, located about one-third of a mile from home of these cases, and about two miles from his own home.

Cases I, II, III and IV played together almost daily. Case V came daily to home of Case I to leave his report, but did not see the children after they became ill.

Case VI. Male, age four, address, farm three and one-half miles north of the four cases in this group. This case was with his father at the mill where Case V was employed about September 30th, or a few days later.

The first four cases were not away from home for six weeks preceding the onset of the first case and no other children had visited at either of the homes. Between September 24th and 30th, three kittens were dropped at or near the children's homes. These kittens were taken up and played with by the first four cases of the group. One kitten was taken to the mill operated by Case VI, and fed there by him for several days, or until he became ill. This case walked daily from his home to the mill and was in most intimate contact during the onset and early stage of the disease with his family of four small children. In this nest of cases, five had been in direct contact with these kittens while the other, in all probability, had had the opportunity.

If the disease is seasonal and most extensively prevalent in the hot, dry months during the late summer and fall, exhibiting a tendency to be checked by cold weather, and we are not yet wholly able to trace a certain number of cases to contact or carriers, we would naturally suspect some insect inoculator, whose life history corresponds somewhat to the cycle of the epidemic, to account, at least in part, for these characteristics of the epidemic.

In this locality and climate the life history of the common "cat flea, Ctnocephalus felis" or perhaps that of the dog flea, coincides almost identically with the curve of the greatest prevalence of the disease. Communities naturally harboring the largest number of fleas also suffer the most extensive dissemination of poliomyelitis.

Fleas may exist in limited numbers on cats all winter, especially if the animal is closely housed. Their extensive prevalence, however, is for the most part checked by cold weather; at least, the eggs do not incubate, so that the time of the insects' greatest abundance on the cat is the late summer and fall months.

The number of fleas on an ordinary kitten during "flea time" is astonishing. In an experiment by Professor Chandler of Cornell during September of last year, a kitten was thoroughly combed with a fine tooth comb and *every effort* made mechanically to rid her of fleas. On placing her in the nito-benzol cabinet 120 fleas were collected from the kitten. A number of cats was so treated at the time with similar results.

There is nothing new in the supposition that fleas may be one of the sources of the spread of an epidemic of poliomyelitis, either as mechanical carriers or as direct inoculators. It is stated that as the virus of the disease has not been found in human blood, and only in large quantities of monkeys' blood, and then only for a short and variable period, a blood sucking insect could not well be a factor. Also the disease,

as we know it, is human except when experimentally produced in monkeys, and not, like plague, being a primary disease of the animal host.

There are, however, two factors that may have a bearing on this matter, that, to my knowledge have not been thoroughly worked out. First, the blood may not have been procured at the time when it contained the virus, as was the case in early experiments with plague. Second, the almost inconceivable change in virulency of the virus for monkeys after passing through a series of these animals. This same factor may account for our inability to find the virus in human blood, in fact, this same human blood at some stage of the disease may be intensely virulent if inoculated into human subjects. This is merely a conjecture, as, of course, no definite laboratory findings are at hand.

The flea is known to be the intermediate host of several tapeworms, two varieties of which are found in man, and with plague, he is simply the inoculator. Professor Riley of Cornell, one of the best authorities on medical parasitology, states that over 400 species of fleas have been described, each, as a rule, having its own special host.

In some well-known respects the similarity of an epidemic of bubonic plague to poliomyelitis cannot but be observed. First, the course and duration of a plague epidemic, extending not as a rule over a period of more than six months, but with the great majority of cases occurring over a limited space of less than half that period.

The early cases, occur perhaps one in a large family, followed later by one or two other cases, perhaps several blocks, or even miles, away, with apparently no connection between the cases. This may go on for several months, when suddenly the epidemic flares up, not in one great area, but in nests, the so-called "Plague Centers," which may later coalesce. We know definitely that plague is a primary disease of the rat, directly inoculated by the flea to man, and only by the flea that had fed on the blood of the rat immediately preceding the death of the animal from the disease. Rats killed, and not dying from the disease, do not present the bacillus pestis in the blood, and consequently fleas feeding on the blood of such rats are not infectious, and will not convey the disease. The pneumonic form, in which the sputum contains the bacillus, is, of course, directly communicable from person to person.

It would be hardly possible, at least in this climate and locality, to presume to blame the rat or the rat flea for the spread of poliomyelitis.

Rats are less common in the sections where the disease tends to spread most rapidly, and where the greater number of cases are known to occur. In fact, the densely populated and most filthy sections of the cities, where the rat is most prevalent, are noticeably spared, and its most extensive ravages are in the sparsely populated, most sanitary districts and often the supposedly well-to-do and medium classes are most heavily affected.

There is always to be found a greater number of cats in the country, the suburban communities and villages than in the larger cities, and just as frequently and perhaps more often these animals are harbored by the medium or better classes of society. I believe we can say that the more congested the population, the fewer cats will be found, and those that are found are not usually pets for children but of the half-wild alley variety. I have also found that cats are not commonly harbored to any extent in the Italian districts and among the families of the foreign population, which may account for its failure to spread in some insanitary and congested centers of this population where, other things being equal, we would naturally expect to find the greatest ravages.

The infection of but one case in a family, or of two or three simultaneous cases in the family or immediate locality, as is noted in plague, in common with poliomyelitis, would tend to place suspicion on an insect inoculator and prelude to some extent the suspicion of direct human contact in many cases.

The almost total absence of secondary cases in hospitals and infant asylums, where the cases have been brought to the institutions in all stages of the disease, or during the incubation period, the infections having occurred elsewhere, is even more inexplicable. Here we have the similarity to yellow fever or malaria in a mosquito screened institution. Our modern hospitals and infant asylums are not places where "fleas of the cat family" would probably be allowed to exist, at least in numbers. Neither is the child in the children's home allowed to have a kitten for a plaything.

Dr. Haven Emerson, Commissioner of Health for the city of New York, at the Cincinnati meeting of the American Public Health Association, stated that out of 30,000 New York children confined in institutions during the recent outbreak, but ten cases of the disease occurred, six of these probably being infected before entry to the institution, leaving but four cases actually occurring in these homes, and followed by no secondary cases.

Commissioner Emerson states that he believes the segregation of children in well regulated institutions is sufficient to prevent the spread of the disease to these institutions from the community.

This phenomenon is all the more difficult to understand when we compare it with the spread of the epidemic in the rural community of Tompkins

County. Here all efforts at quarantine and isolation seemed to have no appreciable effect. The course of the disease continued unabated and the quarantine and segregation of children in the rural towns and villages after the first of September were practically absolute.

In a study of the age of the greatest susceptibility, the accompanying chart, though showing but a small number of cases, is, however, quite typical. It is not a disease of the very young or of nursing babies. In this outbreak only one occurred under six months, and but five under one year, which may be due either to an inherited immunity, as in diphtheria, or to an absence of exposure. However, the period of the greatest liability to the infection is that in which the child is liable to be most intimately associated with animal pets, notably, in rural communities the "pet kitten" or puppy which he mauls and fondles to his heart's content.

The greater frequency of the disease in males may be accounted for by this same condition, boys at this age being more prone to play with animal pets and stray cats than female children.

Contrary to the general knowledge, the cat is an extensive nocturnal roamer, especially in the summer and fall, going from farm to farm even when the distance is considerable. The notorious "Tom" will often make excursions of several miles. Another method by which cats travel in the country and which was noted in the group of the six cases just described, is the practice of placing the surplus kittens in a bag and taking them on the next trip to town, dropping them along the road to find a new home for themselves. It is considered bad luck by many to kill a cat, so this means is taken for getting rid of the surplus cat family.

This practice is not the exception but the rule.

In the series of cases just presented, there is no absolute certainty that Case I was the source of the original infection for the entire group; neither are the facts absolute to prove that the two early cases were the only ones existing during the period. Abortive or unreported cases may have existed with human contact carriers, and may have been sufficient to produce a chain of actual contacts, or the disease may have been introduced from some undiscovered source or sources.

There seems, however, some almost definite relation of time between development of cases at the different foci, which is particularly noticeable in the early and later weeks of the epidemic. This, of course, may be a mere coincidence and have no relation to the time of developement.

From animal experiments practically all recent laboratory investigators are able to account for the spread of a poliomyelitis epidemic from contacts with actual cases and to directly exposed human carriers. The recent experiment by Amoss and Taylor which tends to prove the "inactivating" influence of the nasal and pharyngeal secretions of normal individuals, and at some stages of the disease in actual cases of poliomyelitis, if definitely confirmed, will tend strongly to support this hypothesis.

These findings, allowing only for the exclusive human source of the epidemic, have not as yet explained the seasonal preavlence of the disease; its selective tendency to rural dissemination; the extensive prevalence at certain ages and the seeming fact that cases at any stage of the disease or during the incubation period, if removed to a hospital or other similar institution, do not, to any extent, infect cases in these institutions.

THE EPIDEMIC OF POLIOMYELITIS IN NEW YORK STATE IN 1916.*

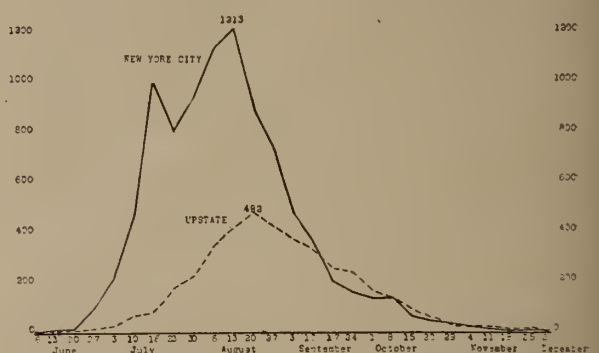
By MATTHIAS NICOLL, Jr., M.D.,
NEW YORK CITY.

Origin and Magnitude of the Epidemic.

IN the year 1916 the State of New York experienced the most extensive epidemic of poliomyelitis on record. During the period from June to December there occurred over 13,000 cases and 3,300 deaths. The epidemic began early in June in the Borough of Brooklyn, New York City, and spread at first slowly, later rapidly, throughout the State. Of the total number of cases, 8,991, or more than two-thirds, occurred in New York City, the rest of the State —4,186 cases.

CHART 1.

REPORTED CASES OF POLIOMYELITIS, WEEK BY WEEK, DURING THE EPIDEMIC OF 1916.
IN NEW YORK CITY (DATES OF REPORT) AND UPSTATE (DATES OF ONSET).



The Hudson Outbreak.

The City of Hudson was the seat of one of the early outbreaks upstate, but the general epidemic cannot be attributed to the Hudson outbreak. The first case in Hudson was reported in January, the second in March, single cases in April and May, ten cases in June—while New York City recorded over 300 in the

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 26, 1917.

same month—and 19 in July, after which the disease died down in that locality. Of the total number of diagnosed cases—35—there were but 2 deaths. It is possible that the local epidemic at Hudson was due to a less virulent organism than that of the general epidemic in the State. All evidence points to the general invasion of the State coming from New York City.

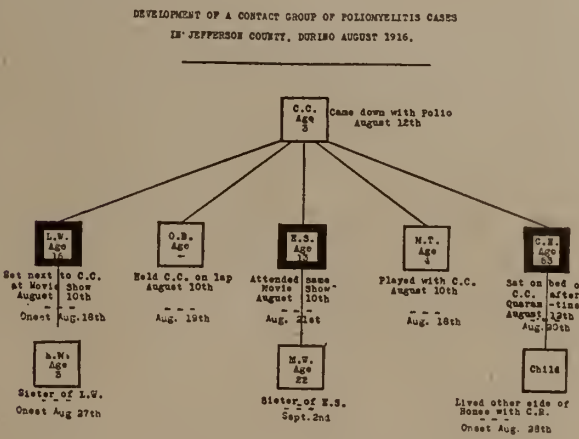
Spread of the Epidemic.

The general progress of the epidemic was followed closely by pin maps made at the Albany office, each case being recorded by means of a pin as the daily reports came in from all over the State. A study of these maps, as photographed week by week, brings out the well-recognized tendency of the disease to follow the routes of travel, notably along the suburban lines out of New York City: east into Nassau and Suffolk counties, particularly along the southern shore of Long Island, northward to the outlying communities in Westchester; and then spreading through the counties bordering on the Hudson River and along the route of the railroad lines running north and northwest out of the greater city.

The Syracuse outbreak did not develop until later, along in August, and from there spread to the surrounding counties and north through Jefferson county to the upper limits of the railroad in St. Lawrence County, where it ceased. Following some of the lines of railroad into New Jersey shows the same general tendency in the spread of the disease. A considerable number of the reported cases from Sullivan County were directly imported from New York City, many of them in the incubation stage, and coming down within a day or two afterward.

The Rapidity of its Development.

Observation of the general movement of the epidemic in the five adjoining States of New York, New Jersey, Connecticut, Rhode Island and Massachusetts brings out the fact that in Massachusetts and Rhode Island the disease got under way later, delevoped more slowly, reached its crest later, and declined more gradually. Similarly, the slower development and more gradual decline in the up-state cities and rural districts of New York State, as compared with its almost explosive rise and rapid decline in New York City—seen well from Chart A—would perhaps be expected when the factor of chance of exposure in crowded communities is taken into account.



Severity of the Epidemic.

Out of over 13,000 cases reported in New York State during the course of the epidemic, 3,300 died, indicating a fatality rate of about 25 per cent—or one death out of every four cases—which is much higher than that observed in any considerable epidemic hitherto recorded. The movement of cases, deaths and fatality rates by months in New York City and upstate are shown in Table I. The apparent increase in the fatality rate as the epidemic progressed does not necessarily indicate an increased virulence of the disease, but is probably due to the fact that with the number of cases rapidly diminishing and previously reported cases dying off, the proportion of deaths to cases during the later periods seems to increase.

TABLE I

Movement of Cases, Deaths and Fatality Rates from Poliomyelitis During the Epidemic of 1916 in New York State, by Months

Month	State of New York			New York City			Rest of State		
	Cases	Deaths	Fatality Rate per 100 Cases	Cases	Deaths	Fatality Rate per 100 Cases	Cases	Deaths	Fatality Rate per 100 Cases
June	367	64	17.4	313	53	20.1	54	1	....
July	4,011	895	22.3	3,443	779	22.6	568	116	20.4
August	5,987	1,466	24.5	3,927	1,080	27.5	2,060	368	17.9
September	1,992	628	31.5	985	364	37.0	1,007	264	26.2
October	645	215	33.3	258	122	47.3	387	93	24.0
November	135	40	29.6	47	25	53.2	88	15	17.0
December	40	20	50.0	18	11	61.1	22	9	40.9
Total	13,177	3,310	25.1	8,991	2,444	27.2	4,186	866	21.1

Comparative Incidence and Fatality Rates in Different Sections of the State.

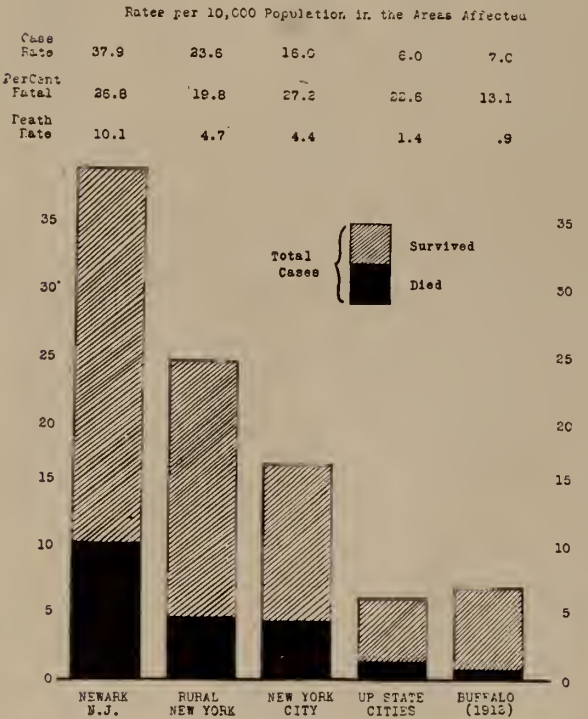
Table 2 and Chart C, which together show graphically the comparative incidence and fatality rates recorded during the epidemic in the different sections of the State, bring out several interesting deductions.

In the first place, it will be noted that the districts affected in rural New York comprised but one-half of its population, while very few of the cities escaped the disease altogether.

On the other hand, in those areas of rural New York that were affected, a much higher proportion of the population was attacked with poliomyelitis than either in New York City or the up-state cities. Thus, on the average, 2.4 persons per thousand population in the rural sections affected were attacked by the disease during the course of the epidemic, as compared with 1.6 in New York City and .6 per thousand in the up-state cities as a whole.

CHART C.

RELATIVE SEVERITY OF POLIOMYELITIS EPIDEMIC OF 1916 IN CERTAIN AREAS, JUDGED BY THE COMPARATIVE INCIDENCE AND DEATH RATES RECORDED.



The proportion of cases proving fatal, however, was notably lowest in the rural sections (19.8 per cent), the up-state cities following with 22.6 deaths per 100 cases, and the New York City cases showing a decidedly higher proportion of fatalities (27.2 per cent) than either of the other two areas of the state. Apparently the epidemic of poliomyelitis in 1916—once it entered a community—was more widespread but less virulent under sparsely settled conditions of life than in the centers of population.

Influence of Sex.

The number of deaths among males was 50 per cent higher than among females. Practically the same proportions—60 and 40 per cent was observed in New York City and up-state, at the different ages, from month to month. A study of the case figures shows that not only were boys more likely to be attacked than girls, but also that the disease is somewhat more fatal to males than to females. This is confirmed by the observed experience in the Newark epidemic.

Difference in Age Incidence in City and Country.

One of the striking features of the epidemic was the fact that its rural incidence showed a noticeably different age distribution from the urban. An analysis of the first 7,500 cases in New York City showed that almost 80 per cent were among children under five years of age; over 95 per cent under ten, and over 98 per cent under sixteen. Here, apparently, poliomyelitis was almost entirely a disease of children.

In the up-state cities, less than two-thirds of the cases were under five years, 86 per cent under ten, and over 7 per cent beyond the age of fifteen. In rural New York only 55 per cent of the cases occurred among chil-

TABLE II

Incidence and Fatality from Poliomyelitis During the Epidemics of 1916 and 1912

Area	Population of Areas Affected	Number of Cases	Case Rate per 10,000 Population	Number of Deaths	Fatality Rate per 100 Cases	Death Rate per 10,000 Population
June-December, 1916						
New York City	5,602,841	8,991	16.0	2,444	27.2	4.4
Upstate Cities	2,120,538	1,300	6.1	294	22.6	1.4
(Total Pop., 2,279,047)						
Rural New York	1,223,424	2,886	23.6	572	19.8	4.7
(Total Pop., 2,417,814)						
July-October, 1916						
Newark, N. J.	366,721	1,390	37.9	372	26.8	10.1
1912						
Buffalo, N. Y.	423,711	297	7.0	39	13.1	0.9
New York State	.....	1,108	....	183	16.5	....
(Cases observed by Surgeon Frost)						

dren under five years of age, half as many between the ages of five and ten, and 10 per cent of all cases among persons older than fifteen.

Due to the higher fatality of poliomyelitis among adults, when the age distribution of the deaths is considered, the contrast between the different sections is even more pronounced (see Table 3). It was found that while in New York City nearly four out of every five deaths were under five years of age, and 97 per cent of all deaths occurred among persons under fifteen; in the rural sections only 45.5 per cent were under five years, and 80.9 per cent under fifteen, with fully 19.1 per cent—or one out of every five deaths occurring among adults—persons beyond the age of fifteen.

In New York City the proportion of adults in each age period remained fairly constant, from month to month during the course of the epidemic, while in the state outside New York City the age incidence underwent considerable change with the progress of the epidemic. And with the extension of the age limit up-state it was observed that the proportion of deaths in the early ages decreased, and that at the later ages increased.

TABLE III

Age Distribution of Cases and Deaths from Poliomyelitis During the Epidemic of 1916 in Different Sections of New York State

Age	New York City Number	New York City Per Cent	Upstate Cities Number	Upstate Cities Per Cent	Rural New York Number	Rural New York Per Cent
	(June-Aug., 1916)		(June-Dec., 1916)		(June-Dec., 1916)	
Total Cases	7,496	100.0	*1,300	100.0	*2,886	100.0
Under 5 years	5,902	78.7	840	64.6	1,575	54.6
Under 10 years	7,157	95.5	1,114	85.7	2,365	82.0
Under 15 years (N. Y. C., under 16)	7,367	98.3	1,204	92.6	2,596	90.0
Over 15 years (N. Y. C., over 16)	129	1.7	96	7.4	290	10.0
	(Jan.-Dec., 1916)		(June-Dec., 1916)		(June-Dec., 1916)	
Total Deaths	2,448	100.0	294	100.0	†572	100.0
Under 5 years	1,928	78.8	174	59.2	260	45.5
Under 10 years	2.315	94.6	242	82.3	406	71.1
Under 15 years	2,375	97.0	264	89.8	462	80.9
Over 15 years	73	3.0	30	10.2	109	19.1

* Ninety-seven cases of unspecified age in the upstate cities and 182 in Rural New York were distributed, in proportion as the known cases.

† Includes one death of unknown age.

Has the Rural Population a Lesser Degree of Acquired Immunity?

The experience of New York State, with regard to the difference between urban and rural sections in age incidence of the disease, is confirmed by experience of other states during the epidemic of 1916. At the Cincinnati Conference Surgeon Frost of the U. S. Public Health Service, declared that "in rural epidemics, especially those in Iowa and Minnesota, a much larger proportion of the cases have been in the higher age groups, than has been the case in epidemics occurring in large cities." Dr. Frost suggests an explanation for this difference, when he says: "Certain other infectious diseases, notably measles, are largely limited to children, not because they are essentially children's diseases, because the adult population has been more or less immunized." It seems not unlikely, therefore, the the limitation of poliomyelitis in urban epidemics almost entirely to children may be due to the fact that adults have developed a certain degree of immunity, through mild and perhaps unrecognized attacks in their early years; while the persons in more sparsely settled areas, who had been less exposed to the contagion of the disease in their childhood, had not acquired the degree of immunity which would render them able, as adults, to resist the infection when present in epidemic form.

The Factor of Contact.

By an intensive study of individual outbreaks, the State Department of Health has been able to obtain fairly conclusive proof of the fact that contact is the immediate factor in the spread of an epidemic. An interesting example of a definitely traced group of contact cases reported from a rural section, is shown on the accompanying diagram. Note the various modes of contact by which the disease was transmitted from contact case—the original case of the group—to five others, three of whom died, and from them to three others closely associated with them. Note also the range of the ages—from 3 to 53—with three out of the eight known cases among persons beyond the age of fifteen.

Period of Incubation and Infection.

From the study of a large number of cases in which a single exposure could be determined, it may be stated that the incubation period of the disease varies from four to fourteen days, with an average of about a week.

The persons taken with the disease were found to be sources of active infection for a period at least eight days after the onset of the disease. In a number of cases infection

took place as early as two days before the frank onset of poliomyelitis symptoms. There has been little evidence, however, of the disease being contracted from a person who had been ill longer than two weeks, which suggests the limit of the necessary period of isolation to be required for suspected cases of poliomyelitis in future outbreaks.

THE DIAGNOSIS OF UNPARALYZED CASES OF ACUTE POLIOMYELITIS.*

By ALBERT BOWEN, M.D.,
ROCHESTER, N. Y.

BELIEVING that every case starts as a general infection and that paralysis is merely an incident to the disease, our interest in diagnosis is largely confined to the recognition of poliomyelitis before paralysis develops, in order both to treat it successfully and to control foci of infection in the community. Accordingly we shall not go beyond the diagnosis of the preparalytic stage and the abortive or arrested form of the disease. To the neurologist and orthopedist may be left the fine points of nerve and muscle involvement.

Flexner defines poliomyelitis as "an acute infectious and communicable disease attended sometimes, but by no means always, by involvement of the central nervous organs, as a result of which incident paralysis often occurs."

Much scientific work of great value has been done by the Rockefeller Institute, Rosenow, and others in running down the organism causing poliomyelitis, but as yet no bacteriological tests have been developed which can be used by the general practitioner to aid in diagnosis. Such tests, however, may confidently be looked for in the near future.

There is possibly more than one portal of entry. Flexner believes that the organism gains entry to the body through the nasal mucous membranes. Rosenow has discovered the germ in the tonsils. Le Boutillier has shown that infection may take place through the intestinal tract. Draper believes that it gets from the blood to the central nervous system through the choroid plexus. The view that the virus of polio travels along the nerves as does the virus of hydrophobia is generally accepted. Extremely small doses will induce infection when inoculated endoneurally, while large quantities of the virus given intravenously will only occasionally cause paralysis.

The incubation period has been variously considered as from two to ten days or more. We saw several cases which became sick in about five days after definite exposure.

Ruth S., an infant, was first noticed to be sick on Saturday after her father had come from New York and spent the previous Sunday with her. Other exposure was satisfactorily excluded.

Roy O. was taken sick Thursday after being exposed to an uncle who had come from Syracuse on the previous Saturday.

Fred W. was taken sick September 9th, his mother on September 13th, and a sister on September 18th.

The disease is said to have developed when the first symptom of illness has shown itself, not when paralysis has developed.

Classification.

Peabody, Draper and Dochez have suggested three types of the disease, viz.:

1. Abortive, arrested, non-paralytic, or atypical.
2. Cerebral—with spastic palsies.
3. Bulbar-spinal—with flaccid paralyses.

Wickman classifies abortive cases as follows:

1. Those with the course of a general infection.
2. Those showing meningeal irritation.
3. Those with marked pains suggesting an influenza.
4. Those with accompanying gastro-intestinal disturbance.
5. Those showing an anginal form, beginning with sore throat.

In spite of the seemingly many types there is a similarity in many of the early symptoms. Among the prodromal symptoms may be mentioned: irritability, peevishness, weakness, malaise, confusion, inco-ordination, stumbling, dizziness, headache, and sneezing without coryza. On the other hand the general involvement of nearly all of the organs accounts for the variety of symptoms which may present themselves.

The onset is usually gradual but may be quite rapid. There is a rise of temperature, which may reach 106 degrees F. or may be very slight. The pulse may go up to 150 or over and the respirations may reach 60 without any involvement of the respiratory muscles. Meningeal irritation causes basilar headache, tremors, cervical tension or rigidity, a spasticity of the spine, hyperesthesia, drowsiness, and irritability. Paresis of the digestive system causes vomiting, obstipation, rarely gastro-enteritis. Urine may be scant or retained. There may be epistaxis, sweating, erythema, or ecchymosis.

Arguments are hardly necessary to prove that abortive or arrested cases are true polio, for:

1. Cases presenting the same initial symptoms may clear up or develop any degree of paralysis.

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 26, 1917.

2. Abortive cases occur in families where frankly paralyzed cases exist.

3. The identity has been proved in the laboratory. Monkeys have been paralyzed from abortive cases and the serum from abortive cases has neutralized the virus.

The abortive is the most frequent type of the disease and probably more numerous than all others. Thirty-five per cent of the cases seen by the writer in 1916 were abortive. There were many abortive cases which were not seen. Several towns seemed to be so thoroughly infected that all susceptibles had the disease, though in some places nearly everyone had mild abortive attacks. Adults felt a little off, tired, shaky, had poor appetite, basilar headache, more or less cervical tension and rheumatic pains about the shoulders. They usually kept on with their work and recovered from symptoms in three or four days.

Cases may have one or all of the symptoms of polio in mild or severe form. All cases which do not develop paralysis are at present classified as abortive. It would seem to be more exact to call the mild and fleeting cases abortive and the severe non-paralytic cases by some other term.

Polio is a general infection with nervous symptoms secondary; consequently mild disturbances in time of epidemics in exposed persons may be regarded as possible poliomyelitis. Symptoms may subside rapidly without paralysis or weakness, sometimes with slight weakness or paralysis which rapidly disappears. Sometimes the constitutional and meningeal symptoms persist without paralysis and may be confused with tuberculous meningitis. Often collateral cases occur which are so mild as to be ordinarily overlooked, as in the H—— family seen last summer.

Harold was seen ten days after onset. He had a slight weakness of the left leg and gave a history of high fever, chill, headache, vomiting, constipation and stiff neck.

Rupert was taken sick the same day but was all right after a dose of castor oil.

Dorothy the same day had fever, vomiting and constipation. Rapid recovery.

Doris was "just sick" a week previous.

Emma was in bed one day with fever and was constipated.

George had slight fever and constipation.

In an epidemic any temperature, especially if accompanied by gastro-intestinal symptoms, hyperesthesia, or any rigidity of the neck should be regarded with distinct suspicion and warrants a lumbar puncture for diagnosis. This procedure is rarely accompanied by unpleasant symptoms, usually relieves the meningeal irritation and is of great assistance in confirming a diagnosis, as illustrated by an interesting group of cases.

On September 7th, the writer saw two Clark children and afterwards two young women in consultation with Dr. Fowkes. The Clark girl and boy were taken sick September 3d with headache, chills, and sore throat from which they improved. On September 5th the girl had chills, 102 fever, headache, a little vomiting and was somewhat constipated. When seen she had not voided since the previous morning. Her legs had become progressively paralyzed on the day when she was seen. Her brother had a temperature of 101, was tired and complained of stomachache. He had been around until that day. His reflexes were slow but he had no stiffness of the neck. He later developed a severe polio.

Both of these cases were of the so-called dromedary type. These dromedary cases as Draper calls them seem to be a distinct type which begin as a mild infection with malaise, tiredness, fever, vomiting, and possibly other symptoms. They apparently recover for a few days and then have a sudden onset with severe meningeal involvement.

On inquiry we learned that Bessie Green had been employed in the Clark house and was sick at home. She was found and the following history secured. Two sisters, Grace, aged 20, and Bessie, aged 18, were living outside of the village. About the middle of August Grace was sick for a week with what was called "summer grip"—pains and stiffness. She did not go to bed or call a doctor. Bessie worked by the day at the Clark's. On September 1st she felt sick and stayed home from work. She had a little fever, and her stomach was somewhat upset. She had some stiffness of the neck and shoulders. She allowed us to perform a diagnostic lumbar puncture which gave atypical polio fluid. Here were two very mild abortive cases which apparently transmitted a severe infection, and which were found by means of lumbar puncture.

In mild cases in children there may be nothing to suggest the diagnosis. Definite signs do not appear at once. Afebrile cases are rare. Headache is the second most common symptom. Pain in the neck, back of head, spine and extremities is common. Bending the neck to the chest is painful and resisted so that one can often lift a child to the sitting position by the back of the head. Lifting the child by head and buttocks causes painful anterior bending. This is Draper's spine sign. The head is often somewhat retracted, a condition which will be noticed at first glance. Convulsions may occur at any time during the acute stage.

Where meningeal symptoms predominate there is marked headache, anterior and posterior rigidity varying from slight stiffness of the neck which prevents flexing the head on the chest, to retraction of the whole spinal column and opisthotonus, and when severe there may be twitching, jerking, tremor, convulsive movements, and true convulsions. Reflexes may be exaggerated in the early and preparalytic stage. The patellar reflex may be lost with no other sign of paralysis. Kernig's sign is sometimes found. McEwan's sign is elicited by percussing and auscultating the cranium and is due to distention of the ventricles by the spinal fluid. Ruhrah considers the following sign important: "If the patient is raised by placing the hands under the shoulders the head will fall back. If the child is told to raise the head when it is sufficiently conscious, it will do so and hold it forward a moment or so and then the head will fall back." Mentally there may be depression, apprehension, prostration, restlessness, anxiety, confusion, or emotionalism.

Painful symptoms may predominate. Some form of pain is almost constant. Tenderness may also be present. Headache is usually basilar or occipital. Pains along the neck and spine are very characteristic. The shoulders and limbs may have influenza pains. Myalgia often precedes and accompanies paralysis.

Gastro-intestinal symptoms predominate in certain cases due to a marked paresis of the organs of digestion. Anorexia, vomiting, foul breath, sordes, diarrhea, stubborn constipation, colic and gas may all follow. The vomiting is often sudden and repeated. It may rarely be violent and constant. Constipation is nearly always present. It is sometimes preceded by diarrhea. Frauenthal believes diarrhea is more usual in arrested cases. Constipation sometimes persists for a considerable period. The tongue is usually red at first, then coated and later covered with sordes.

The urine is scanty and highly colored and sometimes contains albumin. Retention is not uncommon, due to a paresis of the bladder walls. Sometimes prolonged catheterization is required.

The skin shows a multiform rash in about ten per cent of cases. Sweating is fairly common and hyperesthesia is usually present. There are sometimes vasomotor disturbances, erythema, blushing and paling over larger or smaller areas, often more marked in the paralyzed part.

The duration of the preparalytic stage may be from 24 hours to 12 days. The temperature is elevated from 5 to 7 days, the pulse usually remains rapid after the fever has disappeared. The other symptoms may occur in any combination or permutation and may subside at any time or at any stage of the disease from the slightest malaise to the severest paralysis.

If no paralysis develops, the case is called abortive or arrested. Severity of symptoms has no bearing on the degree or extent of paralysis which may develop. In fact abortive cases may show very severe symptoms. Convalescence is usually rapid, but may be slow; vague symptoms, weakness, and pains perisisting for some time. Muscle weakness may sometimes be found by the use of Lovett's tests.

Of the value of lumbar puncture Flexner says:

"Lumbar puncture in 90 per cent of cases gives a definite diagnostic result. Irrespective of the severity of the symptoms, lumbar puncture yields, in cases of poliomyelitis, a fluid, usually clear, but showing either morphological or chemical changes, or both. The mononuclear cells tend to be increased and globulin is usually present. These changes in the cerebro-spinal fluid, especially during periods of epidemic, should be regarded as presumptive evidence of poliomyelitis infection." Where meningeal involvement is suspected, lumbar puncture should be done as soon as possible as it not only clears up the diagnosis but relieves pressure symptoms. We found it of great value to examine the fluid at the bedside, leaving the needle in place to give serum if indicated.

In the technic of lumbar puncture Zingher recommends a No. 18 gauge needle 3 inches long. This should have a tightly fitting obturator and fit standard connecting parts so that it may be used for giving serum. It should be kept sufficiently sharp to produce a minimum amount of pain. A small circle of skin infiltration with novocaine or weak cocaine will help in handling young and nervous patients.

Children should be laid on a table and the back held firmly arched by an assistant. For many reasons it is usually not desirable to have the family present. The needle is introduced vertically in the midline midway between the third and fourth lumbar vertebrae at the level of the crest of the ilia. There is nearly always a recognizable sensation as the needle passes through ligament, soft tissue and finally almost pops through the dura of the canal. In spite of the utmost care some backs seem to put up a solid wall of bone that defies one's efforts and occasionally a meningeal vein will be pierced resulting in a bloody fluid.

The Cerebro-Spinal Fluid.

This is abnormal in practically every case and diagnoses based on fluid findings were

found to be reliable in all of the author's cases in the 1916 epidemic. It may present a number of changes which taken in connection with the clinical findings make spinal fluid examination an invaluable aid to diagnosis.

The fluid is sterile to ordinary culture methods and no organisms are found in stained smears. Some investigators, however, have reported findings. J. A. Kolmer reported micro-organisms in the spinal fluid at the Philadelphia County Medical Society in November, 1916. J. W. Nuzum, of the Cook County Hospital, has reported finding streptococci in fifty cases in October, 1916.

The fluid is almost always under increased pressure when drawn, though it rarely spurts. Fifteen c.c. may be drawn from an infant and sometimes 50 c.c or more from an adult before the pressure is reduced to normal. We found the fluid nearly always sparklingly clear.

Albumin is present in increased amount. Globulin usually gives a marked reaction. It is not present in normal fluid. Fehling's solution is promptly reduced by polio fluid and by most other fluids. In examining for cells an acetic acid diluant should be used to destroy red blood cells and a stain may be added. There is an increased number of cells from the normal 5 to 10 up to several hundred to the cubic millimeter. At first polymorphonuclears predominate but later there may be as high as 90 per cent of lymphocytes. We found also large mononuclears and large irregular cells which are possibly endothelial in origin.

The fluid in the later stages shows a persistence of albumin and globulin for eight or ten weeks. The cells rapidly return to the normal number, though they may persist.

Case 37.—Paul W., aged 21, seen three weeks after onset, both legs paralyzed. Fluid was a pale straw color. Globulin content markedly increased. Three hundred and thirty-five cells most of which were of the large irregular epithelial type.

Case 44.—Blanche N., aged 3, seen on third day of disease showed the same type of cells.

Case 71.—Vida W., aged 5, seen 18 hours after a severe onset. There had been two other cases in the family. Fluid showed several thousand large and small cells. Many like irregular shaped polynuclears were surrounded by minute globular bodies.

Occasionally a fibrin web forms in or on the fluid after standing a short time. This is characteristic of polio when present. Blood is sometimes present, due to injury of vessels in the canal, or en route when the obturator of the needle does not fit tightly. When due to hemorrhage in the cord itself, the fluid is usually homogeneously red instead of clearing as more is drawn. The fluid may be yellow in cases where there has been hemorhage a few days previously.

Zingher places much diagnostic importance upon the slight opalescence of the fluid even early in the disease, which gives a ground-glass appearance throughout the fluid when examined in a clean test tube by transmitted light, due to the cells in suspension. Normal fluid looks limpid like distilled water. He advises precaution against blood cells which in small numbers produce this appearance, and also against leukocytes in other form of meningeal inflammation. A microscopic examination should not be neglected whatever the macroscopic appearance. Zingher gives a second macroscopic test which he believes to be of value, namely, the foam test which depends on the increase in albumin. On shaking half a test tube of fluid a heavy and persistent foam forms which may last half an hour. On normal fluid the foam is light and evanescent.

Differential Diagnosis.

While not going into the matter of paralysis, we must note certain conditions from which it is necessary to differentiate poliomyelitis. The difficulty usually occurs in sporadic cases rather than in epidemics. Ruhrah distinguishes a number of conditions.

The diagnosis of abortive cases having only gastro-intestinal symptoms is difficult. The fever and vomiting may be mistaken for acidosis or they may resemble the acute intestinal upsets which are common in children. The urine as well as the spinal fluid should be examined. In the presence of an epidemic it is a wise principle to consider every sick child with suspicion and examination of the spinal fluid more often than not confirms the suspicion. Rarely there may be an abortive case with a normal fluid. These are very puzzling. Any nervous or muscular symptoms should put one on guard for polio.

In tetany the charactertistic position with the spasm chiefly in the hands and feet bilaterally, the exaggerated reflexes, contraction of the muscles on percussing the nerve, and spasm caused by constricting a limb point to the diagnosis.

Hysteria is rare in children and absent in infants. The following is typical of many adults:

Mrs. L., aged 27, lived in T. where polio was epidemic and nearly all susceptibles had the disease. The onset was on September 5th, with numbness in the hands, prickling and burning of the limbs, pain in the back and shoulders. Examination showed a fairly

nourished neurotic type of woman who complained of dysphagia and difficulty in getting her breath. There was no neck rigidity, reflexes were slightly exaggerated, temperature 99, pulse 72, appetite and digestion fair, bowels constipated, no urinary symptoms. The spinal fluid, which was under slightly increased pressure, was clear, and no cells were found. A diagnosis of hysteria was made.

Diseases of the nervous system must be distinguished. A careful history of onset and development is most necessary and will often eliminate polio.

Case 75.—A boy, aged 5, had convulsions, was dopey and moved legs poorly. A lumbar puncture was done. Pressure was increased and 200 cells were counted to the c.m.m. A history showed that the boy had been having convulsions nearly every day for six months and was practically in status epilepticus.

The meningeal form of polio may resemble the various form of meningitis. A history of T. B., pneumonia, or exposure to epidemic meningitis is valuable and an examination of the spinal fluid is necessary for a diagnosis. Proper technic will demonstrate organisms when present.

Tuberculous meningitis presents a picture which is sometimes simulated by polio. The onset is usually much slower and more irregular. Muscles are more apt to be spastic while in polio the paralyzed parts become flaccid. The spinal fluid is usually in larger amounts in T. B., often over 100 c.c. A rather heavy fibrin web forms on standing which contains cells and sometimes T. B. organisms. Cells are markedly increased, 95 per cent are lymphocytes. Albumin and globulin are present in greater amounts than in polio. Fehling's solution is not so constantly reduced.

Cerebro-spinal syphilis in adults may show loss of reflexes, pains, bladder symptoms. The fluid is practically the same as in polio, except that it gives a positive Wassermann reaction.

Croup.—Paralysis of the laryngeal muscles present many symptoms of croup, such as dyspnoea and obstruction which may require intubation. Here culture, the presence of other paralyses, and lumbar puncture aid in the diagnosis.

Broncho-pneumonia.—When the respiratory muscles are involved, either costals or diaphragm, there may be every appearance of pneumonia. Pulmonary edema resembling pneumonia may supervene. In most of the respiratory paralysis cases, however, there is a perfectly definite and progressive paralysis of the pharyngeal, costal, or diaphragmatic muscles which is unmistakable. Careful inspection should be made of the muscles. The following cases would have misled us had it not been for the epidemic.

Case 52.—Robert O., aged 3, fell down stairs September 11th. Four days later he was feverish, irritable, vomited, but was not constipated. There was some headache on the 17th. His head was noticeably retracted the following morning. Temperature was 101 degrees. When seen in the afternoon he had all the symptoms of broncho-pneumonia. He had cough, noisy respirations, 30 to 40 a minute, vomited mucus occasionally. He was semi-comatose, eyes were rolled up. He had no rigidity of neck, reflexes were exaggerated. He had none of the signs of polio. The diaphragm and intercostals were not paralyzed. Lumbar puncture was positive and later other children in the family developed polio. This child died.

Case 65.—Ruth S., 10 months. A very poorly nourished infant with an apparent pneumonia involving the entire right side. Temperature had been as high as 107 degrees. She had a right-sided facial paralysis. Post-mortem lumbar puncture was inconclusive.

Other diseases or injuries may co-exist as in the pneumonia just cited. A history of falls is nearly always recalled by parents to account for the disability which is due to polio.

There is a group of spasm diseases in infants which must be kept in mind.

In scurvy there is a marked tenderness of the limbs and a disinclination to move which resembles polio. The classic signs of scurvy should suggest this now infrequent disease.

In acute rickets there is often a pseudo-paralysis. It is accompanied, however, with marked evidence of the disease.

Spasmophilia.—Sometimes a tendency to contraction and spasm exists in poorly nourished infants.

Cerebro-spinal meningitis of the epidemic type may simulate polio with its sudden onset, vomiting, high fever, prostration, rigidity of neck and extremities, drowsiness with irritability and hyperesthesia. Later spasticity and increased reflexes contrast with the usual flaccidity and absent reflexes. The pressure and amount of fluid is much increased. It is turbid or cloudy with polymorphonuclear cells predominating. Stained smears will show the meningococcus. In meningitis caused by other organisms the findings are much the same except that different organisms will be found. The albumin and globulin are usually much increased.

Case 90.—Seen September 8th during the polio epidemic. She fell a week before, received a small wound on the elbow which became infected. The onset, September 6th,

was with fever, vomiting, prostration, and rigidity of the neck. Examination showed a temperature of 106 degrees, a semi-comatose condition, the back and neck were rigid and hyperextended. Kernig's sign was positive right, negative left. Knee jerks were exaggerated. The spinal fluid was increased in amount, contained blood from the puncture, clotted very quickly. Globulin tested double plus. Fehling's solution was reduced. The State Laboratory reported gram negative diplococci in the smear.

Meningismus may occur in inflammatory and infectious diseases with meningeal symptoms, drowsiness, retraction of the head, and rigidity of the neck. The diagnosis is difficult. The spinal fluid may be under increased pressure, but inflammatory changes are not found.

Summary.

I. Paralysis is only an incident occurring in a certain percentage of poliomyelitis infections, and apparently the only sequella of the disease. A majority of all cases never develop paralysis.

II. It is difficult to distinguish polio from other general infections before meningeal symptoms develop.

III. In time of epidemic any temperature, especially if accompanied by vomiting, constipation, headache, stiff neck, painful spine, or hyperesthesia should be tentatively diagnosed as polio and the diagnosis established by one or more lumbar punctures.

IV. Lumbar puncture with chemical and microscopic examination of the spinal fluid, considered in connection with the history and clinical findings, enables one to make a differential diagnosis in practically every case.

V. Control of infection and successful serum treatment depend on the earliest possible diagnosis.

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TREATMENT OF POLIOMYELITIS WITH IMMUNE SERUM.*

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IN September, 1916, one of the members of the Vermont State Board of Health received a very generous donation from Dr. Lee, of New York City, which was given for the purpose, and enabled the State Board to treat, free of charge, cases of poliomyelitis occurring in Vermont with immune serum.

As I was working in their research laboratory for the study of poliomyelitis the privilege of doing this work was assigned to me.

I visited the Westchester County Isolation Hospital and wish to thank Dr. Amoss and the members of the staff for their kindness to me, and to acknowledge the great help I received from them as to preparation and administration of serum.

The preparation of the serum used in the cases which I will report was briefly as follows:

Collected asceptically, allowed to clot, serum separated to which 0.2 per cent of tricresol was added and allowed to stand for 24 hours, filtered Berkfeld N, transferred to hermetically sealed glass tubes and kept on ice.

Blood was collected from persons who had had the disease in the summers of 1914 and 1915, all of whom were otherwise healthy.

Mode of Administration.

Serum was given intraspinally by gravity method, and subcutaneously and intravenously.

In all cases the clinical diagnosis was confirmed by microscopic and chemical examinations of the cerebro-spinal fluid.

All of the cases were field cases. Most of them were in rural districts in widely separate parts of the state.

(For "Summary of Cases That Received Serum Treatment," see page 280.)

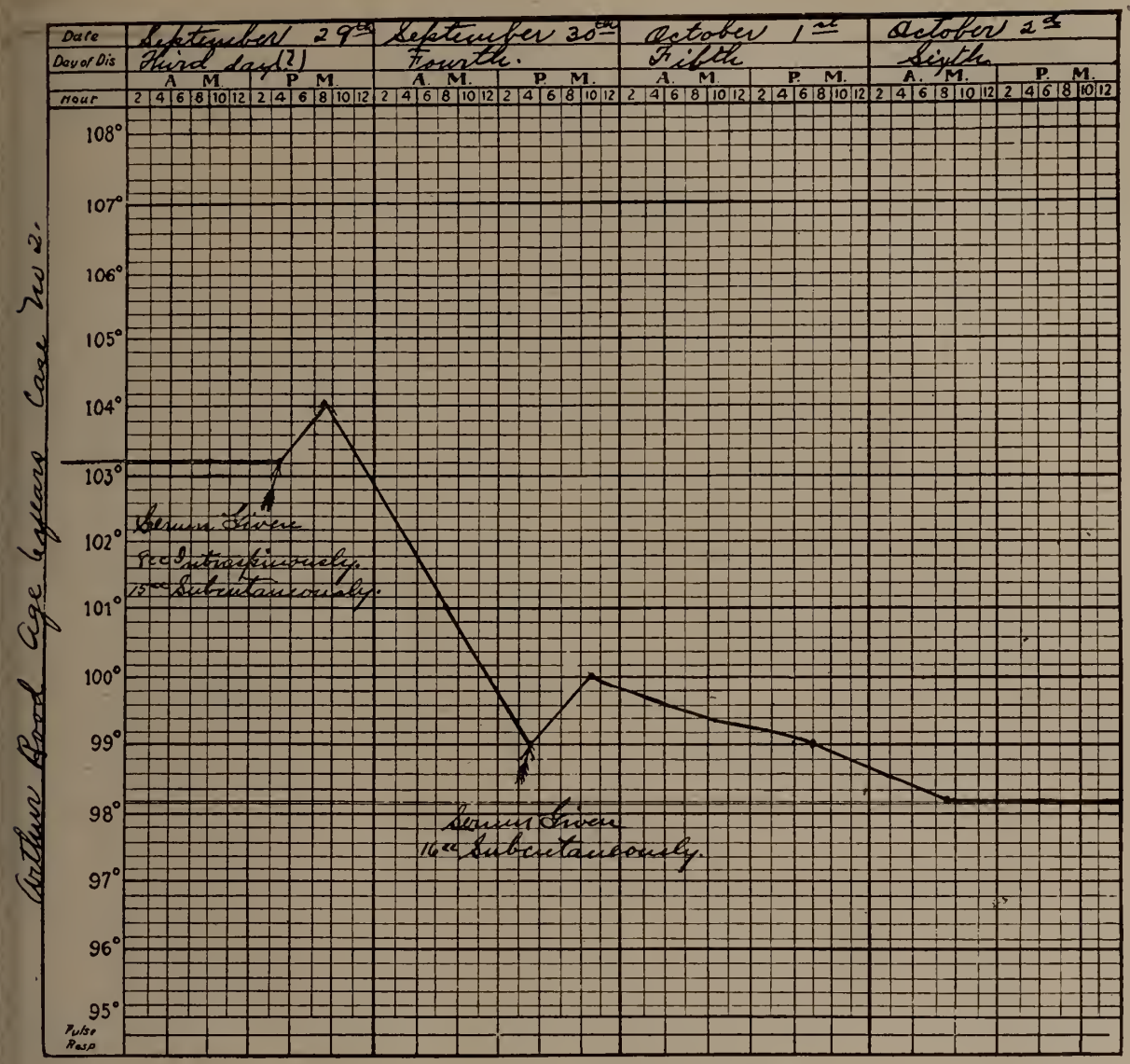
Discussion.

Of the nineteen cases treated two died. One of these was practically in extremis at the time treatment was begun, 96 hours after onset of disease. Three were negative. The serum having been given, 164, 192 and 288 hours after onset of the disease at which time the temperature was normal and paralysis definite and marked. Serum was given to see if there would be any temperature reaction at that time. There was none.

In practically every case that received serum during acute febrile stage there was a definite temperature reaction within a few hours, namely a rise in temperature, some-

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 26, 1917.

Case No.	Age Yrs.	Clinical Condition	Spinal Fluid		Time Between Onset of Disease and Tr'tm t	Serum Administration			Temperature Before Treatment	Time Between Tr'tm't and Normal Tempt.	Total Amount of Serum Given	Results	Remarks
			No. of Cells	Globulin		Subdural	Subcutaneous	Intravenous					
					Hrs.	cc.	cc.	cc.	F.	Hrs.	cc.		
1	26	Marked weakness of right quadriceps and left gastrocnemius	None	++	144	22	..	..	102	..	22	No progress of paralysis. Subsequent improvement.	
2	6	Left facial and right deltoid paralysis	50	+	72	8	31	..	103	24	39	Recovery complete.	
3	12	Right quadriceps paralyzed	60	+	24	8	43	..	102	40	51	Weakness right quadriceps. Subsequent complete recovery.	
4	6	Slight facial and weak right anterior thigh muscles	35	+	24	9	32	..	103.8	60	41	Slight weakness right quadriceps. Subsequent complete recovery.	
5	5	No paralysis	50	+	12	12	22	..	102	32	34	Complete recovery.	
6	9	Paralysis of bladder, marked general hyperesthesia, weakness leg muscles	..	..	72	8	22	..	101.4	48	30	Marked improvement of hyperesthesia, bladder normal 4th day. Subsequent improvement marked.	
7	3	No paralysis	45	+	12	6	17	..	101.6	24	23	Complete recovery.	
8	4	Slight facial paralysis. Favors right leg	..	+	30	..	30	..	102	48	30	Complete recovery.	
9	6	Partial paralysis right anterior thigh muscles. Weakness of abdominal muscles	230	+	24	10	15	..	102.4	60	25	No progress of paralysis. Subsequent complete recovery.	
10	8	No paralysis	225	+	24	10	25	..	103	48	35	Complete recovery.	
11	7	Weakness several groups muscles both legs	None	++	120	10	30	..	102.6	80	40	Very little weakness in anterior muscles thigh and leg.	
12	7	Intensely alert. Weakness of arms. Ataxic gait. No definite paralysis	600	+	24	10	30	..	102.4	..	40	Died 43 hours after treatment. Paralysis both arms and muscles of respiration.	
13	3	Paralysis several muscle groups right leg	None	++	164	..	15	..	Normal	..	15	Negative.	Given to see if there would be any temperature change. There was none.
14	10	No paralysis. Stupor, but could be aroused	50	+	72	11	94	..	104.2	110	105	Partial paralysis subscapularis.	
15	7	Weakness several groups leg muscles, slight intercostal	None	++	192	7	7	..	Normal	..	14	Negative.	Given to see if there would be any temperature change. There was none.
16	13	Extensive paralysis of all extremities and intercostals	None	++	288	..	30	..	Normal		30	Negative.	Same as above in case 15.
17	2	Left deltoid paralysis	100	+	96	8	26	..	102.4	40	34	No increase of paralysis.	
18	17	Delerium, partial paralysis all extremities, respiratory difficulty, paralysis bladder	60	++	80	15	80	15	103.4	55	120	No increase of paralysis.	
19	5	Comatose, right facial, laryngeal and diaphragmatic involvement	100	++	96	8	53	..	104.5	..	61	Died. Paralysis muscles of respiration 14 hours after	



Case No 2.

times as much as three degrees. This was noted after first and second doses, even after so small a dose as 10 c.c. subcutaneously. (See cases Nos. 2 and 5.)

In six cases there was no further progress of paralysis with improvement more or less marked. The remaining eight cases recovered completely.

Grand Isle Cases.

A most interesting series of cases occurred on Grand Isle. Grand Isle is, as you know, an island in Lake Champlain.

The original case there had definite contact history from an infected point. And from this case there developed 12 positive cases within three weeks, most of whom had traceable contact history.

Four of these cases did not receive serum, two of which completely recovered. One has marked residual paralysis in all extremities. One died.

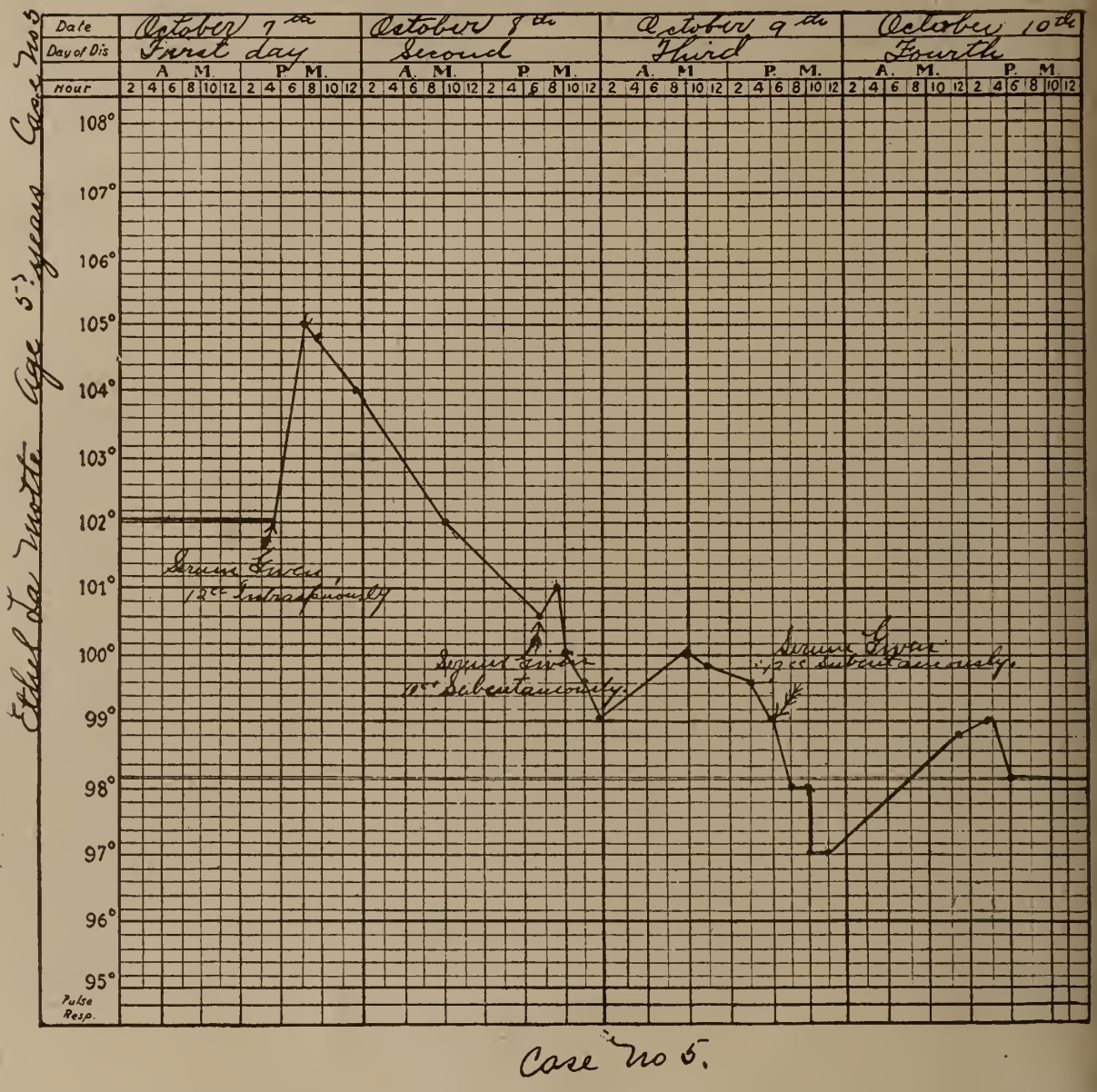
The remaining eight received serum treatment. All of these eight can be classified to date as complete recoveries.

Conclusions.

1. Serum taken from cases of three years standing appears to influence the course of the disease.

2. Serum prepared as described, can be administered intraspinally by gravity method, and intravenously without danger, if well known rules of precaution are observed.

3. Serum should be administered both intraspinally and intravenously.



4. Early diagnosis confirmed by microscopic and chemical examination of cerebro-spinal fluid, followed by administration of 30 c.c. or more of serum give best results.

5. The administration of serum after the acute febrile stage is over and definite paralysis had developed is useless.

Discussion.

DR. EDWARD CLARK, BUFFALO: In the early part of August, 1916, I was directed by Dr. Herman M. Biggs, State Commissioner of Health, to report at the Willard Parker Hospital in New York for the purpose of studying poliomyelitis. While at the Willard Parker Hospital I had an opportunity to see about 400 cases of poliomyelitis of various types; while there I also became familiar with their method of doing lumbar puncture work for purposes of confirmatory diagnosis. On the 15th of August I was directed to go to Middletown, Orange County, N. Y., to open a branch office of the State Department of Health from which the work of handling and controlling the poliomyelitis situation in Rockland, Orange, Sullivan and Ulster counties was directed. In this work I was associated with Dr. Charles W. Berry and Dr. John A. Smith, Sanitary Supervisors in the State Department of Health. There were assigned to the Middletown office also three nurses who were engaged in doing field work. It may not be generally known, but the four counties above mentioned are the summer boarding house district for a large part of New York's great east

side; it is estimated that five or six hundred thousand people, including a large number of children, spend a part of the summer in the above named counties, particularly in Ulster and Sullivan counties. Sullivan County itself is largely the summer boarding district for the Jewish people from lower east New York.

In these counties up to the time of my leaving there had been reported approximately 480 cases of poliomyelitis. During the time of my connection with the office we had reported to us 264 cases, of these 152 were males and 112 females; 50.3 per cent of the cases occurred in children between the ages of 1 and 5 and 33.6 between the ages of 5 and 10; 10.6 per cent occurred between the ages of 10 and 15; 3.1 per cent occurred between the ages of 15 and 20; 2.2 per cent occurred between the ages of 20 and 25; .74 per cent occurred between the ages of 29 and 30. Among adults over 30 years of age, 3 cases occurred; all males, one 37 years of age, one 47 years of age, and one 51 years of age. The mortality rate in these four counties was about 20 per cent, the fatality seeming to increase with the ages of the patients. In the early part of the epidemic children mostly were affected, but as the epidemic progressed the cases among older persons seemed to increase.

The epidemic of poliomyelitis which prevailed during the summer and fall of last year was marked by two features which make it almost unique in the history of epidemics of this disease, these features are the widespread prevalence of the disease with the large number of cases reported, and the very high mortality rate. A study of the reports of different epidemics of poliomyelitis which have occurred during the past twenty years reveal the curious fact that the symptoms of the disease seem to vary largely in the different epidemics. In 1912 in the epidemic which prevailed in Western New York, I had an opportunity to observe quite a number of cases, and at that time gastro-intestinal disturbances marked by diarrhoea and catarrhal conditions of the nose and throat were quite common. In the recent epidemic these conditions were not frequently found. Of the 264 cases reported at the Middletown office during my connection with it, 85 per cent had constipation, in many cases of a very obstinate type; about 90 per cent of the cases had marked rigidity of the neck, so that it was almost impossible to flex the head upon the sternum even to a slight extent without causing the patient severe pain. Drowsiness was a marked character in about 65 per cent of the cases. Nausea occurred in about 80 per cent of the cases, and vomiting occurred in about the same number of cases. The vomiting was not of the projectile type which we frequently see in cases of meningitis, but it was a vomiting which seemed to be induced by the administration of food or some unpleasant tasting medicine. Many of the patients would complain of a good deal of pain in the back and limbs upon being handled, but if left alone they did not complain of very much pain. All of the cases commenced with initial fever running all the way from 100 to 105 deg. Fahrenheit. Delirium occurred in a very small number of cases which I observed, and, as a rule, mentality was intact. Some authors have attached considerable importance to a peculiar and profuse sweating of the patient which was a marked symptom in some of the former epidemics. I did not observe this symptom except in a very few cases. Very few of the patients complained of sore throat, although the fauces and tonsils in many cases were very red. A peculiarly coated tongue was observed in a large number of cases, different from any coated tongue I have ever observed, and for want of a better name I called it the P.P. "paste polic" tongue on account of its peculiar appearance, particularly if seen early; the tongue looked as though ordinary office paste had been spread on it very carefully, just as you would spread butter on a slice of bread; later on, the color changed and the papillæ of the tongue would show around the edges. The Kernig sign was present in very many cases, either in both or one leg, the patellar reflexes early in the disease were sometimes exaggerated, later on they would be absent either on one or both sides.

The Babinski sign and the Brodzinski sign could be elicited in a small proportion of the cases, and in those cases in which there was a good deal of meningeal involvement with evidence of intra-cranial pressure, a positive Mac-Ewen sign was occasionally observed.

In my experience the severity of the onset affords no criterion as to the amount of paralysis which will occur in a given case, many of the cases which had very high initial fever, where the patients were exceedingly nervous and irritable, would turn out to be of abortive type of the disease and would quickly recover with no resulting paralysis. Different observers and writers have made a large number of classifications of different types of poliomyelitis, but I have put the cases which I have observed into three different classes, first the abortive, in which no resultant paralysis occurred; second the spinal type; third the bulbo-meningeal type. This last type takes in all the cases in which there seems to be a good deal of meningeal involvement and affects the nerve centers high up. In this type we would get quite a number of cases of facial paralysis, paralysis of the muscles

of the eyes, paralysis of the muscles of the throat, etc.

Spinal puncture was resorted to in a number of cases as a therapeutic measure, particularly in those cases which showed the effects of cerebral involvement with inter-cranial pressure. This method was also resorted to in a number of cases for confirmatory diagnostic purposes. The spinal fluid in poliomyelitis, if unmixed with blood is always clear. If the case was one of poliomyelitis, and if the puncture was made early in the disease, an increase in the number of monocular lymphocytes was observed. This increase was variable, ranging from 15 to 20 per cubic milimeter up to hundreds, the globulin or Noguchi reaction was always present, and if the case was poliomyelitis a positive Fehling reduction for sugar was always observed. It is important in making examinations of spinal fluid for the cell count to see that the fluid is obtained in a thoroughly sterile manner and received in a sterilized test tube, and free from blood, and the cell count should be made just as quickly as possible after the fluid is withdrawn from the spinal canal. In order to do this we used a portable microscope, so that we had an opportunity to examine the fluid within a very few minutes after it was obtained.

I have talked with very many physicians who seem to labor under the impression that every case of poliomyelitis which occurs must necessarily be followed by more or less paralysis; this is an erroneous impression, because there are a great many of the so-called abortive cases, or as some would call them, pre-paralytic, which are cases of true poliomyelitis and can be diagnosed as such by a careful study of the clinical symptoms together with an examination of the spinal fluid. In most of the cases that proved fatal, death was caused by paralysis of the muscles of respiration.

Dr. Frederick W. Sears, Syracuse: I have been thinking over our hospital experience in Syracuse; our observations were very satisfactory in the majority of cases. Our hospital is ideally constructed for polio cases with pavilion, open air, etc. We had no deaths in the hospital cases after seventy-two hours of patient's entrance—all deaths occurring were within seventy-two hours after admittance. In regard to the quarantine, I think it should be shorter—and without material disadvantage. If we could make a quarantine as little troublesome to people as possible, we will be able to obtain better cooperation, and they will be more reasonable. I believe that infection takes place either just before the onset or in the early stages of the disease. About convulsions and vomiting, we have not had much of this in our cases. We did have a few cases, but they were not persistent vomiting. Constipation was the most constant feature of our cases.

Dr. Brainerd H. Whitbeck, New York: In this state, we have had two great epidemics, 1907 and 1916. In 1907 the public were in ignorance of what was going on. In 1916, when the public knew what was going on, they became hysterical and greatly interferred with the work of the doctors. The people object to quarantine very strongly. Although this was longer than really necessary, it did a lot toward controlling the epidemic. In 1907, with the lack of control and system, the majority of cases were neglected. This proves the importance of an organization such as Dr. Whitman spoke about.

Dr. Paul B. Brooks, Norwich: With reference to the effect of hospitalization upon the mortality, it has often seemed to me that the excitement and commotion incident to removal to the hospital, reacting upon an inflammatory condition, in some instances at least, has an unfavorable effect upon the patients.

In regard to infection, my own feeling has been that two most important agencies in the spread of the disease are adult carriers and flies, the latter chiefly through the infection of food.

Dr. Clifford R. Hervey, Oswego: Great difficulty is experienced in attempting to trace contact cases in communities of any size at all. It was almost impossible to trace contact in the larger places, while in the rural districts it could be traced easily. We have no data to estimate the amount of the collateral disease which accompanied this epidemic. This is important as it may show the amount of immunity now existing. There was a great epidemic among children, with headache, constipation, vomiting and fever, previous to and during the polio epidemic. This epidemic was possibly due to polio in its subparalytic forms, and may account for wide gaps between positive cases, and also immunity over wide districts. Relative to hospital treatment of these cases, I would say that to excite a child suffering from this disease is to make it worse. I saw children who were apparently recovering made worse by taking automobile rides and by exertion. And to carry a screaming child from its home is in my opinion a bad procedure. Again it is best to get children away from some homes.

Dr. Matthias Nicoll, Jr., New York: In regard to the age of greatest incidence, there were a larger number of cases under five years

affected in the City of New York than in the rest of the state. This could hardly be accounted for by "missed" cases in the state, in view of the large number of extra diagnosticians employed; and in towns, villages and rural communities the illness of a young child is fully as likely to be brought to the attention of public health authorities as in the tenement house districts of large cities.

As regards hospitalization, a very much smaller number of children in the state outside of the city were sent to hospitals than in the city of New York. It is a great question whether a number of children were not harmed by removing them to hospitals in the acute stage of the disease.

Regarding quarantine: I personally am in favor of a strict quarantine of three weeks, and believe that that period will be recognized as sufficiently long to protect the community, especially in view of the fact that it will be possible to keep a rigid quarantine for three weeks, which cannot be done in many cases for a longer period.

Regarding flies as transmitters of disease, it is my opinion that they act as mechanical carriers over short distances, although I have no scientific proof of that statement.

Dr. Harold L. Amoss, New York: With regard to the presence of the virus in the nasal washings of persons in contact with cases of poliomyelitis, it should be borne in mind that our method for the detection of carriers is at best a crude one. Therefore, a few positive results should be accepted as evidence, even in the face of a large number of negative results.

The virus which is present in the nasal secretions of contacts is, of course, of human origin and it is well known that a considerably larger amount of human virus is necessary to produce the disease in monkeys than virus which has already been accustomed to growth in monkey tissue. Moreover, since we have no method for the direct cultivation of the virus from nasal secretions, it is necessary to inject these fluids into the monkey, and in order not to cloud the result, other organisms present in these fluids must be removed. In order to do this, passage through Berkefeld filters is restored to, and this process is known to remove a part of the poliomyelitic virus. We have improved the method by the use of sodium bicarbonate, filtering, reducing to small volume at low temperature *in vacuo*, and finally, dialyzing and injecting the resulting fluid subdurally into monkeys. By these procedures we are able to detect one-fifth as much virus as was possible by the older method.

In applying this method in the field we have not obtained any great number of positive results. In the light of recent work with Dr. Edward Taylor in Vermont, a part of our negative results can be accounted for by the presence in nasal secretions of normal adults of substances known to have the power of neutralizing or rendering non-infective the virus of poliomyelitis.

CANCER OF THE BLADDER.*

By JAMES A. GARDNER, M.D., F.A.C.S.,
BUFFALO, N. Y.

CANCER in any part of the body is disheartening, but cancer in the bladder is most discouraging. The only hope for cases of cancer in the bladder lies in early diagnosis. It is estimated that half the tumors of the bladder are malignant. The papillomas which form the greatest share of the remainder are potentially so, although they may remain for many years benign. Watson has reported one case of papilloma existing for thirty years, though becoming malignant in the end.

It is not because of lack of symptoms that bladder tumors come late for operation. Blood in the urine should be investigated at once and its source found. Its cause may be trivial but it may not be. Its cessation after some medication is not indicative of lack of seriousness. In most cases the bleeding is at first more or less intermittent. These cases should be cystoscoped at once. If at the time of examination there is no bleeding and the cause is not found, which occasionally occurs, they should be examined again when there is a recurrence. Bleeding occurs as a symptom of a number of urological conditions and if it were only accompanied by sufficiently severe pain and temperature to alarm the patient it would inure to his benefit. The great tendency, however, is to wait and see what happens.

In all cases of cancer of the bladder, hemorrhage is the preliminary and frequently the only early symptom. It is not continuous and may be absent for long periods. Microscopic blood in the urine and an abundance of epithelium during the intervals is very suggestive of bladder tumor. If the physician could be impressed

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with the absolute necessity of routine examination of the urine and if albumin is found a microscopic examination made, many cases would be recognized early enough to give them a chance. A hundred dollars expended for a microscope and a review of the technique taught him in college would be the best investment many a busy doctor could make. He would be of much greater value to his patients and from a monetary standpoint would be much better off himself because he would discover urinary complications that otherwise he would overlook. Many a patient has been lost because in the hurry the specimen of urine was not examined. Another man examines the urine and by so doing makes the diagnosis and gains a patient. Pain is one of the later symptoms and may not occur until there are clots large enough to cause difficulty in voiding. If the growth is situated near the neck of the bladder there may be early frequency, otherwise frequency will appear only when a cystitis has developed or clots have formed.

This paper seems to place the blame on the general practitioner for not recognizing cancer cases early. I do not feel that he alone is to blame. We who follow special lines of work realize the necessity of early diagnosis and if we are to give material assistance to the patient it is our business to guide the general practitioner along the lines that we have found to be important. Without his help we cannot expect to make headway but with proper teamwork no reason exists why the same results cannot be achieved as in early operations on cancer of the breast.

Diagnosis.—The advantage of ascertaining the source of hemorrhage will be appreciated if we remember that upon early recognition depends the success or failure of the treatment. Diagnosis cannot be made by the miscroscope alone. The cystoscope is absolutely necessary. The more expert the cystoscopist the greater the chance of making a diagnosis if a bladder tumor is found. In border line cases a piece of tumor can be easily removed for pathological examination. There are diverticula of the bladder containing tumors, which only X-ray examination of the distended bladder with argentide or some other opaque substance will show.

Stress is laid on early diagnosis because the whole course of treatment depends upon this point. If a benign papilloma is found which is easy of access, I believe fulguration should be tried. Many brilliant results of this method of treatment have been reported. It is much more satisfactory than the open method. It does not confine the patient and there is less chance of recurrence. If on the other hand there is any suspicion that the growth is malignant, an immediate operation is advised.

Treatment.—The intelligent patient always wishes to know if there is no other alternative than surgery in treating his case and what are his chances of recovery. This depends on the diagnosis. If a diagnosis of benign papilloma has been made, fulguration by Beer's method has many advantages because of its simplicity and obviation of hospital care and confinement. Beer has reported 342 cases and I collected (Annals of Surgery, Oct., 1915), seventy-one cases treated by this method. At that time ninety-six cases of papilloma treated by excision of the growth were reported. Recurrence was shown to be much more frequent when the open method had been used and freedom from recurrence greater when fulguration had been the method of choice. In the collection of 1702 cases of bladder tumors made in 1915 (Annals of Surgery, Oct., 1915), 666 cases of carcinoma of the bladder were reported, of which 224 had a partial resection of the bladder. In 442 cases excision of the growth was performed. *It was shown that the mortality was lower, recurrence much less, and freedom from recurrence much greater when partial resection of the bladder was performed.* This series of partial resection included a series of sixty-three cases in which the transperitoneal method was used with a mortality of only 10 per cent; absence of recurrence at the end of three years, 33 per cent, and three patients living five years after operation. Thus statistics show that a wide resection of the bladder wall either by the transperitoneal method as used in the Mayo clinic or subtotal cystectomy of Squier offers the best method of treatment in carcinoma of the bladder.

Cystotomy and excision with knife or actual cautery should only be used in terminal cases to relieve pain and hemorrhage. In operations upon bladder tumors it is of the utmost importance to be guided by cystoscopic examination, as most of the tumors are situated near the ureteral openings. Catheters should be inserted when possible both to facilitate finding the ureters and also if the growth is small to help in locating the growth. In a collapsed bladder a small indurated area is difficult to find and often overlooked.

The abdominal incision should be from the pubes to the umbilicus so as to give ample room. If the operation can be done extraperitoneally I think it is the method of choice. After the abdomen is opened with the patient in the Tren-

delenberg position the ureter on the side of the growth is located and freed so that if it is necessary to transplant, it does not have to be done after the bladder is opened. The peritoneum having been carefully pushed back from the bladder and any tears in the peritoneum repaired, the bladder can be almost lifted out of the abdomen. The incision into the bladder should now be made beside the growth. Hagner has suggested a technique for outlining the growth by sutures before the bladder is opened. The integrity of the bladder should be conserved as much as possible. The greater the care in removal the less chance of recurrence. The less sponging the better, because of the danger of transplanting fragments. As soon as the opening is made, the surface of the growth should be seared with an actual cautery. This stops bleeding as well as guarding against spread of infection while removing it. When the growth has been outlined, if it is in the posterior or lateral walls, a wide resection is made. Handle the growth as little as possible. If at this time it is found that the ureter is involved, the ureter is tied off and cut and transplanted in that part of the bladder which will cause the least tension. A couple of sutures will hold it. The bladder is closed with two layers of sutures, a separate stab wound as suggested by Squier is made in the most superior part of the bladder and a Pezzer catheter inserted for drainage. This method of drainage does not permit the drainage tube to interfere with the line of sutures which sometimes causes the incision in the bladder to open. An indwelling catheter is placed in the urethra for three or four days to insure complete drainage. It is quite astonishing how much of the bladder can be removed and the remaining part stretched up in a few months to a capacity of ten or twelve ounces.

If the growth is found to have involved the neck of the bladder it will be impossible to do a partial resection. A total cystectomy is the only method to afford relief. The ureters should be transplanted into the bowel, doing this in two operations so that if there is an ascending infection in either one, there will be one good kidney. The prostate and neck of the bladder should be attacked by the way of the perineum and after these have been dissected free, the total cystectomy carried out from above is easily completed.

Among the other methods of treatment of cancer, radium is making great strides, but up to the present time it has been used only in inoperable and in post-operative cases. It stands in the same class as X-ray but is easier to use in the cavity of the bladder or in the rectum. It is so powerful that it can easily cause a slough of the bladder wall so that a number of vesico-rectal fistulas have been reported. Radium cannot compete with surgery in its results, but patients should be given an opportunity to have radium treatment as a palliative measure. Many cases have been made more comfortable and their lives prolonged for a time by its use.

In cases that have been operated on even though there are returns and the results are discouraging the operation has given the patient a chance. Many of them have gained months or years in their span of life and if there is metastases in the abdominal cavity with the general weakness and malnutrition there is much less pain and suffering than in a malignant ulcer of the bladder with the frequent urination.

Conclusions: The only hope for cases of cancer of the bladder is early diagnosis.

Blood and pus in the urine should be investigated and its source found.

Early cystoscopy which makes a diagnosis will enable us to decide on the best method of treatment.

In benign papilloma fulguration should first be used.

Wide resection of the bladder offers the best results in cancer.

Discussion.

Dr. James N. Vander Veer, Albany: To my mind the discussion of this paper should fall under four heads:

(1) The general proposition of cancer in all other parts of the body.

(2) The local proposition of cancer involving the bladder.

(3) Operations of any type for cancer in all other parts of the body.

(4) Operations of any type for cancer locally in the urinary bladder.

(1) It is for us as medical men to discuss more freely among the laity and general medical men and especially to impress upon them, and to disseminate knowledge among them, and in every proper and ethical manner to awake all to the ravages of this disease. Gynecologists, by literature, lay talks, and the right kind of lectures have done much these last few years to prevent and alleviate the problem of cancer of the cervix. It is our duty to do the same for our class of patients and impress upon them the certain salient facts which should be danger signals.

(2) It would seem that the cardinal symptom of this disease has been passed by too often by the average professional man. That symptoms is *blood in the urine.* Too often, even a well-edu-

cated and careful physician gives only too little weight and judgment to this feature and prescribes a styptic or hemostatic with a curt dismissal to come again when the hemorrhage reappears. Would that we had no styptics or hemostatics in our pharmacopeia, but were obliged to use our hands for work and our brain for reasoning to stop this hemorrhage. In over 50 per cent of pathologically advanced cases of cancer in this viscus there is a hemorrhage, which may stop of itself through nature's own efforts, *only to return*, months or even years later, when the verdict is *"too late!"* Could those who see this patient with hemorrhage, three or four days after it has ceased, many a one would have to undergo but the simplest treatment to be made well. One of my recent cases went for six months between the first and second hemorrhage periods and when seen by me was in the "too late" stage for any work whatsoever. Such a proposition as cystoscopy being for the best when used immediately, is self evident and yet Dr. Gardner seldom sees a hematuria case right after the bleeding ceases. This, I judge from my own experience. How utterly do we fail in our ideals. Our education and good resolves are there but we forget the simple, every day advice for our patients. As special surgeons limiting our efforts to this tract in the human body, we are obliged to teach over and over again, and still again, this fact to almost every physician who brings a case to us. And why do we repeat and repeat? Because nearly every time we ascertain that the patient has had known previous hemorrhage at some period of months or years previously, and that his physician has not sensed it, or has only touched so lightly upon it as to allow the patient to go away, unimpressed with its importance.

(3) It is well known now among the lay people through constructive education that cancer in its earliest stages can be easily overcome by many and various means of treatment, but that in the later stages, recovery is dubious. And hence those of us who follow this specialty find persons occasionally coming to us *now*, of their own free will seeking a true *diagnosis*. This cannot be said to have occurred in years past. The types of operations or treatments for cancer of other body parts are well known to you all as general surgeons and need no recounting.

(4) The third heading, from any conclusions which may be drawn, would lead one to suppose that operation for cancer in other parts of the body in the hands of the same man could be made to fit into operations upon this special part. Not so. We are driven to more serious thought in an operation upon the urinary bladder than upon the female breast. In the main we must consider the growths as to:

(a) Location. Presenting problems of repair, drainage and like questions.

(b) Extent of growth.

(c) Involvement of intracystic or percystic types, alone or together.

One might say these were all of the same question. To handle them by any thorough and successful operation requires special study and careful preliminary and experimental operative work. The best classification for operative procedures I believe to be that of Squiers, read before this Society in April, 1915. I will not burden you with the details. Excision of the tumor with wide margin even to free ureteral transplantion and an attempt to remove all palpably enlarged glands offers the only hope of permanent cure. Some few years ago when I was doing general surgery, I was asked by a physician to help a poor woman who had a left inguinal colostomy. Her history showed that at her first operation for hysterectomy five years before the surgeon had unwittingly severed the sigmoid completely. From then, until I saw her, she had undergone twelve abdominal sections.

Investigation with X-ray, etc., revealed a rectal pouch and portion of sigmoid lying low in the pelvis. I did the thirteenth operation, closing the colostomy and loosening up the distal and proximal ends of the sigmoid and bringing them together. As I was handling the distal portion way down deep in the pelvis and loosening the adhesions, the thought struck me, "Now our radiographer informed me this pouch and portion of sigmoid held thirty-eight ounces of barium solution, why wouldn't it make a fine bladder? Here after five years it seems to be perfectly sweet and clean." Hence when I am called upon to do a sub-total cystectomy I shall attempt a left inguinal colostomy, tie off the sigmoid and drop it and the rectal pouch into the pelvis. Then a few weeks later I shall do my bladder work and transplant my ureters into a natural pouch which has meanwhile been prepared to receive them, and I believe my patient will stand a chance for a longer life. I have never attempted it because I have yet to see a patient who does not fall into one of two classes, those who are fit for partial resection of the bladder, and those who are "too late."

DR. ALFRED M. WOSE, Syracuse: Personally I hardly believe in benign papilloma of the bladder. We speak of tumors of the bladder being benign or malignant. If they are benign they are fulgurated. I have watched benign tumors, if there is any recurrence I class them as malignant and treat them thus accordingly. As Dr. Gardner has brought out, wide resection

of the tumor is the best thing. A lateral tumor involving the ureter may be removed with reinsertion of the ureter into the renovated bladder. On the other hand a total cystectomy may be required and this needs serious thought. If the tumor is situated on the vertex of the bladder it is relatively easy to do a sub-total cystectomy, but if the tumor is situated at the base or trigonum, what are we to do with the ureters? I am not convinced what to do with them. We may do a bilateral nephrostomy, or transplant the ureters into the rectum, or into the skin of the loins. That is an operation to be thought of preliminary to removal of the bladder. In my belief drainage from the ureters placed in the skin of the back has no advantage nor the equal of direct drainage of the kidneys. At the present time we are not able to transplant ureters into the rectum with success for fear of infection. I believe that total removal of the bladder for carcinoma is justifiable, and partial extirpation of the bladder with the tumor is better than extirpation of the tumor itself.

Dr. Thomas F. Laurie, Auburn: I would like to say a word in addition to what Dr. Gardner and Dr. Vander Veer have said as to early cystoscopic examination. It has been my experience to run across men and women who don't seem to know what a cystoscopic examination really means and they think it is a major operation, and that it is something that should not be attempted when there has been any bleeding. Patients can be cystocoped with no trouble at all and even if the findings are negative, you do no harm. If there has been bleeding, early diagnosis is made possible. In the case of cancer of the bladder, I have seen many cases made fairly comfortable by the use of the high frequency current.

Dr. James A. Gardner, Buffalo: I am very glad to have this amount of discussion. I feel that only by bearing this subject well in mind are we going to make an early diagnosis. When we see these cases early we can get better results, I can endorse what Dr. Vander Veer said, and though I have not seen anyone do it, it looks practical.

In answer to Dr. Wose. If you transplant a ureter in the loin of the patient, who at first will agree to anything to obtain relief, later suffers from irritation of the skin, the urinary odor disturbs him, and he is not so enthusiastic about his surgeon. When the ureter is placed in the bowel the patients go along fairly well. Some die, but those that survive live for some time.

ALKALINE CARBONATES IN URINE.*

By A. L. BENEDICT, M.D.,
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MOST text-books on the urine mention briefly the presence of minute amounts of carbonates distributed among the various bases, and effervescing on the addition of strong acid. This condition is, however, by no means frequent, and very seldom mentioned in clinical reports.

For about fifteen years as a routine, and for several years previously, occasionally, I have tested the acidity of the urine by titration with decinomal alkali using phenolphthalein as an indicator. In the ordinary run of normal and pathologic urines in medical practice, alkalinity is very rarely encountered, and the old idea of an acid and alkaline tide converse to digestive processes is a theory and not a condition. The assumption of alkalinity or greatly reduced acidity of urine converse to hyperchlorhydria is practically an error, though somewhat justified in a recondite sense. This statement should be qualified, however, with the proviso that my work does not include cystitis, except very rarely, that vaginal discharges are eliminated if at all marked, by catheterization or douching; that care is taken to examine the urine while fresh, and that alkalinity due directly to medication is discounted.

Ordinarily, urine runs from 20 to 40 degrees of acidity, i. e., 20 to 40 c.c. of a decinormal solution neutralizes 100 c.c. of urine. But, without absolute organic abnormality, there may be a variation from —10 degrees (10 degrees of alkalinity) to +100 degrees or even more.

In reading at the first appreciable tinge of color with phenolphthalein, we inevitably overrun the neutral point and urines of 10 degrees of acidity by this method may be considered as practically neutral, at least for present purposes, as they may contain carbonates.

Last winter, a case without urinary abnormality, except a slight indican reaction, furnished a sample just at the neutral point which effervesced briskly on adding HCl or HNO_3 the gas promptly extinguishing a match. This patient had not been taking soda or any similar carbonate.

Recently, another patient with chronic diffuse nephritis and a temporary cystitis of unknown origin (not gonorrhœic), was given a teaspoonful of sodium bicarbonate at night to counteract an acidity of about 50 degrees. In the morning the urine had an apparent acidity of 6 degrees,

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but effervesced briskly with acid. It may be stated in this connexion that solutions of $NaHCO_3$ yield by titration about half the alkalinity theoretically expected.

In the great majority of cases, urine rendered nearly or quite neutral, or even alkaline to phenolphthalein by administering sodium bicarbonate by mouth, does *not* effervesce with acids. Apparently, the alkali determines the preponderance of neutral or the presence of basic phosphates in the urine, instead of the acid phosphates usually present, but the CO_2 is eliminated by the lungs.

It is well known that urinary carbonates may be due to the administration of the same by mouth, or to the decomposition of vegetable acids or their salts, and hence, probably to the development or organic acids by fermentation in the alimentary canal. Given an alkaline base in the blood, there is obviously always an abundance of carbon dioxid in the blood available for combination to form a carbonate. Under these circumstances, it is remarkable that carbonates can so rarely be demonstrated in the urine, especially when soda has been given and when, with or without its administration, the urine has been rendered alkaline or practically so. These observations are offered with the hope that they will arouse interest in the problems implied, will lead to the accumulation of statistics as to the presence of carbonates in the urine, and an explanation of the factors preventing and favoring their appearance.

Discussion.

Dr. John M. Swan, Rochester: In cases of dysthyroidism I have found some urines that contain carbonates; that is in testing for albumin by the heat and nitric acid method, the precipitate thrown down by boiling dissolved with effervescence on the addition of the nitric acid. I have not gone into the question from a chemical point of view. I believe, however, that carbonates in the urine are comparatively common.

Dr. Thomas W. Jenkins, Albany: There is one thing that struck me forcibly, the amount of acid in the urine in connection with hyperchlorhydria, and it is my opinion that the reverse of what was told is correct; the urine in such cases is very low in acid, probably 5 to 10 degrees. When testing the urine one gets first of all results by using a sodic solution. The greatest amount of acid in the urine that amounts to anything is the lactate combined with ammonium and possibly other things. When the amino acids break down then lactic acid is formed. In rheumatic conditions the first acid formed is the lactic acid, which is neutralized by ammonia and eliminated in the urine as lactate of ammonia. Which is demonstrated in the urine by neutralizing the acidity due to the acid sodium phosphate, then adding formaldehyde solution which liberated the ammonia from its combination with lactic acid. Then testing the degree of acidity with decinormal sodic solution.

Dr. Allen A. Jones, Buffalo: What is the clinical interpretation when the carbonates are found in the urine?

Dr. John R. Williams, Rochester: Were these urines made from estimations of twenty-four hour excretions, or were they made from fresh samples only?

Dr. A. L. Benedict, Buffalo: Usually the examinations for acidity were made on fresh urines of small quantities. In some studies, at the end of twenty-four hours these samples were collected and reports calculated on the total. In diabetes and similar conditions the urine as passed was preserved by chloroform and an estimate was made of the total acid content by a single examination of the twenty-four hour quantity. I have seldom found the twenty-four hour collection of urine or even single samples to be alkaline unless rendered so by medication.

Dr. Jenkins brought out several interesting matters. With regard to hyperchlorhydria and the acidity of the urine, his experience has been exactly the reverse of mine. Shortly after a meal the gastric contents begin to enter the lumen of the duodenum and alkaline digestion goes on along with gastric digestion. As to the interpretation of the condition when carbonates are found in the urine, I do not know. There are many instances when the carbonates are found in the urine when patients deny taking any carbonates or alkalies of any kind, although some patients admit that they had taken carbonated waters.

I simply present these observations and frankly admit that I do not meet with one once a month; possibly in a year, seven or eight cases appear which show carbonates in the urine. Conclusions of real value might be obtained from accumulated experience.

SYPHILIS OF THE NOSE AND THROAT.*

By JOSEPH C. BECK, M.D.,
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ONE must assume an entirely different attitude today in the discussion of syphilis than formerly, not that the clinical picture has changed but on account of the etiological

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factor, the matter of diagnosis and treatment having made wonderful progress. The experimental proof of the transmissibility of the disease in all of its stages and the finding of the spirochete pallida in all types of tissues, such as lymph vessels and glands, blood vessels, muscle, bone, nervous system, skin and mucous membrane are entirely new facts. Certain areas of the body are the seat of predilection, and according to Julien's statistics 22.36 per cent of all syphilitic cases occur in the nose and pharynx.

We will discuss that disease under the following heads and subheads.

1. Nose.
2. Pharynx.
3. Larynx.

The Nose.

Primary chancre of the nose is usually considered rare. Sendziak up to 1900 collected 118 cases which were divided into thirteen cases of the alæ, bridge of the nose five, tip of the nose four, naso-labial fold four, junction of the tip and alæ two, vestibule near lip two, alæ near lip two, septum fourteen, inferior turbinate one, inner surface of alæ one. Seifert in 1906 reported on 249 cases and brought out how the infection occurred. This could be done in seventy-one of these cases. Fourteen by means of finger, twenty-three through taking care of and playing with syphilitic children, seven by being bit in the nose, six by catheterization of Eustachian tube, snuff and tobacco, each three; at parturition, by means of towel, handkerchief, foreign body in nose, kiss on the nose, blow of a key, pencil, while shaving, being expectorated upon, while sneezing, washing a syphilitic's clothing, by means of the amniotic fluid, each one case. Since that date there are recorded many more cases in proportion, because of the aid of spirochetæ and Wassermann test, which were not known at that time.

The clinical diagnosis of a primary sore is not always easy especially if it is within the nose. Only after thorough cleansing the surface of the dirty yellowish green crusts, will one come on to the indurated area, which appears somewhat gray. This may or may not bleed, and is surrounded by a markedly swollen and congested mucous membrane. The regional lymphatic glands are usually enlarged. The Wassermann may not yet be positive but often is. The finding of the spirocheta pallida from the scrapings of the surface will make the diagnosis positive. It will not be long before the secondary roseola will make its appearance.

The secondary stage manifests itself in the nose as an exanthema of a macular or papular type. Within the nose these reddish spots become frequently confluent and appear like any other form of coryza. It is often spoken of as coryza syphilitica. The only way one may differentiate it from a simple acute coryza, aside from the spirocheta and Wassermann, is that the secretion is not marked and the disease is more protracted. This form of secondary (acquired) syphilitic coryza must not be mistaken for the *hereditary syphilitic coryza of the newborn.* This is another syphilitic entity and is not a secondary process, but one expression of the manifold syphilitic infection of the newborn. At one time it was considered that this type of infection was not very easily transmitted, but now, since K. Bender and Dontiellepont have shown the spirocheta pallida, and such men as Meisser, Levaditti, Herzheimer and others have verified these findings, the secretions of these newborn syphilitics are considered highly infectious. There are usually great destructive processes going on in the nose and either a saddle or stump nose is very likely to follow as the terminal stage.

The tertiary stage is also known as the gummatous stage. There is no exact time given when a case may be considered tertiary, but according to Zerinko it usually affects the nose between the first and third, and eight and tenth year from the time of the primary sore. Neumann puts the time between the second and tenth years. There are cases on record, wherein not until forty years from the primary lesion did the tertiary symptoms develop, while in the cases of malignant syphilis the gumma developed almost immediately. A gumma belongs to one of the chronic granulas and is due to the irritative action of the spirochetæ. Small nodules form at first which coalesce and make up the mass. There is considerable new blood vessel formation and in these occurs a degeneration especially in the intima. It is known as endoarteritis obliterans. Once the mass has grown to its extent it begins to break down within its center, due to this blocking of blood vessels, and a cheesy mass takes its place. Frequently secondary infection occurs within the gumma, when it rapidly ulcerates. Gumma of the nose most frequently develops from the periosteum, and this soon blocks the Haversian canals of the underlying bone, which brings about bone necrosis. This causes much purulent discharge which is characterized by its very foul odor. This process leads to true sequestration of bone and sloughing of the cartilages. The defect resulting either in the septum, lateral wall or floor of the nose is always much larger than the sequestrum or swelling, which is due to the fact that the endoarteritis is much further developed peripherally. The rhinological picture of a syphilitic nose (ozena) is so well known to every physician, that there is no use to recapitulate it,

but suffice it to say, the nasal obstruction by these fœted crusts and discharge with very frequent exfoliation of small as well as large sequestra, and the eczema of the vestibule and upper lip make up the cardinal symptoms. At times the resultant sequestrum is so large that it cannot be removed in toto, consequently it must be broken up with a bone forceps and removed piecemeal. A piece of sequestrum may drop down or be aspirated into the larynx or bronchi and cause a great deal of trouble. The location of the tertiary lesion of the nose is no special part of the anatomy, although most of the cases appear to be of the cartilaginous septum. This, Neumann claims, is due to the fact that the primary chancre is usually located there and that tissues here have the least resistance. Another important symptom of the nasal gumma are the severe neuralgic pains which usually occur at night. There are also pressure pains present, which, according to Gerber, are characteristic of tertiary syphilis.

Pharynx.

We will consider the lesions of the naso-pharynx, oro-pharynx and hypo-pharynx together, since it is seldom that the process is confined to any of these regions. Next to the skin, the mouth and the pharynx are the most frequent location of syphilis in all stages.

Primary Stage.—It was Ricord in 1838 that first diagnosed a primary chancre of the pharynx, and Hapman in 1898 found in his 10,000 cases of syphilis, 428 of the tonsils and 81 cases of other portions of the pharynx. Some of the modes of infecting the pharynx are the following; named in their frequency. Kissing, feeding luetic infants by spoon from mouth to mouth, nipple infection of wet nurses from luetic infants, by means of unnatural coitus, transferred by means of pipes, instruments, particularly Eustachian catheters. It is not necessary that the object come in contact with the pharynx because the spirochetæ are carried by the saliva and lodge in the tonsillar crypts and other portions of the pharynx. The naso-pharynx is quite frequently the seat of the primary sore, usually due to the employment of infected Eustachian catheters. It was Furniere who first called attention to this type of infection. Chancre of the pharynx is seldom diagnosed early because it causes very little inconvenience and in many cases it is not recognized as such. Only after the secondary stage develops, four to nine weeks later, is the diagnosis made. It is the persistent inflammation, particularly at one point where the area becomes hard and indurated, that suggests lues. There is not much pain on swallowing. The regional lymph glands become enlarged and are tender. The breaking down of the chancre is characterized by a considerable swelling of its surrounding tissue which has a deep red color. The margins are sharply defined, however, and at times the chancre may be very deep and covered with a diphtheroid membrane.

Pathological conditions that may be mistaken for a primary chancre of the pharynx are:

1. A unilateral chronically enlarged tonsil with a superficial ulceration.
2. A unilateral acutely swollen tonsil.
3. Simple ulcer of the tonsils.
4. A single papule in a secondary lues.
5. A single small ulcer of a gumma.

The microscopic examination for spirochetæ, and the Wassermann in many cases will enable one to make a positive diagnosis, as will also a dose of salvarsan.

Secondary Stage.—This is known as the syphilitic angina and is first an erythema and later mucous patches. This erythema affects first the velum and hard palate but rarely the rest of the pharynx. It is a sharply defined redness, but it may occur in spots or streaks. It is this deep or even reddish brown that is its characteristic. Daylight is best for this determination. While this stage often lasts for weeks, it causes but slight inconvenience; perhaps the feeling of dryness and burning are most frequently observed. The papular form follows the erythema with no specific time limit. The first appear as small elevations of a deep red color, but soon coalesce. They may be superficial or deep even to the extent of appearing like granulations, known as hypertrophic plaques. Papules are most frequently found on the tonsils, anterior and posterior pillars, and on the velum palati, very seldom on the posterior wall of the pharynx or uvula. The lingual tonsil and the adenoid regions are also rarely involved. Papules cause very little if any trouble and are characterized by their chronicity and recurrences. Glands all over the body as well as skin syphilides are usually present by this time. Unless these papules are very deep, they disappear without leaving any trace or scars in that way differing from papules on the tongue and cheeks. There are cases of papules of the pharynx that last for years and often take on the appearance of a tertiary lesion.

The following pathological conditions may be mistaken for this second stage of pharyngeal syphilis.

1. Superficial cauterization, especially with agno 3.
2. Simple ulcerations of the pharynx, especially tonsils.

3. Aphthous pharyngitis.

4. Stomatitis catarrhalis, in which the pharynx is also involved.

5. Herpes pharyngitis.

6. Pemphigus.

7. Tuberculous ulcerations.

8. Pharyngitis and stomatitis mercurialis.

9. Vincent's angina.

10. True diphtheria.

Tertiary Stage.—Usually occur on the velum and pillars as well as the tonsils, but seldom on posterior pharyngeal wall or hypopharynx. The time of their occurrence varies, occurring usually within the first and second year after the primary lesion. There are cases recorded that developed tertiary lesion within a few months, and again some only after ten or fifteen years, the so-called latent syphilis, or, in the congenital form, the "syphilis hereditaria tarda." The lesion begins in the form of an infiltrate or nodule, which has a deep red color, and is sharply defined. Soon the center becomes soft and breaks down, forming an ulceration that has a sharp hard border, and is of a deep red color, the so-called punched-out ulcer. It is usually covered with a thick dirty yellowish white membrane. When this lesion becomes secondarily infected with pus microbes, in addition to the further progress of the gummatous change, there occurs the breaking down of the soft parts, destruction of bone, involvement of nerves and larger blood vessels. These changes lead to perforations, sequestra, hemorrhage and paralysis or intense neuralgias. These processes invariably extend to the naso-pharynx and nose as well as the larynx and trachea. Not infrequently does the process begin in the bone or periosteum itself, thus causing the so-called luetic tophi. The pharyngeal opening of the Eustachian tube, post choanæ, anterior surface of the cervical vertebræ, base of the skull, sphenoid and hyoid bones at times undergo such changes simultaneously with most terrific destructive results. Not infrequently will one observe marked swelling on the soft or hard palate, and if this is not recognized early the complete destruction of the soft palate and part of the hard palate will take place, giving a large palatal defect and change of speech. At times the process starts out very violently, but suddenly changes and disappears, due to the lack of strength of the syphilotoxin or natural antibody action against the process. It is also noteworthy that very vigorous antiluetic treatment, especially mercury and K. I., will work disastrously in a patient that cannot tolerate these remedies, particularly if suffering from tuberculosis; his digestive organs are irritated without absorbing the drugs. In other words if a patient does not do well locally on large doses of antiluetic remedies, they would better be discontinued and trust be placed in hygienic and dietetic treatment. In recent years the salvarsans have come in most valiently in these cases. In the majority of the tertiary syphilis, however, a cure is established by treatment, and gumma which have already softened in their center will resolve in many instances without leaving the least trace. Should ulceration take place, of course the typical radiating scars will result, depending on the extent of the ulceration before treatment was instituted. As a result of these scar formations and adhesions, the manifold deformities of the pharynx will be observed and new difficulties will manifest themselves f. i. simultaneous ulcerations of the velum and pillars with adhesion to the posterior wall of the pharynx will close off the nose from breathing and we will have the dull tone in speech (rhinolalia). If the cicatrization take place near the base of the tongue and pillars as well as the posterior wall of the hypopharynx, marked difficulty of the act of breathing, speaking and even swallowing will be manifested. There is a rare form of late syphilis that Chiaria particularly observed, which is very hard to diagnose from lupus, scleroma and tuberculosis of the pharynx. Its a multinodular form in which the healing process goes on side by side with the destruction. It lacks the deep red color and the punched out ulcer. It responds very readily to general systemic treatment, however.

The Post Nasal Space is not infrequently the seat of tertiary syphilitic changes and the recognition is of course by the post rhinoscopic mirror. One should be on the lookout in a deeply injected oro-pharynx, especially of the velum, for somewhat limited motion of the palate. The seat of the gumma is on the post surface of the uvula at its base and its contiguous soft palate. The speech is distinctly adenoidal and there is difficulty in nasal breathing, also a feeling of a foreign body back of the nose, which the patients have a constant desire to swallow. The region of the adenoid when involved usually stars from the periosteum of the vomer which, when it breaks down, may have a sequestrum that becomes very dangerous as a potential foreign body, which might drop into the larynx, etc.

Tonsils themselves will at times show gummatous and ulcerative changes, but as often they are the seat of chronic enlargement and hypertrophy, the crypts containing large amounts of material in which the spirochetæ can be demonstrated. Such tonsils must be removed since antiluetic treatment does not influence them very much. There may be observed a typical syphilitic tumor (syphiloma) of the pharynx that may

simulate a sarcoma very much, but treatment and microscopic examination will clear up the diagnosis. Also an ulcerated condition of the tonsil may leave a marked papillary irregularity of the surface that has been mistaken for carcinoma.

Larynx.

Chancre in this locality has been observed a few times and invariably on the epiglottis. Sarremone observed a case in which the primary lesion was on the right ventricular band. The characteristics do not differ except that the induration does not appear to be so marked.

In the Secondary Stage the same lesions obtain as in the nose and pharynx, namely patches or condylomata. At times the cords and ventricular bands become much infiltrated. While the epiglottis is most frequently the seat of these changes there have been observed mucous patches symetrically located on the vocal cords. Lacroix observed a case of marked œdema of both cords in this secondary transition. It may take some time before ulcerations begin and these are usually very superficial in contrast to the gumma. When the cords are the seat of the trouble and ulcerate, they may have a number of jagged edges known as the "cox comb" vocal cords of syphilis. Hajek says that erythema of the larynx cannot be differentiated from ordinary subacute laryngitis, but of course other secondary changes of the body help out in the diagnosis. Should one be able to get some secretions containing the spirochetæ it would prove the case positively. A Wassermann is of additional value as is the therapeutic test, especially salvarsan.

In the Third Stage of syphilitic laryngitis we consider a number of changes. *First*—The nodular type. These may be single or multiple. Lewin who first described this form of laryngeal change called especial attention to the great tendency to rapid breaking down. *Second*—The solitary gumma, which is more frequent than the nodular form, is at times mistaken for other neoplasms. These vary in size from that of a pea to that of a walnut. It is deep red in color but examination shows a light center where it is breaking down. *Third*—The diffuse gumma. The epiglottis is the most frequent part of the larynx involved and is not infrequently completely destroyed. It may become so deformed and retracted or attached to simultaneously ulcerated arytenoids, as to embarrass respiration. When a diffuse gumma occurs of a spindle shape, it is very red, breaks down easily and leaves very ragged edges. Some of these changes make the larynx appear like one with papilloma. *Fourth*—The perichondritic form. In this form the arytenoid cartilages are most frequently the seat of the trouble. These become somewhat fixed and turn inwards, causing considerable difficulty in breathing. In fact intubation and tracheotomy have to be resorted to. This process may go on to actual abscess formation and complete expulsion of the arytenoids occur. The abscess may burrow externally and be imanifested as an indurated swelling of the neck. The other cartilage often involved in the perichondrial change is the cricoid and in these cases there is a great deal of trouble in swallowing as well as breathing, depending on which portion of the ring is affected. One may diagnose this destructive process by the X-ray and by a sort of crepitant feeling when manipulating the larynx. The subglottic swelling is marked and symptoms of suffocation are often present. When such perichondritis finally breaks down into an abscess and ruptures, there will result a granulating cavity which will finally cicatrize and stenose, or if it comes to spontaneous healing marked stenosis will result without any visible scars. Dittrich, Turck, Gerber and Rerol have examined a number of this latter form and believe that the process is really of submucous rather than of perichondritical origin.

Another form of late syphilis of the larynx of neural pathology is paralysis. It is a peripheral neuritis in most instances, although it may be due to pressure on the laryngeal nerve of luetic conditions about the neck and mediastinum or it may be central, particularly bulbar disease.

The differential diagnosis of syphilis of the larynx is not coupled with any degree of difficulty. The following conditions must be considered:

1. Tuberculosis.
2. Malignant disease.
3. Pachydermia laryngitis.
4. Scleroma.
5. Atrophic laryngitis, secondary to ozena.
6. Chronic laryngitis, secondary to chronic suppurative sinusitis.
7. Other neoplasms.

The positive Wasserman reaction and findings of the spirochetæ pallida with the microscopic and bacterial examination will usually clear up the diagnosis. There are cases of mixed form of lues and malignant disease as well as lues and tuberculosis.

Treatment.—The general treatment of all the conditions of the nose and throat described above is the same and is so well known to all that it would be superfluous on my part if I were to even mention it. I wish to say, however, that the knowledge of the use of the salvarsan is very important, since that remedy will do wonders when properly used. It may be reiterated that pushing the anti-syphilitic remedies too far can do more harm than good. Also that both potassium iodide and salvarsan do at times produce the swellings known as Herzheimer reaction (chemical œdema), which may become very serious in the cases of laryngeal syphilis.

The local treatment consists principally in cleansing the surfaces when the processes have become ulcerative. The ulcerations themselves are best treated with strong solutions of nitrate of silver (10-20 per cent) or tr. of iodine.

The surgical treatment is divided into the emergency and curative of end results. Under the emergency operation are considered the tracheotomies, the incision of rapidly softened gummata and mixed infected abscesses, and removal of sequestra. Operations for the cure of the end results are principally for the following conditions:

1. Saddle nose.
2. Loss of substance of the external nose of various degrees from that of alæ to complete ablation.
3. Vestibular atresias.
4. Septal perforations.
5. Intranasal synechiæ.
6. Post nasal occlusion.
7. Palatal perforations.
8. Palato-pharyngeal adhesions.
9. Chronic luetic infiltrative and infective tonsilitis.
10. Laryngo-tracheal stenosis.

To describe each of these operations in detail is impossible, impractical and unnecessary, since time will not permit. Each case is an entity for itself, and as a matter of fact the principles of the various procedures are known to all of you. I will, however, mention certain points which are new or original with me.

1. In the saddle nose instead of paraffin and bone transplantation with or without reconstruction, I have been employing the fascia particularly the fascia lata. This material is obtained from the patient himself or from hernial sacks of other patients operated for the later condition.

2. In the septal and palatal perforations, I have employed the transplantation of the inferior turbinate when they are present. These are removed from behind forwards and allowed to be attached at their anterior end. Their posterior ends are attached to the anterior margin of the perforation. Subsequent severence of the pedicles and permitting of adhesion posteriorly about the margin of the perforation, I have used in two cases with success.

3. In the plastic reconstruction of nasal defects of syphilitic nature there has been very little new added, but I have found that in many of the marked cases it was better to resort to a perfectly constructed artificial nose. These are made in parts or entirely.

4. Palato-pharyngeal adhesions after being thoroughly severed are kept from reuniting by cutting off the posterior pillars from below upwards, including whatever may be present of the tonsil. The pedicle is at the upper part of the pillars. These two flaps of posterior pillars and tonsils thus created are brought in contact with the dissected velum and stitched to it, as well as uniting their two free ends. In some other cases I have had a dentist make an artificial plate that carries with it an oval ring posteriorly, thus preventing the reunion of the severed velum palati to the posterior wall of the pharynx. In most of these cases the voice is changed from one of a dead nasal tone to a vacant nasal twang. In one of my cases after having produced this change of voice I was compelled to immediately take out stitches and allow the velum to become reunited. The patient became very nervous and unhappy when he realized this change of tone, and preferred his obstructive condition.

5. In the management of the laryngotracheal stenosis the simple intubation is in most cases inefficient. A tracheotomy which is to remain permanently must as a rule be placed very low. The combination tube of Rogers or the slip tubes I have used with considerable satisfaction; but the use of a large intubation tube to whose lower third a thread is tied, which is brought out through the tracheal fistula and there tied over a piece of gauze is a method I have employed in some cases, with fair results. There must be frequent dilatation by various dilators as Schrotters, etc., by indirect, Jackson's Lynch and others, by direct from above, and Pianzichek and others from tracheal opening into the pharynx. I have adopted for this purpose the vesico-urethral dilator, which is very efficient. After all, the laryngostomy offers the best chance for a cure, that is the ability to breathe and speak approximately the natural way. The one great difficulty with the laryngostomies in my practice has been the closure of the established cleft with something that would be stiff enough not to be sucked in. I have made use of double layers of skin flaps, rib, finger, toe, clavicle and finally fascia lata and skin. All but the last method have objections and fall short of good results; this is the planting of a strip of fascia lata under the skin on each side of the cleft about one third larger than would be required for immediate covering. This is left undisturbed for one week when the skin fascial flaps are so shifted as to close the cleft completely.

AN OUTBREAK OF DIPHTHERIA IN A SECOND-CLASS CITY.*

By PAUL B. BROOKS, M.D.,
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LATE in November the attention of the officials of a second class city, having a population of about 54,000, was called to the fact that diphtheria had become so prevalent there that the municipality was charged with the highest case rate for this disease of any city in the State. Following a request for assistance, from local officials, the writer was assigned to assist in efforts to control the disease.

The outbreak was not of the rapidly developing type which, as a rule, yields readily to the application of scientific preventive measures,

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 25, 1917.

but one which had been developing progressively for four years and had become generally disseminated. The records indicated that during 1912 but 28 cases had been reported; in 1913 there were 60; in 1914, 143; in 1915, 201; and finally, in 1916, there were 358, with the greatest incidence in the last three months of the year. Nearly a year before, the attention of local health officials had been called to the fact that the cases were largely localized in one city ward. During 1916 it had invaded nearly all parts of the city.

From a preliminary survey, we made the following deductions. Generally speaking, 79.5 per cent of the cases had occurred among persons under twenty years of age, the greater number localized to some extent in districts covered by a few public schools. A detailed study of cases in one or two such districts showed that a majority of the cases were among school children, while in a number of other families with cases under or over school age, there were school children, many of whom had had sore throats.

There had been, continuously occurring, cases of "sore throat" and "tonsilitis," so called, to some of which no physician had been called.

Laboratory work for the city was done under contract by a local firm. Swabs were supplied to the physicians, and, from these, culture tubes were inoculated at the laboratory. Most of the culture material submitted had come from a very few of the seventy or more general practitioners in the city.

Release from quarantine, as elsewhere, depended upon the securing of two successive negative cultures. Swabs were made by the attending physicians, and reports, both positive and negative, returned as a rule after twelve hours' incubation. There were practically no records of culture examinations, but, so far as could be learned, rarely if ever had a case been kept in quarantine more than two weeks from the date upon which the first release culture had been taken. There was no culturing of contacts.

Broad interpretation of the quarantine regulations of the Sanitary Code, due in some part to difficulty of securing adequate financial relief for quarantined persons, together with lack of method and facility for following up quarantine, rendered it more or less ineffective. Terminal fumigation was relied upon for disinfection. There were hospital facilities for 12 cases of all communicable disease, other than smallpox.

There were approximately 7,000 children attending the public schools, with some 1.200 additional in three parochial schools. In the public schools a well-organized department of physical welfare, with a small staff of physicians and nurses, was working practically independently, except that cases of communicable disease were reported and a representative visited the Health Department daily, examining the files of report cards received from physicians.

Following the survey, our first procedure was to arrange a meeting of local physicians with city and school officials. The situation was presented, regulations reviewed, culture material and report cards distributed, and the plan of campaign outlined. Immediately following this meeting there was a marked increase in the number of cases reported and cultures submitted to the laboratory.

The plan of campaign included the culturing of school children and contacts, control of carriers, close supervision and enforcement of rational quarantine, hospitalization where necessary, the seeking out of unreported cases, and the opening up of various channels of communication between the schools and the Health Department. Our plans were carried out as fully and effectively as local conditions and a limited corps of workers permitted. It soon became necessary for the city to provide additional hospital facilities, the result being permanent provision for at least thirty patients. The local laboratory facilities were found inadequate to meet the increased demand and it was necessary at times to send from one to two hundred cultures daily to the State laboratory at Albany.

A rule was promulgated providing that cultures for release from quarantine should be taken by the attending physician in any case, if he so desired, until one negative culture had been obtained, after which subsequent cultures would be taken by a representative of the Health Department. This was a formidable undertaking, with our limited corps of nurses, but seemed essential to successful control of quarantine, and the result confirmed this opinion. The reasons are obvious: After a patient has recovered, he is naturally anxious to be freed from restrictions. Pressure is brought to bear upon the physician, who, without compensation, is called upon to make visits for the purpose of securing cultures. One or two gratuitous visits may be made cheerfully, if he is in sympathy with health activities. But if diphtheria bacilli continue to make their appearance, in the present state of public education, the physician becomes unpopular, and he is scarcely human if he is not strongly tempted to follow a procedure which will insure a negative culture report. The following figures, taken recently from our quarantine records, are interesting in this connection: During a period of about three months prior to April 1st, thirty cases had had positive cultures for three weeks, twenty-three for four weeks, thirteen for five weeks, four for six weeks, seven for seven weeks, two for eight weeks, and one for nine weeks.

In consideration of the foregoing, the writer is confirmed in his personal opinion that, both out of consideration of the physician and in the interest of effective quarantine, the responsibility for the taking of release cultures should invariably rest upon the health authorities.

The dates upon which release cultures were taken, both upon cases and carriers, were recorded from day to day upon charts arranged with parallel columns, and reports upon them were recorded as they were received. Reports were also recorded alphabetically in a loose leaf book. This constituted the most important duty of a special clerk. In view of the difficulty, even with this system, of avoiding errors, it was evident that the control of releases with reports received by telephone and unrecorded was, to say the least, uncertain.

To control the exclusion from school of children with sore throats, it was ultimately arranged that children apparently ill would be excluded immediately and reported for investigation, while the others would remain in school to be examined by one of the school physicians who visited each school daily. This system avoided a large number of unnecessary exclusions and was highly effective, but consumed practically the entire time of the school physicians and nurses during several weeks.

The culturing of the throats of school children was carried out by the school staff with the writer's assistance. The schools in which the largest number of cases had occurred were visited first. All throats were examined, cultures being made from those showing redness beyond normal, or where there was a known history of sore throat or contact. In this locality congested throats and catarrhal conditions were unusually prevalent, and the increased susceptibility to throat disorders without doubt added to the difficulty of controlling the disease.

After visits had been made to all of the schools, we devoted our attention to those in which cases still occurred. According to circumstances we either re-examined and cultured entire schools, or went into grades and cultured contacts. Up to the time of writing, approximately 240 school carriers had been discovered and isolated, a number having been previously released cases. It frequently happened that two or more children in a family, all in different grades, were found to be carriers. In one such family there were three carriers, all of whom were still positive and virulent at the end of twelve weeks. In this connection, in every instance in which virulence tests were made upon school carriers, the organisms were found to be virulent. In the schools in which there had been the largest number of cases, there was an immediate and marked decline following the exclusion of the carriers.

The exclusion from school and isolation of a large number of children, unfortunately at a time when examinations were pending, created a difficult situation, not less difficult from the fact that germ carriers were an innovation. Parents of persistent carriers were urged to consult their family physicians and a limited number acted on this advice. In some instances this resulted in active local treatment being instituted. In others physicians were quoted as advising parents that treatment and isolation were unnecessary, and when a simple gargle proved ineffective, nothing further was done. Later one of the city physicians volunteered to give local treatments to a number of such carriers. On April 23d there still remained a group in which, in spite of such treatment, the carrier condition has persisted for from two to three months, and where removal of tonsils had been refused.

The following illustrates concretely the possibilities of spread of infection through carriers, in this instance an adult: Four or five cases had occurred during a period of two or three months in one of the railroad offices. In December a child of a clerk in this office developed diphtheria. Several weeks after the discharge of this case a second child in the same family developed the disease. At this time a culture was secured from the father, and it was learned that about four months before he had had a sore throat. The doctor had suspected diphtheria, had sent a swab to the local laboratory, received a negative report, and changed his diagnosis. Pending a report on the culture, the father in order to continue at work moved to the home of an adult brother, who developed diphtheria a few days later. The culture proved this man still to be carrying diphtheria organisms, which promptly disappeared following tonsillectomy.

Another instance emphasizes the importance of culturing, by physicians, of suspicious throats and by health departments, of contacts. A physician, without making a culture, diagnosed a case as tonsilitis. He telephoned the Health department, however, suggesting that a nurse call. Cultures taken by the nurse demonstrated that six members of the family were diphtheria carriers.

The case incidence from early December, at which time our campaign was begun, has been interesting. Twenty-three cases were reported in a week immediately following our meeting of physicians. During the holiday vacation the cases dropped to ten in a week and rose again to twenty-two shortly after the reopening of the schools. From that time on, during a period of eleven weeks, in which our activities were continued without remission, in spite of unfavorable weather conditions there was a gradual decline until, in the week ending March 22nd, but three cases were reported. At this time it was felt that the Sanitary Supervisor was more seriously needed in other parts of his district; the school physicians and nurses began to take up their routine work, one of the State's supervising nurses and a clerk remaining to assist the local Health Department. Probably as a result of a general relaxation, there has since been an increase in the number of cases to about nine weekly. It is believed that reorganization of local health ac-

tivities, coming at a time of favorable climatic conditions, will result in the case incidence again being brought to normal.

Figures indicating crude death rates are significant. In 1915, with 201 cases reported, the death rate was twelve per cent. In December, 1916, it was 6.3 per cent; in January 1.3 per cent, and in February 1 per cent. While the diminishing rate may have been due in some degree to earlier treatment with antitoxin, it seems to the writer to reflect chiefly the increased reporting of mild cases, previously unreported.

In conclusion a study of this outbreak presents nothing new, but serves to emphasize certain well-established general observations: (1) Generally speaking, the communicable disease rate in any municipality indicates the degree of organization and effectiveness of health activities. (2) An outbreak is difficult to control in direct proportion to the length of time it has been under way and the extent of dissemination. (3) Health activities are thoroughly organized only when there is complete co-ordination of activities of all agencies interested in health protection, including health department, schools, medical profession and lay organizations. (4) There is serious need of stimulation of civic consciousness and of education, not alone of the laity, but of the medical profession, to the need of intelligent co-operation, if health is to be protected.

THE SOIL POLLUTION PROBLEM.*

By VICTOR G. HEISER, M.D.,
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SOIL pollution due to the deposit of body discharges on the ground or other exposed places, is one of the important links in transmitting pathogenic organisms from one person to another. Our great enemy typhoid fever is mainly conveyed in that way. Hookworm infection, counting more than 100,000,000 victims throughout the world, is entirely due to soil pollution.

Relation to Human Disease.

The purpose of this paper is to consider infection thus transmitted through the means of human feces or urine. The principal diseases which appear in the United States Census Reports as directly due to the cause just mentioned are typhoid fever, dysentery, the diarrhœas, cholera nostras, and intestinal parasitism. In Manila, for instance, 10 per cent of all deaths are due to these causes. In 1915 such diseases accounted for 701 deaths in that city. In New York City in the same year 8 per cent of all deaths, or a total of 6,095, were due to soil pollution. In other representative cities in different parts of the United States the proportion is fully as great. Statistics for strictly rural areas are not available, but the percentage is probably greater. The total number of deaths in 1911 in the registration area of the United States, with a population of 59,275,977, was 839,284. Of this number 69,944, more than 8 per cent, are to be credited to soil pollution.

Figures thus show that we have through the agency we are considering an annual waste of life which is stupendous; in other words, it is evident that more than 1,000 persons for each million of the population die from this form of perventable disease. The conditions are probably even more serious than these figures indicate. There are probably many deaths which are directly due to intestinal causes arising from soil pollution, but which do not find their way into the statistics under this head, and in addition perhaps even a greater number which are indirectly due to lowered resistance or other factors not clearly understood. Hazen, for instance, showed that each death avoided from typhoid caused the avoidance of two or three other deaths. This theorem received striking confirmation in Manila. In periods during which water from an uninhabited watershed was used, there were 3,000 less deaths per annum than when the water supply was taken from an inhabited shed. The deaths from practically all causes declined by changing the source of the drinking water. For instance, there was a reduction in the number of deaths from pneumonia, tuberculosis, nephritis, and other affections not ordinarily associated with water.

In addition to the large losses by death already mentioned, there is also to be considered the morbidity due to soil pollution. It may be conservatively estimated that there are at least ten cases of illness which incapacitate an individual for an average period of at least ten days, for each death which is directly ascribed to an intestinal disease. It is apparent, therefore, that soil pollution, since it is the chief means of transmitting intestinal disease from one person to another, presents a sanitary problem of the first order of importance.

Until very recently soil pollution was responsible for more deaths and illness among soldiers than have occurred on the field of battle. Vaccination against typhoid and cholera has greatly reduced the military danger, but still much remains to be done. Experience in Gallipoli and on our own Texas border shows that morbidity through intestinal disorders is still a very serious factor in military inefficiency.

Relation to Sewage Disposal.

The methods of disposal of night soil in various parts of the world differ widely. In Europe and America such disposal is responsible for large public expenditures; in China and Japan it is the source of huge income.

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 24, 1917.

There is much to commend and to condemn in both the Occidental and the Oriental systems. In the United States, for instance, much disease is caused by faulty methods of collection of excrement. In many of the states a considerable percentage of the population uses no latrines of any description. Pollution of the soil is direct. Infection becomes possible by direct or indirect contact, through flies, direct contamination of water supplies, and other means. Under these primitive conditions there is ample opportunity for the transmission of infection at the time of deposit, as well as the danger of infection remaining in the soil for greater or lesser periods of time. In the Southern States typhoid rates are extremely high, and in many areas one-third of the population is afflicted with hookworm infection.

In China and Japan the disposal of human excrement is the source of millions of dollars of income, which comes through the use of the excrement as a fertilizer. The City of Shanghai, for instance, lets out by contract the privilege of collecting the night soil at the rate of $72,000 a year. The collection of the entire material is essential to business success, consequently it is carefully collected, deposited in tight receptacles and transferred to the selling point in the country with the minimum of leakage. So far in the process of disposal there is small opportunity for the transmission of infection. After it reaches the farm, however, the night soil is extensively used in the fresh state and in liquid condition as a surface fertilizer, thereby creating ideal conditions for the transmission of infection to agricultural workers. A study of the diseases among the rural laborers in China and Japan shows that they suffer seriously from intestinal infections. For instance, in the Yangtse Valley fully 80 per cent of agricultural workers are infected with some form of intestinal parasite. Diseases like schistosomiasis and paragonimus infections are exceedingly common. No accurate statistics on an extensive scale are available in China with regard to diseases like typhoid, but there are reliable data which show that outbreaks are frequent. Cholera epidemics causing thousands of deaths are exceedingly common in Japan. If it were not the national custom of China to drink boiled water in the form of tea, and for the fact that dietaries consist almost entirely of cooked food, health conditions would be very much worse than they are. are.

Ideal Method of Disposing of Night Soil From the Public Health Standpoint.

It will be apparent, therefore, that if we could combine the safer methods of collection used in China and Japan, with the safer methods of disposal generally used in the western world, a long step forward could be made. The ideal to be achieved is to prevent infection from human discharges gaining entrance to bodies of other persons. To accomplish this, every avenue for the transmission of even microscopical quantities of night soil to places where such night soil is likely to come in contact with human beings must be effectually guarded. In cities and other places which have water closets and safe disposal, the reduction in the number of intestinal diseases is usually in direct proportion to the completeness with which such facilities are available and are used by the entire population. In such places the problem of soil pollution is chiefly one of municipal administration and the intelligent use of available public funds. In most rural communities the problem is different. Here no solution suited to the economic and social condition of the people has been presented.

The obstacles in the path to successful solution are many. The public needs enlightenment. There is lack of agreement among health officers as to satisfactory methods of collection and disposal. Nearly all sanitarians engaged in this work have devised designs of their own, the installation of which they ardently advocate to the exclusion of all others.

The Problem From the Economic Standpoint.

For rural conditions there appears to be no solution available for the safe collection and disposal of human excrement, unless it be by making the process a paying business proposition. Such an economic solution also has its limitations. For instance, if night soil is to be used as a fertilizer it must be collected in a safe manner and rendered innocuous, so that it will be incapable of transmitting disease at the point of deposit, transit, or in the field. A satisfactory way to accomplish this might be through the means of treatment by a cheap chemical that would destroy pathogenic organisms and at the same time not prevent subsequent innoculation and growth of bacteria necessary to conserve the fertilizing value of the night soil. If the fertilizing value could be enhanced, the success of the plan would be assured at least in eastern countries. Unfortunately, chemical or other means to accomplish such a result is still to be discovered.

The problem then remains. We have hundreds of thousands of persons ill and dying because plans and devices are not available to prevent the excrement of one person reaching the mouth of another.

Have we not here a problem with beneficent possibilities worthy of the attention of modern scientific research?

Medical Society of the State of New York

IMPORTANT NOTICE.

Members who have not signed "Agreement" recently sent them, are requested to do so and return it to

Floyd M. Crandall, Secretary,
17 West 43d Street, New York.

County Societies

BRONX COUNTY MEDICAL SOCIETY.

REGULAR MEETING, Wednesday, May 16, 1917.
The President, Dr. J. Lewis Amster, in the Chair.
Scientific Session.

"A New Method for the Determination of Glucose Content in Urine," John J. Gurtov, M.D., New York.

1. "Spa Treatment at Saratoga and Elsewhere," Walter B. James, M.D., New York.

2. "Waters at Saratoga Springs," illustrated by lantern slides, Albert Warren Ferris, M.D., Saratoga Springs.

Dr. Walter B. James remarks with reference to Spa Treatment were most attentively received. He reviewed the subject from many angles, and emphasized the importance of systematic Spa Treatment in this country. He declared that, with proper management and under the care of competent physicians, Saratoga Springs and other similar resorts in this country could be placed on a par with those abroad.

Dr. Charles Peck, in the short space of time allotted to him, gave a comprehensive idea as to the needs of the army in the way of medical services at the present time. He also read to the Society the resolutions which had been adopted by the Committee of American Physicians for Medical Preparedness to protect the interests of the physician who leaves for the front.

MEDICAL SOCIETY OF THE COUNTY OF CAYUGA.

REGULAR MEETING, AUBURN, N. Y.
Thursday, May 17, 1917.

The meeting, which was called to order at 8.30 P.M., was an open one, a general invitation having been extended to ladies and to the laity. About seventy-five were present, including several from the surrounding counties, Syracuse and Seneca Falls being well represented.

The following resolution was presented, discussed, voted upon and duly carried:

"In view of the fact that the Government of the United States, in conjunction with other governments, is at war with a foreign power, and that the necessity for an ample supply of food both for home consumption and exportation is of the highest importance.

"In view also of the fact that our government reports indicate an unusually small supply of grains carried over from last year's harvest, and that the crop forecast indicates a yield far below the average; and further that great efforts are being made to increase the food supply and conserve the resources of the country; therefore be it

"Resolved, by the Medical Society of the County of Cayuga, that Congress be and is hereby requested to prohibit the use of grains and any other articles of food for the manufacture of alcoholic liquors.

"Resolved, That all other organized bodies be called upon to consider this question and take action along these lines.

"Resolved, That a copy of these resolutions be forwarded to the Senators from this state, also to the Member of Congress from this district."

Col. William S. Terriberry, M.C., New York City, Chief Surgeon National Guard, New York Division, gave an address on "The Relation of the Civilian Physician to the Military Service."

After a general discussion of Col. Terriberry's paper, the meeting adjourned.

MEDICAL SOCIETY OF THE COUNTY OF MONROE.

REGULAR MEETING, ROCHESTER, N. Y.
Tuesday, May 15, 1917.

The morning was devoted to moving pictures of medical and surgical subjects. This was followed by the business meeting, which was called to order by the President, Dr. Myron B. Palmer at 1.30.

At this meeting the minutes of the previous meeting were read and approved. The Comitia Minora gave the following plan for caring for the work of medical officers called into active duty in the army or navy. The report was approved by the Society:

"The Medical Society of the County of Monroe recognizes the patriotism of those physicians of the Society who enter the services of the United States, and in recognition of this fact advises:

First, That each physician joining the colors will engage one or more substitutes to care for his practice and that this substitute shall return to the physician at least 50 per cent of all fees received from such referred cases.

Second, That such occasional patients of a physician in service who shall consult another physician than the "locum Tenens" shall be cared for by this physician who shall return at least 50 per cent of all fees collected.

During the period of the war it shall be the duty of a physician to inquire of all new patients who their previous physician has been.

Third, It shall be the honorable duty of every physician to return any patient of any physician serving in the army or navy on the return of that physician to civilian life.

Any complaint that a physician has failed in this duty shall be referred to the Comitia Minora of the County Society, who after investigating it, if they deem the facts demand it, refer the matter to the Society for action.

Fourth, A list of all physicians who are called to the colors shall be published monthly in the Bulletin of the Rochester Medical Association.

Fifth, A copy of these resolutions shall be mailed to all the physicians in Monroe County, a copy shall be published in the Bulletin of the Rochester Medical Association and the sentiment of these resolutions shall be published in the daily newspapers."

Dr. Seelye W. Little presented the report of the Legislative Committee and it was moved, seconded and carried that the resolution against the passage of the Mullen Bill given in this report be adopted, and that the resolution be sent to the daily papers.

Dr. Charles Hincher presented the report of the Press Committee. Report approved by the Society.

Dr. Willis Linn was elected to membership.

Scientific Program.

"The Surgical Treatment of Cancer," Owen E. Jones, M.D., Rochester.

"Our Better Knowledge of Infection and Disease from Tubercle Bacillus," Edward G. Whipple, M.D., Rochester.

"Variation of Motor Tone as the Index of Gastro-Intestinal Disease," Charles J. Hunt, M.D., Clifton Springs.

"Compensation Law from the Standpoint of the Practitioner of Medicine and Surgery," Harold H. Baker, M.D., Rochester.

"Fractures of the Os Calcis," Howard L. Prince, M.D., Rochester.

MEDICAL SOCIETY OF THE COUNTY OF WASHINGTON.

Semi-Annual Meeting, Cambridge, N. Y.
Tuesday, May 8, 1917.

Owing to lack of quorum no morning session was held.

Meeting of Comitia Minora at 12 M.

Present, Drs. Munson, Paris, Park, Banker.

Secretary's bill for expenses of $8.23 audited.

Dr. Park moved that we pay the secretary $5 for extra work connected with "Health Insurance" matters.

The Treasurer was instructed to pay Dr. Millington $5.50 for his railroad fare to the State Society as Delegate.

Adjourned.

Meeting called at 2 P. M.

Members present: Drs. Munson, Orton, Paris, Banker, Leonard, Madison, Park, Oatman, Millington, Davies, Sumner, Heenan, Beattie.

Visitors: Drs. L. M. Washburn, J. F. Rooney, O. J. Park, C. S. Prest, J. F. Niver, H. S. Blackfan and Dr. White.

Dr. Rooney gave an address on Legislative matters, and explained how the Health Insurance would work out to the detriment of physicians and recommended rewriting the compensation bill; he also explained the origin of the narcotic bill, and recommended the registration bill as an ultimate benefit to the profession.

A vote of thanks was tendered Dr. Rooney.

Dr. Sumner asked what Dr. Rooney would suggest to give a more representative body in the State Society Council, and the doctor advised a change in the constitution calling for two Vice-Presidents for each District Branch, and making them members of the council. Moved by Dr. Sumner that a committee be appointed to advocate this change in the District Branch.

The President appointed Drs. Banker, Sumner and Heenan.

Dr. Orton moved that a circular letter be sent to each County Society. Carried. Dr. Rooney to send draft of letter.

Dr. Prest spoke in favor of the registration bill.

Dr. Prest suggested that a commendatory letter be written to our representatives Pratt and Whitney.

Minutes of Annual and Special meetings were read and approved.

President appointed as a committee on Medical Preparedness. Drs. McSorley, Davies and O. J. Park.

Dr. Sumner moved the adoption of the Oswego County resolution, advocating a paid representative at the state legislature.

Dr. Orla J. Park was elected to membership in the Society.

Scientific Program.

Dr. L. Washburn read a paper on "Nasal Obstruction, Recommending Submucous Resection of the Nasal Septum."

Vice-President Orton gave, as his address, a paper on the "Treatment of the Narcotic Habit, Recommending the Lambert Treatment of Free Catharsis with the Giving of Belladonna, Xanthoxylum and Hyoscin."

Dr. Oatman read a paper on "Industrial Injuries," recommending early treatment with iodine. The matter was thoroughly discussed.

Dr. Sumner spoke of the need for a better method of caring for the dependent tuberculosis cases, and wished the society to give some expression of our opinion.

Dr. Paris did not think that the need called for an expensive hospital to be built.

After thorough discussion it was decided that Dr. Sumner prepare a resolution for the Secretary to send to the Board of Supervisors recommending that some place be prepared for the care of these cases.

MEDICAL SOCIETY OF THE COUNTY OF ALBANY.

Regular Monthly Meeting, Albany, N. Y.
Thursday, May 24, 1917.

The meeting was called to order at 8.30 P. M.

The following resolution by Dr. Joseph A. Cox was introduced, and upon vote of the Society adopted:

Resolved, That it is the sense of this Society that when any member or members of any hospital, dispensary, institution, or other organization staff is unable to perform his usual duties because of the requirements of military, naval, marine, or other service, to the State or United States, that such staff should be reorganized for work in such manner as to prevent the necessity for any appointments to such staff.

When for any reason this is impossible, that no appointments be made, but that one or more physicians be requested to perform without appointment the duties of the usual incumbent.

Resolved, Also, that no member of this Society shall accept a hospital, dispensary, institutional, or other appointment of any physician who because of his duties in the military, naval, marine, or other service of the State or United States, may be unable to attend to his usual duties.

In the case of physicians holding salaried medical positions, the members of this Society pledge themselves to perform the duties of the usual incumbents who, because of the requirements of the military, naval, marine or other service to the State or United States may be unable to do so, and to pay to the usual incumbent or person designated by him all or at least one-third of the usual salary of such position.

Upon the presentation of reasonable evidence of violation of this resolution by any member of this Society, such member shall be expelled from membership in this Society, and the reason for his expulsion shall become part of the records of this Society.

These resolutions shall apply during the period in which the United States is engaged in the present war, and for one year thereafter.

Scientific Program.

"The Duty of Physicians in the Present Crisis,"* Major George F. Chandler, Supt. New York State Police.

"Discussion of the Present Food Problem," Eddy S. Haswell, M.D., Albany.

"Presentation of Cases of Dacryocystitis," Edward J. Stapleton, M.S.

* Owing to the unavoidable absence of Major Chandler the first number on the program was postponed.

MEDICAL SOCIETY OF THE COUNTY OF CLINTON.

Regular Meeting, Plattsburg, N. Y.
Tuesday, May 15, 1917.

After a luncheon, which was served at the Arcade Hotel, the meeting was called to order by the President Dr. Everett. Preliminary routine business was transacted and a committee was appointed to draft a resolution embodying the opinion of the society as favoring a renewal of the attempt to secure a County Tuberculosis Hospital. The committee reported as follows:

INASMUCH as we, as physicians, are cognizant of the fact that there are a large number of cases of tuberculosis in this county, especially in the families of the indigent, in which no tangible provision is made to prevent the spread of infection, thereby entailing much needless suffering, as well as economic waste; and further

As one of the effects of the war in which this country is at present engaged, will be to make these conditions still worse as has been the experience in France; be it

Resolved, That the Medical Society of the County of Clinton earnestly recommend the establishment of a County Tuberculosis Hospital, and be it further

Resolved, That a committee be appointed to wait on the Board of Supervisors to urge upon them the imperative necessity for such a step, and that this committee be requested to meet with representatives of all organizations interested in this subject in an endeavor to further the anti-tuberculosis propaganda.

A committee was appointed to act in the capacity required by the resolution.

Motion was made that a committee be appointed to revise the By-laws of the County Society to conform to the Constitution of the State Society.

Motion was also made that there be incorporated in the programs of future meetings some features of the health work and of the medical inspection of schools of the county.

The scientific program consisted of a discussion on the subject of "Feeblemindedness."

Dr. Frankwood E. Williams, of the National Committee on Mental Hygiene, gave an interesting talk on the general subject, showing by an interesting array of facts and figures how inadequate are the provisions of this State for the care of its feebleminded.

Dr. John Robert Ross, of the State Hospital for the Criminal Insane at Dannemora, N. Y., continued the discussion, presenting some of the methods of testing and classifying feeblemindedness.

The meeting was thoroughly enjoyed by all present, though the attendance was far short of what it should have been.

SUFFOLK COUNTY MEDICAL SOCIETY

REGULAR MEETING, CENTRAL ISLIP.

Friday May 18, 1917.

Fifty members and twenty of their wives were present. A social dinner at noon was a pleasant feature of the meeting. Dr. George A. Smith, Superintendent of the Hospital, and Mrs. Smith, were the hosts.

Drs. David Davidson, L. T. Jackman and W. C. Travis were elected to membership.

Dr. W. B. Savage was appointed chairman of a committee on the revision of fees.

A committee on Medical Preparedness was appointed with Dr. F. E. Benjamin, Chairman, and Dr. Frank Overton, Secretary.

Scientific Program.

"Clinical Demonstration of Tubercular Lesions," D. D. Durgin, M.D., and E. P. Kolb, M.D.

Clinical Demonstration of Insane Cases from Suffolk County, by members of the Hospital Staff.

"How to Commit an Insane Patient," H. G. Gibson, Jr., M.D.

"Medical Preparedness," Frederic E. Sondern, M.D.

"The Long Island Food Reserve Battalion," Mr. B. D. Brink, L. I. Food Reserve Committee.

The meeting was the best attended and most interesting ever held by the Society.

RICHMOND COUNTY MEDICAL SOCIETY.

REGULAR MEETING.

Wednesday, May 9, 1917.

The following resolutions were adopted:

WHEREAS, The income of a physician or surgeon ceases the instant that he stops practicing his profession; be it

Resolved, By the members of the Richmond County Medical Society, that we pledge ourselves to assist the families of any of our members who may answer our country's call for service.

Be it further Resolved, That we agree to treat all patients of such members, when possible, collect the fees for such services, and divide them equally with the families of those members.

Be it further Resolved, That upon the return of such members to resume practice, we shall at once call upon them to attend any of their former patients that may be under our care.

Books Received

Acknowledgments of all books received will be made in this column and this will be deemed by us as a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

TEXT BOOK OF OPHTHALMOLOGY, by HOFRAT ERNST FUCHS, Professor Ophthalmology University of Vienna. Authorized Translation from the Twelfth German Edition; Completely Revised and Reset, with Numerous Additions Specially Supplied by the Author and Otherwise Much Enlarged by Alexander Duane, M.D., Surgeon Emeritus, Knapp Memorial Hospital, New York, 462 illustrations. Fifth Edition. J. B. Lippincott Co., Philadelphia and London, 1917. Price, $7.00

EMERGENCY SURGERY, by JOHN W. SLUSS, A.M., M.D., F.A.C.S. Associate Professor Surgery, Indiana University School of Medicine; Surg. and Ex-Superintendent Indianapolis City Hospital. Fourth edition, revised and enlarged 685 illustrations, some printed in colors. P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia, Pa. Price, $4.00 net.

TRANSACTIONS OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA. Third Series, Volume the thirty-eighth. Printed for the College, Philadelphia, 1916.

THE INTERNAL SECRETIONS. Their Physiology and Application to Pathology, by E. GLEY, M.D., Member Academy Medicine, Paris; Professor Physiology, College of France. Translated and edited by MAURICE FISHBERG, M.D., Clinical Professor Medicine, N. Y. University and Bellevue Hospital Medical College. Authorized translation, Paul B. Hoeber, 67 East 59th Street, N. Y. City. Price, $2.00.

CANCER, ITS CAUSE AND TREATMENT, by L. DUNCAN BULKLEY, A.M., M.D., Senior Physician to the New York Skin and Cancer Hospital. Vol. II. Paul B. Hoeber, 67 East 59th Street, New York City. Price, $1.50.

DIAGNOSIS FROM OCULAR SYMPTOMS, by MATTHIAS LANCKTON FOSTER, M.D., F.A.C.S., Member American Ophthalmological Society; Ophthalmic Surgeon, New Rochelle Hospital. Rebman Co., 141 West 36th Street, N. Y. City. Price, $6.00.

A Compend of Human Physiology, Especially adapted for the use of Medical Students, by Albert P. Brubaker, A.M., M.D., author of "A Text Book of Physiology; Professor Physiology, Medical Jurisprudence, Jefferson Medical College; Fellow College of Physicians, Philadelphia. Fourteenth edition, with 26 illustrations. Philadelphia, P. Blakiston's Son & Co., 1012 Walnut Street. Price, $1.25 net.

Rest, Suggestion and Other Therapeutic Measures in Nervous and Mental Diseases, by Francis S. Dercum, A.M., M.D., Ph.D., Professor Nervous Diseases, Jefferson Medical College, Philadelphia; Consulting Neurologist, General Hospital, Philadelphia. Second edition. Philadelphia, P. Blakiston's Son & Co., 1012 Walnut Street. Price, $3.50 net.

Botanic Drugs: Their Materia Medica, Pharmacology and Therapeutics. By Thomas S. Blair, M.D., Editor *Medical Council;* Author of "Public Hygiene," "A Practitioner's Handbook of Materia Medica and Therapeutics," and "Pocket Therapeutics"; formerly Neurologist to Harrisburg (Pa.) Hospital. Large type, fully indexed, 394 pages. Price, $2.00. Cincinnati: Therapeutic Digest Pub. Co. 1917.

The Secretion of the Urine. By Arthur R. Cushny, M.A., M.D., LL.D., F.R.S., Prof. Pharmacology, Univ. of London, University College. With diagrams. Longmans, Green & Co., 39 Pater Noster Row, London; Fourth Avenue and 30th Street, New York City; Bombay, Calcutta, and Madras. 1917. Price, $3.00 net.

Handbook of Anatomy. Complete Compend of Anatomy, including Anatomy of Viscera, chapter on Dental Anatomy, numerous tables and incorporating the newer nomenclature adopted by the German Anatomical Society, general designated the Basle Nomenclature,or BNA. By James K. Young, M.D., F.A.C.S,. Prof. Orthopedic Surgery, Philadelphia Polyclinic; Associate Prof. Orthopedic Surgery, Univ. Pennsylvania; Orthopedic Surgeon. Philadelphia General Hosp. Fifth Edition, revised and enlarged; 154 engravings, some in colors. Philadelphia, F. A. Davis Co.; English Depot, Stanley Phillips, London. 1917. Price, $2.00 net.

Health Survey of New Haven. A report presented to the Civic Federation of New Haven. By Charles Edward Amory Winslow, James Cowan Greenway and David Greenberg, of Yale University. Yale Univ. Press, New Haven, Conn. 1917. Price, 75c.

Acute Poliomyelitis, by George Draper, M.D., Associate in Medicine, College of Physicians and Surgeons, Columbia University; Associate Attending Physician Presbyterian Hospital, New York City, with a foreword by Simon Flexner, M.D. With 19 illustrations. P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia, Pa. Price, $1.50 net.

The Medical Clinics of Chicago. Volume II, Number VI (May, 1917). Octavo of 252 pages, 46 illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Published Bi-Monthly. Price per year: Paper, $8.00; cloth, $12.00.

Urology, Diseases of the Urinary Organs; Diseases of the Male Genital Organs; the Venereal Diseases. By Edward L. Keyes, Jr., M.D., Ph.D. Professor of Urology, Cornell University Medical College; Surgeon St. Vincent's Hospital, Urologist Bellevue Hospital. With two hundred and four illustrations in the text and eighteen plates, four of which are colored. New York and London, D. Appleton & Co., 1917.

Book Reviews

A Text-Book of Pathology. By William G. MacCallum, M.D., Professor Pathology College Physicians and Surgeons, Columbia University, New York City. Octavo volume of 1085 pages, 575 original illustrations. Philadelphia and London, W. B. Saunders Company, 1916. Cloth, $7.50 net.

This book is published as one volume of 1085 pages and because of the heavy coated paper is very bulky to handle. In many particulars the subject is presented in such a very interesting and novel way that it is to be regretted that the publishers did not show sufficient enterprise to bring it out in two volumes so that it could be more easily handled and consequently more widely used. Besides the features original to the author, the general scope of the book is such that it fills a gap in the literature on pathology that is ordinarily available in English. The merit of the book is that it treats of pathology more from the etiological and experimental viewpoint. Of course the author excels in this branch and has shown his wisdom in emphasizing this side and omitting much that already has been well done by others. The illustrations are numerous and excellent. The author avoids unnecessary technical details such as microphotographic measurements, weights, etc. It is a most readable book and should be of interest to general practitioners who wish to acquire an up-to-date knowledge of disease. The arrangement of the contents is about in the same order as that followed by the author in the course in pathology given to his students in the college. He first takes up the disturbances of the fluids of the body; disturbances in the nutrition and metabolism of cells; disturbances of fat metabolism; of protein and carbohydrate metabolism; of mineral and pigment metabolism; then he treats of the defences of the body against injury; next he describes throughout many chapters the various types of injury, presenting in a very lucid way the effects of obstruction of the flow of contents of hollow organs; and then the effects of various injuries upon special organs; finally he describes the general nature of tumors.

There is no attempt to compile a book of reference, yet at the end of each chapter there is a list of well selected references. Nor has any attempt been made to describe systematically, that is, according to anatomical distribution, all the diseased conditions which may occur in each organ. Instead the general principles of disease processes are discussed as far as possible upon the basis of etiology. The fact that the author has intentionally omitted much that belongs in a complete work, namely, relations of heredity, of the biology of parasites, of serology and of embryology, is one reason that he has succeeded in describing so well and at once all of the related pathologic changes that may occur throughout the body. Not only disturbance of function and chemical disturbances are brought to mind but even symptoms. Thus the subject is correlated to clinical medicine. This makes it the most interesting and altogether the most readable book on pathology available alike for the student or for the practitioner whose mind is alert for new conceptions.

O. V. Huffman.

A Survey of State Boards of Health. By Chas. V. Chapin, M.D., Commissioner of Health, Providence, R. I. Made under the direction of the Council on Health and Public Instruction of the American Medical Association. Chicago, Amer. Med. Assoc., 1916. 219 pp., 8 vo.

This report which is issued in pamphlet form by the American Medical Association is based on the personal survey made by Dr. Chapin and contains a brief resumé of the formation and general work of each State Board of Health with a criticism of the status of each State Board. The report gives a summary of the conditions and needs of each state, a review of the health activities of each state and a score card rating.

A history is given of Public Health organization in the United States containing chapters on The Influence of Politics in Public Health Work, Methods of Selecting State Health Officers, The Board of Health, Minor Questions of Organization, The Executive Officer.

A chapter of the Powers of Boards of Health subdivided into Quasi Judicial Functions, Legislative Powers, Central Control of Local Affairs and Specific Administrative Functions.

A chapter on Local Health Administration and the State, State Control of Local Affairs, Plans for the Improvement of Local Health Work.

A chapter on Communicable Diseases, giving methods of report, administrative control, state regulations, specific controls, epidemiology in the State Department of Health, Laboratories, Antitoxines and Vaccines.

A chapter on vital statistics and registration.

A chapter on Child Hygiene containing a resumé of the work in the prevention of infant mortality, ophthalmia neotorum, medical inspection of schools.

A chapter on Public Health Education showing the various methods used as bulletins, posters, press service, health almanacs, lectures, lanterns and moving pictures, exhibits, the "Health Car," intensive campaigns, health days, and a list of persons usually put in charge of public health education.

A chapter on food, food adulterations, sanitation of food.

A chapter on Engineering, covering water supply, sewerage, methods of control.

A chapter on miscellaneous duties involving the control of summer hotels, camps, schools, public institutions, industrial diseases, narcotic law, etc.

A chapter on Financial Statement, showing the amounts expended annually by the various state boards.

Lastly, the rating and score card of the various states. The score card is based on a possible score of 1,000 points and shows ratings of various states ranging from a low score of zero to a high score of 730; there are tables showing the organization, executive officers control of communicable diseases, diagnostic laboratories, vaccines, registration of vital statistics, public health education, water and sewer control, etc.

The report as a whole is extremely well written, shows much care and painstaking work; it contains a wealth of information to all interested in health work or sanitation as well as much of value to the physician in general. T. B. Hegeman.

Colon Hygiene. Comprising new and important facts concerning the physiology of the colon and an account of practical and successful methods of combating intestinal inactivity and toxemia, J. H. Kellogg, M.D., LL.D., Superintendent Battle Creek Sanitarium. Good Health Publishing Co., 1915.

After reading Dr. Kellogg's book, one is sorely tempted to make all preparations for making his will and arranging for hospital accommodations to have a "short circuiting" operation performed upon him.

According to Dr. Kellogg, most of the ills which human flesh is heir to, are due to the extraordinary length of the colon, the use of meat proteins and the intestinal toxemias due therefrom.

In the book of nearly four hundred pages, Dr. Kellogg not only treats about the colon, but airs his pet theories about intestinal stasis, constipation, intestinal toxemia, vegetarianism, the use of bran and other new-fangled foods, devoting also considerable space to hydrotherapeutics, mechanotherapeutics, electro-therapeutics and other "peutics."

There is much indeed that is very valuable in the little volume and it is of great interest, not only to laymen, but also to physicians who pay very little attention to the subject of intestinal toxemia and stasis. Had physicians paid more attention to this subject in the past and dispensed less "lapactic" and other pills, and relied more on natural remedies to prevent intestinal intoxication, there would at present be less chiropractors, osteopractors, and other "fako-practors."

G. M. P.

Bandaging. By A. D. Whiting, M.D., Instructor in Surgery, University of Pennsylvania. 12 mo. of 151 pages, with 117 original illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $1.25 net.

This little book may help to rescue bandaging from the realm of the lost arts. Surgeons once were masters of this branch of surgical treatment, but they long since relinquished it to their assistants. The assistants outgrew it, and passed it on to the house-surgeons. The house-surgeons in turn became interested in other things, and the cultivation of the art fell into the hands of dressers and orderlies. Thence it has become dissipated; and now, no one knows where to turn for the masters of bandaging.

If one looks in the text books of surgery for a finished dressing, the bandage usually is either omitted or, if present, it is a mere piece of architectural drawing which the artist created and the surgeon endorsed. Commonly it is but a suggestion of a bandage, a figment of lines. It has, indeed, fallen upon the hard times of neglect; and one sees now expressed as a thing of shreds and patches what once was a noble art.

A bandage should serve two purposes: it should perform the function for which it is applied and it should contribute to the æsthetics of the dressing. Most surgeons are satisfied with the first alone; but where bandaging is an art, the beauty of the result is an aim second only to usefulness.

This book of Dr. Whiting's is an humble effort to keep alive this ancient art. Most of the bandages illustrated are well applied; a few look badly enough to have been put on by an eminent surgeon; and some insecure enough to be shaken off by a restless patient. The variegated silk handkerchief used as a triangle harkens back to the days of the county fair; and, the woman on page 136, arrayed in a sweeping-cap and masks both for her face and her pelvis, would have done well to have retained all of her raiment rather than to have subjected her person to the indignity which she is here made to suffer. One imagines that if she should take a step or lift her brawny arm the suppressed breast would pop out from beneath the handkerchief and point its finger at the surgeon with derision.

On the whole this is a useful book and its wide circulation and perusal will redound to the advantage of surgery. James P. Warbasse.

Deaths

James G. A. Davies, M.D., Dalton, died 1917.

John M. Farrington, M.D., Binghamton, died April 19, 1917.

Harry M. Keator, M.D., New York City, died May 20, 1917.

Hyman S. Schlevin, M.D., Brooklyn, died May 12, 1917.

Charles E. Simmons, M.D., New York City, died May 3, 1917.

Frank E. A. Stoney, M.D., Brooklyn, died May 13, 1917.

NEW YORK STATE JOURNAL OF MEDICINE

A Journal Devoted to the Interests of the Medical Society of the State of New York

JOHN COWELL MAC EVITT, M.D., Editor

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EDITORIAL DEPARTMENT

MAJOR ALEXANDER LAMBERT, U.S.A., "A Doctor of Medicine."

THE President of our State Society has left us for the seat of war. We go through life dominated by the power of our inherent inclinations which express success or failure. Thrown haphazard as we are by our early environments into spheres of activities for which we may or may not be fitted, we are not masters of our destiny, but rather slaves to circumstance. Thrice lucky is the man who finds his idiosyncrasy in harmony with the field of endeavor into which fate has thrust him.

Fortunate has been Dr. Alexander Lambert in this regard; a member of a notable medical family, his father, Dr. Edward W. Lambert, was gifted with executive ability of marked degree. As chief medical advisor of the Equitable Life Assurance Society (a position he held for forty-five years), his broad and liberal ideas, enhanced by strength of character, he was able to change the illiberal business methods of Life Insurance Companies to those of a more equitable character, to the lasting benefit of policy holders. This strength of character and executive ability is recognized as intensified in his three sons, but in none more so than in Alexander, of whom "Who's Who" contains the following:

Dr. Alexander Lambert was born December 15, 1861. Yale, A.B., 1884; Ph.D., 1885; College of Physicians and Surgeons—M.D., 1888; two years' service as interne, Bellevue Hospital; Professor of Clinical Medicine, Cornell Medical School, since 1898; Attending Physician, Bellevue Hospital since 1894; Attending Physician, Minturn Hospital; Consulting Physician, New York Infirmary for Women and Children; Consulting Physician, Perth Amboy Hospital; Consulting Physician, Nyack Hospital; Consulting Physician, Greenwich Hospital.

He has long made a study of the circulatory diseases and is recognized as one of the highest authorities in this country in that department of medicine.

Clubs: University, Century, Yale, Columbia University, Camp Fire. He is an enthusiastic sportsman and amateur photographer of the first grade. In color photography his work is recognized as among the best that has been done.

He has been a member of the Medical Reserve Corps since 1907, and is now Major in the Med-

ical Section of the Officers Reserve Corps of the United States Army. In May he was ordered to duty in France, and was appointed Deputy Commissioner of War Relief of the Red Cross, and Chief Medical Advisor of all American Red Cross activities in France and Belgium. Ordered upon active duty by the Adjutant General of the Army, in the Red Cross, he is under army authority.

He has for years been the family physician of Theodore Roosevelt and a long-time close personal friend. To those who know the frank and positive character of Dr. Lambert, the reasons for this friendship are clearly evident.

These two men, who occupy different relations to life, typify to a high degree the qualities which characterize the ideal American—honorable ambition, aggressiveness, courage of expression, pertinacity of purpose and exalted patriotism.

The following was presented to the House of Delegates of the American Medical Association, at its meeting in June in New York City, by Dr. McCormack, and was duly seconded and carried by the House:

Dr. Alexander Lambert,

Sir—You came to the House of Delegates many years ago, already the honored son of your illustrious father, famed from infancy into the most cherished traditions of the profession. You have added dignity to the State you have so well represented, by constantly and effectively contending for all that is best for the physicians of America and the people whom they serve.

A true physician yourself, we recognize your numerous contributions to the science of medicine. It is unnecessary here to enumerate them, but because of its tremendous practical importance, as a matter of restoration to healthy usefulness and self-respect of so large a class of unfortunates, we especially congratulate you upon your success in devising, perfecting, and giving to the profession, and the world, a successful treatment of drug and alcohol addicts.

Recognizing your sense of fairness, your tact, your correct and accurate perception of justice, your colleagues long ago chose you as the Chief Justice of the Supreme Court of Medicine—the Judicial Council of the American Medical Association. You have occupied the position with dignity and honor, and, through your broad conception of its functions, you have advanced not only the popular, but the professional conception of the duties of the physician to himself and to the State, and of the State toward safeguarding the health of all those who by protective labor support it.

Bred in the principle of medicine, you have constantly maintained its highest standards. It is with a deep feeling of real pride, therefore, that we, your colleagues of the House of Delegates of the American Medical Association, recognized you as our special representative with our armed forces over-seas in this war where justice, equity, right—all three things, Sir, which you, in your own person, so ably represent, are the causes for which our country and its Allies fight.

We bid you God-speed, and in your firm hand and your true heart, we confidently place the guardian of our honor, knowing, that it is safe.

NEED OF MEDICAL RESERVE OFFICERS.

THE Surgeon General's Office has appealed to the medical press of the country to aid in securing the necessary quota of physicians for the great army now in course of organization.

Major Noble says the Department must depend upon the medical press for assistance.

At present there are less than 500 physicians in the regular medical army corps, about 2,500 in the Medical Reserve Corps and about 800 in the Militia, or a total of about 3,800 physicians. Twenty thousand are required.

Commissions are accorded to the Medical Reserve Corps* on the basis of the First Lieutenant, Captain and Major, with the respective pay of $2,000, $2,400 and $3,000 a year. No physician is commissioned lower than First Lieutenant.

There is no one class of men from whom greater sacrifices are called for, than from doctors for enlistment as surgeons during the continuation of the present war. The percentage of physicians who have already volunteered is as great, if not greater than from any other one of the learned professions. But in whatever light we may view the war, let our dominant idea be a desire to contribute in some capacity service to our country.

* See page 341, where attention is called to the proper form of an application for appointment in the Medical Reserve Corps U. S. Army.

Original Articles

WHAT IS GAINED BY THE UNION OF OBSTETRICS AND GYNECOLOGY IN A TEACHING HOSPITAL?*

By J. MORRIS SLEMONS, M.D.,
NEW HAVEN, CONN.

THERE are strong forces at work to-day for progress in medical education, and several institutions devoted to this purpose have already undertaken changes which, though radical, are none the less the result of evolution. Close upon the heels of the innovation which took students to the bedside for instruction, came another step, the dedication of a few hospitals to teaching purposes. When the venture proved successful, teaching hospitals multiplied and have naturally prepared the way for the most recent innovation in medical education, the introduction of full-time clinical teachers.

The present course of medical instruction is sharply divided into two parts designated as the "pre-clinical" and the "clinical" years. In the earlier or pre-clinical period the energies of the medical faculty are entirely devoted to the instruction of students and to investigation planned to widen the scope of medical knowledge; in these years the care of the sick forms no part of the duties of the instructors. The members of the faculty, however, who teach the students in the later or clinical years are not only concerned with teaching and research but must also shoulder the responsibility for the care of the sick. There is general agreement that the activities with which the pre-clinical instructors are busied are most efficiently prosecuted when they are entrusted to men who devote their time exclusively to University work; and in these earlier, pre-clinical years the whole-time medical faculty has become an established institution.

It is only a little while ago that the suggestion was made to extend the whole-time principle to the clinical years, yet the experiment has been tried and proved successful. Having directed a department on this basis for nearly four years, I am convinced that the whole-time principle is at once productive of more comprehensive clinical instruction and of greater opportunities for the pursuit of research. However, before considering these results, let us have clearly in mind the situation which formerly prevailed, and, indeed, still exists in most medical schools so far as it relates to gynecology and obstetrics.

To begin with a matter of definition, what is meant by obstetrics and what by gynecology? Etymologically, the first term means to stand in front of; the second means the science dealing with diseases peculiar to women. The derivation of the word, obstetrics, refers to the position occupied by the midwife before the chair in which, formerly, her patients were placed preliminary to delivery. Consistent with its definition, the field of obstetrics, some physicians still insist, should be limited to the care of women having completed the full term of normal pregnancy. This narrow interpretation is given by a few gynecologists who, however, do not reckon the boundaries of their practice with the same precision. Judged by the contents of gynecological textbooks, this subject includes not only abortion, miscarriage, ectopic gestation, the treatment of birth-injuries, pelvic infections and tumors, but also hernia, varicose veins, diseases of the urinary tract, of the umbilicus, and of the breast. The term gynecologist, then, once said to be synonomous with abdominal surgeon, is not yet broad enough to cover completely the activity of the specialist who thus calls himself.

Neither in the case of obstetrics nor of gynecology does present practice conform with reasonable definitions of these terms. For purposes of accurate definition, the scope of the former subject might be broadened to include all cases of pregnancy and the complications which result from it; the scope of the latter limited to diseases of the female generative organs in non-pregnant women. In practice, however, it is difficult or impossible to adhere to these subdivisions; they overlap to an extent which leaves much in common to the obstetrician and to the gynecologist. In these circumstances, what could be more rational than a combination of these subjects. Such an arrangement, as I hope to show, eminently serves to improve methods of instruction, and it also fits in well with the details of hospital organization.

Not a few objections have been urged against this union, I know very well. To enumerate them would not be helpful, for objections of a theoretical nature cannot stand against the demonstration of benefits which actually accrue when the union I advocate has become an accomplished fact. Consequently, it is my purpose to set forth in some detail the results of the work of a University department devoted to the subjects in question—the work of a teaching clinic occupied with the management of cases of pregnancy and with the treatment of patients suffering from diseases of the female generative organs.

The organization of such a department, called a Woman's Clinic, must be along broad lines, if it would serve the threefold purpose of teaching, investigation, and the care of the sick. Its resources must include: first, a free dispensary; second, hospital facilities for de-

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 25, 1917.

serving patients who are unable to pay for the treatment they receive; third, equipment for the satisfactory conduct of cases of childbirth in the homes of the poor; fourth, nurses trained in Social Service work; fifth, laboratories where problems related to medical care may be studied; and sixth, a medical staff adequate for the various activities of the clinic. While our staff-organization in this department of the Yale Medical School is still in the formative period, it is proceeding along the lines just indicated, and, at present, exclusive of internes, consists of four men who devote all their time to hospital and university work. In these circumstances, I believe you will be interested in our experience, and our estimate of what is gained by the union of gynecology with obstetrics in a teaching hospital.

First, with regard to didactic teaching. Because the medical curriculum is becoming more and more crowded through the addition of new subjects like Public Health, and the increasing importance of others, as Psychiatry, it is necessary to economize the time devoted to any given subject. In this light, the union I advocate is justified; it leads distinctly to concentration and to efficiency, for it avoids reduplication. The discussion of many topics, for example, menstruation and its disorders, the repair of perineal lacerations, the treatment of malpositions of the uterus, is taken up but once; whereas, when obstetrics and gynecology are taught separately these same subjects are discussed now by one group of instructors and now by another group. Properly arranged, the combined course taught by a single staff, begins with the anatomy and physiology of the pelvic organs including normal pregnancy, labor, and the puerperium; having this ground-work, the student proceeds, on the one hand, with the pathology of the reproductive process; and, on the other hand, with the diseases of the generative organs. The story develops logically; the principle of concentration makes exposition concise; and the chapters cohere because they have the same anatomical basis.

In clinical instruction, also, it is helpful to combine the subjects of obstetrics and gynecology, and the benefits of such a union are obvious, for example, in connection with problems of diagnosis. How could the student be taught so well that he must be on guard not to confuse the pregnant uterus with tumors of the pelvic organs? With cases of both types at his disposal, the instructor may compare them during the same ward-rounds, or, if need be, in adjoining beds. Similar advantages pertain to the presentation of other chapters in the border-land of gynecology and obstetrics. Thus, there is opportunity to contrast cases of acute, subacute, and chronic puerperal infection; or to compare the results of puerperal infection with those of venereal infection. And, how may the facts regarding retroversion of the uterus be made so impressive as when a clinic affords the material to exemplify the relation of this abnormality to dysmenorrhœa, to sterility, to abortion, to vomiting of pregnancy, and to unsatisfactory convalescence after child-birth. The omission of any one of these effects leaves the significance of retroversion but partly understood. Nor is the story complete unless the treatment of retroversion and its results may be illustrated from the instructor's own experience. Comprehensive demonstrations of this kind are difficult or impossible if gynecology and obstetrics are kept separate in the hospital. With a high, spite-fence between these departments, it is not until students have become full-fledged practitioners that they appreciate the intimate relationship between the subjects in question.

The second helpful influence, we find, which results from the union of these subjects, pertains to productive research; it favors both a higher standard of investigation and an increase in its quantity. And this phase of the subject has a pertinent interest for practitioners, because it is a broader knowledge of the physiology and pathology of the reproductive organs of women which will lead to needful improvements in rational gynecological treatment.

Many obstetrical problems, it must be admitted, bear upon gynecology; and the converse of this proposition is equally true. It follows, then, that the solution of such problems becomes most likely if the investigator is familiar with both subjects. The reward for bi-focal vision of this kind is illustrated by a recent experience which I may relate, for one specific instance, to which the principle I am contending for was applicable, may be more convincing than hours of argument based upon generalization.

Several months ago a case of premature separation of the placenta was referred to the New Haven Hospital. We had to deal with the type of case in which hemorrhage had caused not only the premature separation of the placenta, but also had seriously damaged the uterine musculature. Consequently, Cæsarian section was performed and at the operation the deep blue color of the uterus, due to venous congestion, confirmed this diagnosis; and hysterectomy was performed to prevent subsequent hemorrhage, for in these circumstances, failure of the uterus to retract and contract properly may lead to a fatal issue. Microscopic study of the tissues revealed a

multitude of small hemorrhages throughout the uterus; the muscle-fibres were torn apart, fragmented and degenerated, and the blood vessels were the seat of a proliferative change. This picture was accurately described by Doctor J. Whitridge Williams, who recently reported two of these cases, but was unable to identify the cause—a fact, as you will see, for which the limitation of his hospital service to obstetrical patients was responsible.

After we became interested in the causation of this lesion, a patient entered the hospital suffering from symptoms referable to a myomatous uterus. At the operation, it was found that one of the multiple myomata, which was pedunculated, had become twisted upon its pedicle and externally resembled in color the pregnant uterus of the case I mentioned first. Moreover, when the tumor was bisected, hemorrhagic lesions were found scattered through the myomatous tissue. That the twisted pedicle of the tumor was responsible for these lesions was not to be questioned. And, naturally, from this experience, we had a clue that in the case of premature placental separation, similar lesions were called forth by some interference with the circulation through the uterine vessels. Probably, too, the fundamental factor in the latter pathological problem was an unusual degree of torsion of the uterus.

Given this hint, investigation was begun, and the question put to Nature was, "What are the effects upon the pregnant uterus when the venous flow is blocked?" In a series of experiments upon rabbits, my associate, Doctor Arthur Morse, has found that the effects include the development of lesions imitating very closely those in human cases. The placenta becomes separated from its attachment by a hæmatoma, and hemorrhages appear in the wall of the uterus itself. Though experimental work is still in progress, his results provide convincing evidence that in many cases of premature separation of the placenta, at least one factor of prime importance is a mechanical interference with the escape of venous blood from the uterus; and, probably, torsion of the uterus is a clinical phenomenon against which women must be safeguarded during pregnancy. Thus, premature separation of the placenta, a complication not infrequent and not without the most serious consequences for the fetus, often for the mother as well, a complication never clearly understood may now become the object of rational prophylaxis. And, the clue which led to the solution of this practical obstetrical problem, we must remember, came from the treatment of a gynecological patient.

Immediately, other unsolved problems come to mind regarding which investigation is most likely to be fruitful when undertaken by men familiar both with obstetrics and gynecology. To mention a very few of these, the diagnosis of early pregnancy, the function of the corpus luteum, the significance of menstruation, and the prevention of cancer of the uterus, are problems with a dual aspect so long as we cling to the custom of separating cases of pregnancy from those of pelvic disease. This much, however, is generally granted; some advantage exists in the combination I advocate so far as teaching and research are concerned. We find, at least, that the same men are contributing to the advance of both subjects and deal almost indiscriminately with obstetrical and gynecological problems. Standard year-books include the literature of both subjects, and both are dealt with by the same scientific societies. Magazines, intended for clinicians especially interested in the reproductive organs of women, show no preference, but accept and publish, side by side, one paper dealing with obstetrics, and another with gynecology.

It is chiefly with regard to practice we are told that the union of obstetrics and gynecology will never do; and yet all of us know men who have found such a combination satisfactory. Neither is our own experience unique, that these subjects may be combined satisfactorily in a teaching hospital; for in European countries, such a union is not the exception, but the rule. However, significance attaches to the fact that this scheme proves equally adaptable to American schools, and that in our experience, the care of patients is no less efficient when obstetrics and gynecology are under one directorship.

In the Woman's Clinic of the Yale Medical School, during the past year, 628 patients were treated. Of these, 106 patients were attended in confinement at their homes; 258 were delivered at full term, or nearly so, in the hospital; and 264 were treated for various conditions generally grouped as gynecological diseases. The last group included an extensive variety of complaints, and to illustrate the scope of the service, a few may be enumerated. There were 50 cases of abortion, six of Cæsarian sections, and one of ruptured uterus. Secondary repair of perineal injuries was performed 32 times and four of these were cases of complete tear. There were thirteen operations for uterine myomata, ten for ovarian cyst, and three for tubal pregnancy. Suspension of the uterus was performed 23 times, supravaginal hysterectomy, 18 times; panhysterectomy, four times; and the Wertheim operation, twice.

The scope of the work of this department (a report of which for the past year is appended) demonstrates that gynecological and

obstetrical patients may be handled satisfactorily by one and the same department. A number of conditions often represented in the reports of gynecological clinics are conspicuously absent here, for we lay no claim to the whole domain of abdominal surgery. And it is also significant that more than a third, indeed almost half, of our gynecolgical patients were suffering from complaints directly the result of childbirth. It cannot be reasonably denied that birth-injuries and infections should be included in the sphere of obstetrical practice, for no one, I presume, would deny the obstetrician the right to leave his patients in good physical condition. The remaining patients were suffering from various lesions of the pelvic organs which we also believe may be satisfactorily treated by men competent to do obstetrical surgery.

"What are the results when the obstetrical department of a hospital has added to its service the treatment of pathological conditions of the female generative organs?" Our mortality of 2 per cent. is not unlike that of other clinics to which only patients suffering from gynecological diseases are admitted. And it is only fair to add that the mortality given includes three deaths from uterine carcinoma where no operation was performed. We have charged ourselves with these deaths because the New Haven Hospital includes beds devoted to incurable diseases, and patients often are admitted far advanced along the downward path to remain in the hospital until death results from cachexia or metastases in vital organs.

Upon discharge from the department, 528 patients were well, 66 improved, and seven unimproved; eleven were transferred because their complaints required either medical or surgical treatment. These figures are quoted merely to afford the basis for comparison with the results of pure gynecologists. Having taken the pains to make a comparison of this kind, I am convinced our experience does not support the argument that satisfactory results may not be obtained unless separate departments exist for the treatment of obstetrical and gynecological patients.

If the clinical results are satisfactory when obstetrics and gynecology are united in the hospital, the benefits accruing from more comprehensive instruction and from the impetus to productive work are a clear gain. These are important factors in medical education. Proper methods of instruction and contact with medical investigation, though the prospective practitioner does not participate in the latter, best qualify him for independent thought, for a progressive professional life and for action in the face of novel clinical difficulties. As instructors, we seek to provide a medical curriculum and a hospital organization which will enable him to practise most efficiently, for he is likely to imitate the methods he has seen in operation. Thus, an important result of the union I advocate is to place before his eyes conservative obstetrics and conservative gynecology. Men, who practice both soon learn that radical procedures in either case are often followed by distressing results, and such results are more likely to be witnessed by physicians who do not limit their practice either to gynecology or to obstetrics. The practitioner then who stands convinced of the need for more conservative practice may confidently lend his influence toward the union of these subjects in the teaching hospital. Probably, when this principle has become more widely accepted, the use of the unfortunate term, obstetrics, will be abolished. At least, we may hope so, for the branch of medicine which deals with the physiology and the pathology of the female generative organs and the treatment of clinical conditions dependent upon them should be known as gynecology.

APPENDIX I.

During the year 1916 the following conditions were treated in the Department of Obstetrics and Gynecology. Yale Medical School. The number of cases also is indicated.

PREGNANCY, COMPLICATIONS OF	
Abortion, Threatened	2
" Inevitable	1
" Complete	12
" Incomplete	36
" Missed	1
Hyperemesis Gravidarum	4
Eclampsia (Antepartum)	3
Toxæmia, Pre-eclamptic	11
Other Toxæmias	5
Hydatidiform Mole	2
Placenta Previa	5
Premature Separation Placenta	2
Death of Fetus	1
Syphilis	9
Retroversion of Uterus	1
Endocarditis	2
Pneumonia	1
Pyelitis	2
Malaria	1
Anæmia	1
Epilepsy	1
LABOR	
Normal	282
Premature	24
Breech Presentation	8
Face Presentation	1
Transverse Presentation	3
Twins	3
Ruptured Uterus	1
Eclampsia (Intrapartum)	3
Placental Bacteremia	5
Prolapse of Cord	1
Fetal Hydrocephalus	1

Puerperium, Complications of	
Eclampsia (Postpartum)	5
Endometritis	5
Peritonitis	1
Phlebitis, Femoral	1
" Saphenous	1
Typhoid Fever	1
Abscess of Breast	1
Postpartum Hæmorrhage	2
Retained Placenta	1
Vulva, Diseases of	
Bartholinitis	1
Hæmatoma of Labium	1
Vagina and Perineum, Diseases of	
Cystocele	10
Perineal Relaxation	28
Complete Perineal Tear	4
Carcinoma (Vagina)	1
Cervix, Diseases of	
Laceration	7
Polyp	3
Hypertrophy	2
Carcinoma	8
Uterus, Diseases of	
Dysmenorrhœa	2
Menorrhagia	7
Retroversion	19
Prolapse	5
Subinvolution	1
Endometritis, Chronic	3
Pyometra	2
Myomata	13
Adenocarcinoma	2
Tubes, Ovaries, Ligaments and Pelvic Peritoneum, Diseases of	
Ectopic Pregnancy	3
Cyst, Ovarian	6
" Parovarian	2
Hæmatoma, Pelvic	1
Abscess, Broad Ligament	2
" Pelvic	5
" Tube and Ovary	2
Salpingo-oöphoritis	36
Thrombosis, Broad Ligament	2
Parametritis	5
Peritonitis, Tuberculous	2
Carcinoma, Ovarian	2

APPENDIX II.

Operations Performed in the Treatment of the Foregoing Cases.

Removal Secundines	31
Manual Removal of Placenta	1
Forceps, Low	10
" Medium	11
" High	3
Breech Extraction	8
Version and Extraction	7
Induction of Labor	1
Accouchment Force	6
Pubiotomy	1
Vaginal Hysterotomy	5
Craniotomy	5
Cæsarean Section	4
Cæsarean Section with Hysterectomy	2
Hysterectomy Ruptured Uterus	1
Dilatation and Curettage	39
Excision Bartholin's Gland	1
" Vaginal Polyp	1
Anterior Colporrhaphy	15
Perineorrhaphy	28
Repair Complete Tear	4
Cauterization of Cervix	1
Excision Cervical Polyp	3
Amputation of Cervix	4
Trachelorrhaphy	10
Suspension (Round Ligament)	14
Ventral Suspension	2
" Fixation	6
Plication Uterosacral Ligaments	1
Supravaginal Hysterectomy	18
Panhysterectomy	1
Myomectomy	1
Supravaginal Hysteromyomectomy	11
Panhysteromyomectomy	1
Panhysterectomy (Wertheim)	2
Salpingectomy (Unilateral)	9
Salpingectomy (Bilateral)	24
Salpingo-oöphorectomy (Unilateral)	11
Salpingo-oöphorectomy (Bilateral)	11
Oöphorectomy	13
Excision Ovarian Cyst	7
" Parovarian Cyst	2
" Carcinoma of Ovary	1
Drainage Abscess Broad Ligament	1
Excision Thrombosed Broad Ligament	1
Excision of Mesenteric Cyst	1
Appendectomy	27
Hemorrhoidectomy	1
Drainage Post-operative Sinus	1
Pelvic Puncture	6
Plastic on Urethra	1
Transfusion (indirect)	2

APPENDIX III.

Summary of New Born Infants.

Infants Born Alive	340
Still Births	24

Cause of Infant Deaths.

(Including stillbirths and deaths within the first two weeks of life.)

Birth Injuries	8
Syphilis	4
Placental Bacteremia	4
Pneumonia	3
Hydrocephalus	1
Maternal Toxæmia (Eclampsia)	5
Placenta Prævia	2
Premature Separation Placenta	2
Prolapse of Cord	1
Cause Unknown	8

APPENDIX IV.

Summary of Adult Admissions and of Births.

Admissions	Discharged Well	Improved	Unimproved	Transferred	Died
628	530	66	7	11	14

Number of Births	At Term	Premature	Infant Deaths At Term	Premature	Total
364	340	24	22	16	38

Adult Deaths.

Inoperable Uterine Cancer	3
Pelvic Abscess: Peritonitis	2
Acute Salpingitis: Peritonitis	2
Post-operative Pneumonia	1
Eclampsia	3
Ruptured Uterus	1
Pneumonia during Pregnancy	1
Puerperal Peritonitis	1

THE TRAINING OF THE GENERAL PRACTITIONER FOR OBSTETRICS.*

By JAMES E. KING, M.D., F.A.C.S.,
BUFFALO, N. Y.

THERE is no more interesting chapter in medicine than that of obstetrics. Its development as a science and art has been rather slow. It is only within a comparatively short time that it has occupied a dignified place in medicine. Through all ages and among every people, it has been a woman's business to attend women in labor, and such duties were relegated to the lowest and most ignorant. No man was ever permitted in the presence of a woman in labor except in the most difficult and complicated cases, when the aid of priests or men of mystic powers was sought. History records that in 1522 Dr. Wertt, of Hamburg, dressed in woman's clothes, for the praiseworthy purpose of attending and studying a case of labor. Unfortunately, he was discovered, and paid dearly for his attempt. He was burned alive. One hundred years later a Dr. Willoughby, wishing to assist his daughter in a difficult labor, was obliged to crawl into the darkened room upon his hands and knees. Some years later it was recognized as proper for a physician to be called in difficult and complicated cases, but only as a last resort. Version and embryotomy were his chief expedients and death frequently followed in his wake.

The first step taken in the improvement in the care of normal cases was the establishment of French and German schools for midwives. A better class of women then took up the work, and in general it was better done. The physician was still barred from the normal case, not only by reason of the prejudice of the laity, but also because attendance upon a normal case was regarded by the profession as beneath the dignity and calling of the physician. Gradually, however, physicians displaced the midwife, to a very limited extent, in normal cases, but these men were not the best of the profession. They were held by their conferes in the same contempt as were the men of more recent years who devoted themselves to the treatment of venereal disease. The teaching of obstetrics in the medical schools was entirely by didactic lecture, and whatever clinical experience the student acquired was that gained in attendance upon such cases with his preceptor. Such opportunities afforded little in practical instruction, for it was considered an unpardonable sin to in any way expose a patient at any stage of the labor. All operations and deliveries were conducted under the protecting sheet, and woe betide the attendant who, by accident or design, exposed even for a moment his patient! Under such conditions but little could be expected from the recent graduate in medicine, and normal cases were unquestionably much better cared for by the well trained and experienced midwife.

The University of Buffalo wrote a page in the history of obstetric teaching, when in 1850, Dr. James P. White, then Professor of Obstetrics in that institution, demonstrated a normal labor at the hospital to a class of students. This brought down upon his devoted head the most harsh criticism, and in the bitter controversy which followed the laity and the profession took part. The daily press was caustic in its criticism, and the medical journals which did not condemn, attempted to excuse his action by timidly setting forth the possible advantages of such methods of teaching. This culminated in a libel suit which attracted wide-spread attention. And this is in the memory of men alive today! Since that time the laity has recognized the necessity and advantages of better obstetrics, and has contributed liberally to founding and endowing institutions throughout the country where the poor may receive better care during confinement, and, at the same time, where students and graduates of medicine may receive better instruction. The practice of obstetrics has thus not only been elevated to an honorable position in the profession, but the laity has come to recognize it as a highly specialized branch of medicine.

Although the great improvement in the practice and teaching of this branch of medicine is generally recognized, there is still in certain quarters unrest in the profession. We ask and are asked whether the mean average of obstetric practice is at that level which we have a right to expect it to be by reason of our advanced obstetric knowledge and the better facilities and methods of imparting that knowledge to students and practitioners. Even with the most casual survey of the situation, we have it painfully and forcefully borne in upon us, that in general, obstetric practice does *not* measure up to what we are justified in regarding as present-day ideals.

Recognizing this fact the inquiring mind at once addresses itself to determining the reasons why obstetrics as actually practiced today, does not approach more nearly what we have a right to consider as an attainable ideal. This question has been variously answered, and various remedies have been proposed. For an intelligent consideration of the subject, one must first clearly recognize that no one factor explains entirely why obstetric practice falls short of our ideal. We may ask ourselves if the present obstetric training received by the average medical student is of such a kind as to justify our expecting better practice, or is this training all that can be desired and does the fault lie in the men themselves? Before arguing these ques-

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 25, 1917.

tions, let us take a brief and general survey of obstetric practice as we find it.

In all cities with a large foreign population obstetric practice is about evenly divided between the midwife and general practitioner. In such cities a small number of the better class employ the specialist and a small number of the poorer class avail themselves of free hospital service. Although the number cared for by the specialist and hospitals is by comparison insignificant, the well-to-do and the very poor in such cities have the best at their service if they choose. The overwhelming majority of women, however, are confined by the midwife or general practitioner. Leaving out of consideration for the present the cases attended by midwives, we may consider briefly the general practitioner and his work in this field.

Broadly speaking, practitioners may be divided into two groups: those who do, and those who do not, like obstetrics. Those who do not, engage in the work for one or both of two reasons, because of the income, or because their clientele demands it and if they refuse, it results in the loss of the family. From such men good obstetrics cannot be expected. Regarding it as a necessary evil, their work is hurried and unscientific. From the second class of practitioner we may look for better work. To them obstetrics is congenial. Their interest not only prompts good work, but is an incentive to study and to perfect themselves.

Let us turn now for a moment to the attitude of the laity. Formerly the influence of midwife practice brought the physician who attended normal cases to the midwife's level. The compensation the physician received for such work was but little more than that of the midwife. It is a curious fact that, although in the eyes of the laity, the physician has succeeded in raising himself from the midwife's level, the vast majority are still attending confinements for little more than the midwife's fee. The women of today, expect much more from the physician, and among the more intelligent class, his watchful attention is demanded during pregnancy, and his asepsis and technique during labor are critically observed. These are hopeful signs, and with encouragement and further education by the profession, these women will one day realize that for such service as they expect, a reasonable and proper fee must be paid.

Now, having briefly presented certain angles of obstetric practice, it is proper to inquire what the shortcomings of the profession are that merit criticism, and to decide how far such faults may be attributed to deficient training. Pregnancy terminating in a normal labor is fundamentally a natural physiologic process. Largely, however, as a result of the evolution of man and his higher civilization, pregnancy and labor approach closely the border line of the abnormal. For this reason a watchful vigilance during pregnancy is necessary. Does the profession in general sufficiently appreciate this fact? Many do, but a greater number slight the prophylactic care of pregnancy. This neglect of physicians may, to a certain extent, be attributed to the faulty training of many schools which fail to emphasize by clinical teaching its importance. There are physicians, however, even knowing its importance, who prefer to place reliance in the blind faith that nature will not stray over the border line of the normal. From such men we can hope for better things only when an educated public shall *demand* of them that which they do not willingly give. There are indications that that day is drawing near.

Our next criticism may be offered in the failure in proper aseptic technique. Labor is to be considered as a surgical operation and as such demands surgical asepsis. Errors in asepsis during labor are not always due to improper training, but because the physician's duties during labor in the home are often many sided, and a perfect technique cannot be maintained. Some physicians still confine women without gloves. No excuse can be offered for such men. Training cannot be held responsible for this, and these men will continue, and will be followed by others, until our educated public insists on better things. The most common deficiency, however, all consultants will agree, lies in diagnosis. The blame for this can be laid almost entirely to faulty training. Instructors fail to insist upon the paramount importance of diagnosis, and to irrevocably impress upon the student that diagnosis is the indispensable requisite for good obstetrics. It is too true that many physicians trust hopefully that the case in hand is normal, and only in the presence of unmistakeable indications of trouble, is a diagnosis attempted. Such men are still, and will continue to be, midwives. In some instances, the fault is in the man and not in his training. Unfortunately, however, in many schools, the clinical material is not sufficient, and the teaching staff not painstaking enough in this direction. The cure is obvious.

More deplorable in its effects upon the patient are unjustified efforts to terminate labor quickly. This is a common offense, and has been characterized as meddlesome midwifery. Such ill-advised treatment can be attributed in some cases, to ignorance, but more often it is done simply because it suits the convenience of the physician. Such men are willing to trust most complacently in nature for the safe progress of pregnancy, and trusting also that she has pre-arranged a normal presentation and position, consider diagnosis superfluous. But these same men, with curious inconsistency,

after nature has partially dilated a cervix, lose all further confidence, and take the matter entirely out of her hands!

It is in the use of forceps that such offenses are usually committed. Dragging the head through an incompletely dilated cervix leaves in its train the conditions which the gynecologist must later rectify. No amount of training will, perhaps, ever entirely correct this. There are too many factors that enter in as causes of this abuse. If, in the training of the student, more emphasis could be laid upon the abuse of forceps, and if the unfortunate results upon both mother and child, which often attend their use, could be more often demonstrated, some progress might be made. The impression usually left with the student is the one made in the clinic by an expert who easily applies and delivers with forceps.

To the gynecologist, it would seem that training might be improved in another direction. Birth-canal injuries of greater or lesser extent will occur in a certain proportion of labors. These injuries are often belittled, and their repair hastily and improperly done. The physician often feels that when a tear occurs he is open to criticism. In order to minimize the injury, he passes two sutures through the perineal body, with as little ado as possible. A careful inspection of these injuries would show how impossible it is to correctly repair them in this way. If men were taught that in such injuries there are definite structures which must be properly adjusted to each other, and that to do this proper position, good light, and complete inspection are necessary, the gynecologist would soon find his income diminishing.

Those who devote themselves to the training of students recognize the difficulty of teaching obstetrics as it properly should be taught, in connection with the curriculum of the medical school. The element of time is such an important factor that certain phases of clinical obstetric teaching are impossible. The ideal method would, of course, be for a student to follow a patient in the late weeks of pregnancy, and then to have every feature of the labor carefully demonstrated by a competent instructor. If it were possible to study two or three cases in this way, it would be of infinitely greater value than the present system of simply requiring attendance at a certain number of confinements. Such methods as adopted by our present day schools, manifestly cannot attain this teaching ideal, and students who enter practice with only such training, are the ones who recruit the ranks of those doing poor obstetrics. Those graduates who do not have the advantage of an interneship in a hospital where a good maternity service is maintained, should avail themselves of the opportunities offered by the many large obstetric clinics for post-graduate work.

It is impossible in such a paper to consider all the shortcomings of obstetric teaching and the remedies. One has only to keep in mind, however, the marvelous improvement in teaching in the last twenty-five years, to have confidence that improvement will still go on, and that the unsolved problems of obstetric teaching to-day will find their answer to-morrow.

The writer does not wish to close without paying tribute to the scientific and conscientious obstetric work of many general practitioners. Such men are often found in small communities, and their methods and results could do credit to the best. Those who, in spite of training, will not do good work, the writer is satisfied to leave to the tender mercies of the public. When women are further educated to the requirements of safe and good obstetrics, such men will be speedily and surely eliminated.

THE PRIMIPARA BELONGS TO THE EXPERT AND THE HOSPITAL: THE MULTIPARA TO THE FAMILY DOCTOR AND THE HOME.*

By RALPH H. POMEROY, M.D.,
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THE intent of this brief presentment is to propound rather than to prove the proposition set forth in its title.

The ratio of a first labor to a subsequent labor is that of the untried to the tried; of speculation to proof; of major to minor.

The professional conduct of a first labor throughout, must be likened to the execution of a major surgical operation; otherwise we cannot justify the elaborate operating-room technique of our hospital delivery rooms; and our academic insistence on timely observation controls, relief from pain and shock, prophylaxis against infection and blood loss, and solution of mechanical problems as they arrive, becomes an empty word.

I venture to reiterate that the essential surgical operation of obstetrics is the consecutive management of a first labor *at term* with a view to minimizing the instant and ultimate danger to health and efficiency of mother and child. It is an operation consuming in its entirety an indeterminate period of time, from three to thirty hours, and conducted in the full glare of acute family solicitude. The operator working under the strain of broken sleep and routine, striving by judicious suggestion or cautiously adjusted dosage of anal-

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 25, 1917.

gesic, amnesic, or anæsthetic medication to bridge and counter the risks of shock and overstrain, tuning all direct investigation and corrective manipulation to the progress of events, passing judgment at intervals on the physical condition of two enduring mortals—all under preparation and performance of an unassailable technique of asepsis and including all resources of incision surgery from perineotomy to Cæsarian section—truly the obstetrician must be an operator of rare patience and hardihood to live up to his obligations! All honor to the amazing versatility and skill of the general surgeon of high or low degree! But, he will not and cannot undertake the long operation of labor. The gap to be filled in the story of success must be made good by the trained gynecological surgeon who is *willing to personally conduct labor cases.* The gynecologist of the old school is still hampered by the midwife traditions. The obstetrician of the new school cannot be a mere superior midwife to the wealthy—he must have the experience of an abdominal and pelvic surgeon in order to carry an ever-present full comprehension of all problems of prevention and correction. The consultant who performs only last resort obstetric surgery and advises in the diagnosis and management of post partum sepsis will soon lose his perspective, if he does not, from time to time, assume the consecutive guidance of a complicated labor. He must look upon a last resort summons to an ill-managed labor case to be as futilely absurd as the calling in of an expert surgeon to make good in the midst of an amateur laparotomy. He must have all aspects of pregnancy, labor, and the surgical pathology of the female pelvic organs in fresh review as long as he is willing and able to fight in the actual battle for advance.

The executed progress of preventive medicine and of prophylactic and curative surgery in the past twenty years has been epoch-making: obstetrics as applied to the actual conservation of woman's efficiency in the mass and in the individual is far behind in the ultimation of its responsibilities.

Woman in this country is confidently demanding and expecting a direct individual expression of opinion in public affairs. She appears to be a party to a clear *cry for relief* from the *pains* traditionally incident to maternity, but thus far she shows no concrete interest in recognizing or demanding high grade guardianship again the real *perils* of labor. A primipara can be inveigled into a maternity hospital for economic reasons, but not on the frank plea of prophylaxis—except in the presence of major imminent catastrophe. The prospective mother instinctively safeguards her psychic balance by closing her eyes to any thought of a disastrous labor and "so mote it be." She seeks a nurse who is well spoken of as a kindly soul with experience; in the higher walks, she opens conference with a "family doctor," who graciously agrees to take care of her. At this point enters marplot. Tradition says that Experienced Nurse is all that should be necessary to actually supervise a normal function and if Family Doctor is good enough to promise to be present in conjunction with Experienced Nurse, he will be able to fulfill any function required, and, in addition, has at his command *all* the resources of professional knowledge and skill requisite for flying in the face of Providence, if Providence proves unkind; for Family Doctor makes a specialty of confinements and has attended hundreds of such cases and never ("hardly ever") lost one. Moreover, up-to-date Tradition says that Family Doctor will "use antiseptic precautions, put in stitches," make visits at intervals for several weeks after the labor, and not "add" anything to his nominal contract fee unless he "uses instruments." Of course Tradition (and the courts) also admits that from $15 to $50 is an ample fee any physician ought to expect for his "trouble" in losing some sleep and wasting some hours because Experienced Nurse did not guess exactly the proper opportune time to call him to the case. In short, the fee for anything undertaken in relation to the management of labor is traditionally gauged to a minor responsibility and is not even measured in terms of the practitioner's ordinary stipend for time and visits in his other professional work. Of course Tradition allows for those extraordinary situations where husband is notoriously wealthy and submits gracefully to what everyone knows to be an overcharge, or the contribution of a gratuity—to indicate his appreciation of the grace of a desired presence.

The general medical practitioner does not admit in form that his obstetric work in family attendance is graded down to midwife tactics rather than up to surgical technique; yet under criticism, he admits, in fact, that honored conscience without honorable compensation is his single brake against sliding into at least sins of omission in this class of work. After the wane of his excited student enthusiasm, he finds that the exactions of time and the pursuit of livelihood, promote a disposition to examine his parturient patients chiefly with a view to planning his other work so that he be on the spot when the child arrives, and too often he fills the bill as a wonder worker, by terminating the labor by forceps or version, when the only undebatable justification is the saving of his own time, under cover of complacently meeting the clamor of the family for him to "do something" to rescue the pa-

tient from her distressful state. Far be it from us to represent that no tolerable obstetric work is executed by the general practitioner, but we flatly maintain that extant knowledge of the efficient management of pregnancy and labor as exhibited in the literature and in the practical application of this knowledge at teaching hospitals, is far in advance of the suppositious professional care in childbirth commonly available. The investigations carried on thus far by the authorities in charge of the execution of the New York State workman's compensation laws have demonstrated a very low grade average surgical treatment of accident wounds as compared with results attained under similar conditions in Europe. A comment may reasonably be made that if the science and practice of surgery (in town and country) were actually as far apart to-day as the science and practice of obstetrics, the barber-surgeon would still have as definite standing in the community as has the midwife. Much moan has been made even in past days over the sad spectacle of the "man midwife"; but his "meddlesome midwifery" still trails a dark shadow of damaging indiscretions across our view.

The error in the education of the obstetrician in our medical colleges is the same as has been the error in the education of the surgeon. The medical school graduate cannot be a competent surgeon, neither can he be a competent obstetrician. No amount of didactic instruction even by capable teachers can make him either a surgeon or an expert obstetrician. Natural interest added to a patient apprenticeship may promote him later—but mere repetition of presence at births is a poor index of merit to carry the actual responsibilities of managing a difficult labor.

The writer contends that the first grand obvious division between major and minor surgical obstetrical cases is a division between first labors and subsequent labors. If major surgery belongs to the trained surgeon and the hospital, and minor emergency surgery to the competent general practitioner—then also the primipara belongs to the expert obstetrician in the surgical delivery-room, and the tested multipara *may* make a reasonable choice of delivery at home on a clean bed with no vaginal examinations. If the normal family, to maintain the present population, presents at least three children, certainly every primigravida is entitled to be converted by her first labor into an unterrified, undamaged, and competent multipara.

This assembly must unreservedly admit that the present standard of executed obstetric practice does not provide evident progress toward such an ultimation.

Can we expect progress in this matter other than by actually initiating two positive moves?

1st. The prohibition by the State of attendance by a midwife on a primipara.

2d. Willing reference of primiparæ to experts and hospitals by general practitioners in the same spirit as serious general surgical operation cases are so referred.

A NEW PLAN OF POST-GRADUATE MEDICAL EDUCATION.*

By WATSON S. RANKIN, M.D.,
State Board of Health,
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POST-GRADUATE medical education is a necessity, for two reasons: (1) The relation of modern medical knowledge to human health, life, and destiny; (2) the rapidity of development of medical science and art in the last twenty-five years as indicated: (a) by the extension of the curricula of medical colleges from one- and two- to four- and five-year courses; (b) by the enormous amount of medical literature, in the form of books and periodicals, published in the last twenty-five years as compared with similar literature in other like periods of time; and (c) by the number of important discoveries and inventions effecting the science and art of medicine in the last twenty-five years as compared with similar periods of time.

The necessity is practically unobtainable. Practically unobtainable, because it is not obtained. The evidence: Look about you, especially if you practice in the rural districts, and count the general practitioners, not specialists, who have taken post-graduate work in the last five or ten years, and compute the amount of post-graduate work taken by the average general practitioner in your community or section of the country. The rank and file of the profession, not the specialists, including the surgeons, but the rank and file of the profession, the great group of practitioners to which Dr. Osler was accustomed to refer as the backbone of the profession, are not receiving anything like adequate post-graduate work. Dr. N. P. Colwell, Secretary of the Council on Medical Education of the American Medical Association, on this point says:

"The number of physicians who have taken post-graduate work in the United States will probably exceed those who go abroad, but both together undoubtedly represent a very small proportion of the entire profession.

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"The next point is even more important—that the number who do take such work represent those who are in the least need of such further training."

Why is a need amounting to a necessity not obtained? The average general practitioner cannot pay for it. The income of the average member of the profession in the United States is not definitely known, but is generally supposed to be something less than $1,500 a year. Doctors are not likely to take post-graduate work unless they are receiving an income of at least $1,800 a year, or $150 a month. If such a doctor is absent from his practice six weeks, he loses $225. If he pays $100 for his post-graduate course of six weeks—and if he gets the right kind of a course, he should pay as much—he has lost $325, and to that he must add $75 traveling expenses and incidentals, a total of $400 for a six weeks' post-graduate course, and this man has a wife and two children. He can't afford post-graduate work, or he thinks he can't afford it which amounts to the same thing.

We have, therefore, a pathological condition affecting the medical profession, a professional malnutrition, the cause very simple to ascertain and the lines of treatment clearly indicated. To make post-graduate medical education more generally available, we must reduce its cost. Can that be done?

The Plan in General: There are four elements, just four, which, when brought together, combine to make post-graduate medical education: one, a class room; two, an instructor; three, a class of physicians, eight to fifteen in number; and four, clinical material. These elements brought together in Back Woods or Back Bay mean the same thing, post-graduate medical education. The old plan of post-graduate medical education developed before the railroad, before the automobile, before the good roads movement, before the great present day accumulation of unutilized medical science, before the increase in density of population with resulting abundant clinical material, and before the increase in the number of physicians that makes possible, at comparatively short distances, the grouping of physicians into classes of eight to fifteen. The proposed plan of post-graduate medical education takes advantage of all these new factors in our advancing civilization. The old plan proposed, and got no further than the proposal, that, say, seventy-five doctors *leave their practice* for six weeks, each paying $400, a total of $30,000, and go to a distant city to take a post-graduate course. The proposed plan proposes that the seventy-five physicians *stay in their practice,* that they pay $30 apiece, a total of $2,250, and get a more thorough and more suitable post-graduate course than the old plan offered. The old plan interrupts seventy-five practices and moves seventy-five men to the teacher; the proposed plan interrupts no practice and moves the teacher to the seventy-five men.

The Plan in Detail involves the consideration of (1) some suitable State agency for executing the plan; (2) qualifications of the teacher; (3) size of the class; (4) geographical disposition of class; (5) pay of teacher; (6) length of course; (7) clinical material; (8) subjects of medicine susceptible to this scheme of instruction.

Some institution or organization generally recognized in the State for its leadership in educational matters should assume responsibility for this plan of work. In North Carolina, our University has carried out this plan as a part of its extension work. The State University is to be thought of because (1) of its recognition as an educational agency; (2) its fellowship with the educational institutions of the country through which teachers can be obtained; and (3) those taking the course can be granted some sort of academic credit for work done.

The qualifications of the teacher or instructor may be best illustrated by the class of men we used last summer in two post-graduate courses in pediatrics: One man, about twenty-nine or thirty years of age, graduated four or five years ago from the Harvard Medical School, is exceptionally well qualified, has had an unusual experience in pediatrics under Dr. Morse, is an instructor in pediatrics of the senior class in the Harvard Medical School. The other man, also about thirty years of age, graduated from the Northwestern University four or five years ago, had a year's post-graduate work in pediatrics in the European clinics, has had special hospital experience in pediatrics in Chicago, and at present is an instructor in the Northwestern University. As to men available for such work, I may say that in looking about, we found seven suitable and available men for the work, from which we chose the above-mentioned two.

The size of the class should be large enough to raise sufficient funds, through an assessment of from $20 to $35 per member, to secure a first-class instructor, and not too large to interfere with the necessary amount of personal instruction and technical demonstration. Last year in North Carolina, we had one class of eighty-one members and another of eighty-six members.

The class is composed of five or six sections, varying in number from eight to eighteen

members each, and these sections are so related geographically by distance, railroad and automobile, as to permit the instructor to reach with ease one section on each day of the week, returning on Friday or Saturday evening to that section and that place from which he begins his weekly cycle on the following Monday.

We paid the two teachers employed in North Carolina last summer $500 per month, inclusive of expenses; so that the teacher cleared something over $400 per month. The assessment of the members of the class should be sufficient to raise, in addition to the amount which it is intended to pay the teacher, between $200 and $300 for incidental expenses, such as laboratory material and the printing of the lectures. I have here with me for those who would like to see them, printed copies of the lectures given in North Carolina last year.

The length of the course will depend (1) on the subject of the course; (2) the amount of assessment; and (3) the mental appetite of the class. In our work last summer, we gave one course in pediatrics of sixteen weeks and another course of thirteen weeks. Each section attended a three-hour weekly meeting for lecture and clinic. Each section and each member of the class, therefore, received from thirty-nine to forty-eight hours of instruction. The principal phase of pediatrics taught was the nutritional disturbances of infancy and childhood.

To obtain a sufficient amount of suitable clinical material must be admitted to be the greatest difficulty in the way of the success of this scheme. Here I think the principal factor in securing clinical material will be found to be the personality of the teacher, his ability to appeal to and influence each member of the section to realize his individual responsibility, and to put himself to some slight inconvenience in the way of securing his pro rata part of suitable material.

Subjects of medicine susceptible to this scheme of instruction are those in which the general practitioners have a common interest, as, for example, physical diagnosis, diseases of children, minor surgery, laboratory work, obstetrics, etc.

Before this section, it is pertinent to say a few words on the adaptability of this plan to obstetrics. Dr. J. Whitridge Williams told me a short time ago that the principal obstetrical subjects that needed renewed emphasis with the general practitioners were: the value of abdominal palpitation and rectal examinations as substitutes for the heretofore routine vaginal examinations. Dr. Williams thought that twelve hours class work would be sufficient to cover this most needed obstetrical post-graduate work among general practitioners. You can understand from what I have said that a twelve-hour course would require four weeks time of an instructor, the instructor meeting five or six sections a week, the sections ranging from eight to sixteen members, in a three-hour lecture and clinic. The cost of such a course would be in the neighborhood of $500 or $600, that is, a per capita cost for the class of from $6 to $8.

A questionnaire sent to the members of the two classes in North Carolina last summer on the completion of the courses in pediatrics, which questionnaire they were asked to fill out and return unsigned, shows the following: Average attendance on lectures and clinics, 76 per cent. of class; lectures were excellent in the opinion of 52 per cent. of those answering the question, good in the opinion of 42 per cent, fair in the opinion of 4 per cent., poor in the opinion of 2 per cent.; clinics were excellent in the opinion of 25 per cent., good in the opinion of 42 per cent., fair in the opinion of 22 per cent., passable in the opinion of 4 per cent, poor in the opinion of 4 per cent. of those answering the questions. Of one hundred and twenty-two answering the question as to whether they got the worth of their money and time out of the course: one hundred and seven said "Yes," eight said "No," seven were indefinite. Of one hundred and twenty-two answering the question as to whether they would take a similar course on some other subject: eighty-two said "Yes," eight said "No," thirty-two were indefinite.

Discussion on papers by Drs. Slemons, King, Pomeroy, Rankin and Markoe: *

Dr. Edward E. Montgomery, Philadelphia: The papers read this morning are all of deep interest and I feel well repaid for my visit to Utica.

In 1880 one of my colleagues in the Philadelphia Hospital was brought to trial before the Board of Guardians for delivering a woman in the presence of a class of students; it was a forceps delivery. He came very near losing his place for demonstrating to students knowledge which was of the greatest importance to them and to their future patients. As a gynecologist I am naturally interested in the presentation made in the last paper. There has been a tendency on the part of obstetricians and surgeons to make a predatory invasion of the field of the gynecologist and attempt to squeeze him out. The work originated by

* For Dr. Markoe's paper see May issue, page 214.

gynecologists has been of untold benefit to both the obstetrician and surgeon as it has afforded each of them light and increased knowledge in their respective departments. In schools where men give from one half to the whole of their time to teaching, it may be advisable from an economic standpoint to combine these departments. It is a question with me, however, whether men will not give the particular department in which most interested the greatest attention, and of course the other will suffer. Also when a doctor's work is confined entirely to hospital service he loses the viewpoint which men engaged in general practice get. In the poor and slum districts of Philadelphia men are frequently called to see patients who have become infected during labor. The consultant is impressed with the fact that he must do something to satisfy those interested and will curet the patient for the purpose of removing retained products: within the next twenty-four hours if the patient has an elevation of temperature there is another consultant called in who again curets to give the idea that he is doing something that was overlooked by the preceding man. With the patient in the hospital we can control matters and keep out solicitous friends who would interfere with the orders of the consultant. It is for these reasons, it seems to me, that it is better that a teacher should do private as well as public work in order that he may be better able to direct and advise his students in difficult cases. I agree with your Chairman, Dr. Dickinson, that the subject could not be presented in a more able manner than by the gentleman who read the paper.

In line with the work so ably outlined by Dr. Rankin I would like to speak of something that is done by the faculty of Jefferson College in the different sections of the State of Pennsylvania. We have four branches of the alumni and members of the faculty have been going to their meetings once or twice a year to hold all-day clinics. To these clinics all the members of the profession in the adjoining counties are invited so that the attendance at a clinic is usually between 75 and 150 men. Such clinics have been held at Harrisburg, York, Altoona, Scranton, Allentown and Reading. Personally I have operated at such clinics, doing from three to six abdominal operations at the various places. The attendance has always demonstrated the appreciation of the profession in the vicinity of the clinics.

Dr. Howard C. Taylor, New York City: We had a discussion in New York some years ago on the equipment of the specialist, for example, of the man who wishes to become a gynecologist. As we have been told here today, in order to do gynecology a man must know obstetrics, otherwise he will not properly appreciate his work in gynecology. He must have had some experience as a general practitioner; he must have had a wide experience in general surgery before taking up a surgical specialty; he must have had special training in kidney and bladder examination; he must be trained in pathology, etc.

There are few men who have all these opportunities, and fewer who have the time to become proficient in all of these branches. He would be an old man about ready to retire before he was ready to be a specialist. We must accept, therefore, something short of the ideal. I never became an obstetrician, but I try to do gynecological surgery.

In regard to the association of gynecology and obstetrics in medical schools, I agree perfectly that the two chairs are closely related, and I can imagine no more ideal condition than the one described by Dr. Slemons, where a man is working on the full time basis, devoting himself to the teaching of the two subjects which are so closely associated with each other. In large cities a man covering the two chairs of obstetrics and gynecology, is forced necessarily, if he is not on a full-time basis, to have a large practice, which would take a great deal of his time and energy. In my opinion it is somewhat doubtful whether the two chairs could be covered so well in a large city as in a smaller place.

One of the papers which appealed to me strongly was the question of post-graduate work by traveling teachers. This paper was not only admirable, but the ideas set forth in it were splendid. There is great opportunity in the future for spreading post-graduate knowledge along these lines.

Dr. A. B. Miller, Syracuse: I have been very much interested in these papers this morning, though a portion of them is foreign to my line of practice. The only way in which I can reconcile it is as one of the state medical examiners I am reviewing the papers of graduates in obstetrics and gynecology. In that capacity it has given me the greatest pleasure to know that in our medical colleges these subjects are being taught today in a way much more comprehensive to the student than they were in the past, and that certainly from the younger practitioners we may expect much. That, of course, we did not get in the early teaching so lucid a description and demonstration as given us by Dr. Markoe. I have listened to him with a great deal of interest and he has simplified the methods of teaching obstetrics so thoroughly that it seems as if every one present must have a vision of the process of delivery that they are unable to get from their textbooks or from didactic work. I regret he was unable to complete his paper, as it was

educational to the general practitioner of which this body is largely made up. All of the papers have been extremely interesting; they must be profitable to the men who have been looking for aid and have been thinking along these lines. Time will not permit me to go into a discussion of all of them.

I was particularly interested in the paper of Dr. King as to the method of teaching, and I believe he has said something to us this morning that we will carry away with a great deal of profit, and shall look for his paper in the transactions. In connection with the method of traveling and teaching, as has been stated, I can see how much difficulty would be encountered in finding sufficient material to teach intelligently. All of us have in mind the possibility of men who are practicing medicine in communities remote from large centers feeling so satisfied with their own results that they are not going to be able to grasp the excellent method which has been suggested. It is so easy for us to become satisfied with our own results and with our own method, that we are very liable to forget or to overlook or to depreciate the teachings which may come to us from our superiors. We practice for a long time without serious consequences and we attribute the good results to our own ability and scientific attention rather than to the fact that we have been fortunate in meeting with no serious complications. The man who is trained in gynecology and surgery from constant teaching and daily application of thought and reading, must be one who is better qualified, better equipped, and will continue to do better work than the man that engages in general practice, alone. The general practitioner has to be a specialist, so to speak, in all departments, and if by the method suggested he can only be given the crumbs it may aid him in time of need, and it is more than marvelous how the general practitioner handles cases as well as he does. It is appalling to think of the mortality of obstetrical work in our hospitals where we have such superior advantages. This, I believe, will be eliminated largely, and the mortality in general practice will also be very much reduced. In the examination of papers we find that men are becoming thoroughly convinced that there is something in asepsis; and if practiced as well in the home as in the hospital, they will do better work than they have been doing.

I thought Dr. Markoe was going to leave out the question of the use of bichloride of mercury. I am a little sensitive about that, but he gave us the satisfaction by saying that it formed an albuminate and did not do much, if any, good. I am a strong advocate of asepsis and cleanliness, believing harm can come from the application sometimes of strong solutions, when in the use of these solutions we think we are getting something which we are not getting.

If gynecology because of its association with obstetrics can do what has been claimed by the author of the paper, by the man who is paid for teaching obstetrics and gynecology, I have no doubt great good can come from it. I believe, however, as a rule, that the gynecologist is not going to become an obstetrician. I can see that as far as his association with a college as teacher is concerned much may be gained by it; time might be saved in teaching; but many of the things taught in medical colleges will be eliminated as time goes on, and the term will have to be increased from four to five years. There is not sufficient time to teach these scientific subjects which are so material—obstetrics, surgery, gynecology and medicine. I believe in that connection the gynecologist is not going to be able, unless he is a paid man in connection with his department, to look after his obstetrical patients with the care and thoroughness and satisfaction that he should. As Dr. Montgomery has pointed out, the advance of the abdominal surgeon is due largely to what has been taught and what has been learned from the early experiences and observations and developments of the gynecologist.

DR. ROSS MCPHERSON, New York City: The section is to be congratulated on having had such a remarkable set of papers. But to be a good discussor, it is said that one should have something with which to find fault, and accordingly in the first place, I object to the figures of Dr. De Lee and Dr. Williams which state that the obstetrical mortality of later years has not improved. I am perfectly familiar with the figures, and I know they apparently show such results, but I do not approve of the method by which the statistics were obtained. I know the mortality and morbidity in obstetrics has very much improved in New York in the last decade. I believe the general tendency is improving, in fact, I am sure of it. The reason why I say that is this: I have been at the New York Lying-In Hospital for nearly fifteen years. When I was first on the staff we used to have every day one or more frightful cases brought into the hospital, the legs of the fetus torn off, or with a head left in the uterus, the vagina and rectum being one cloaca, with every kind of complication one can think of. These cases have been gradually reduced in number to one a week, or two or three times a month, until nowadays it is practically impossible to get a case of this sort to exhibit to doctors. We believe that is not because we are not getting the cases and somebody else is, for I have asked other men whether they were getting such cases and they have said no. I practically never see a case in consultation now

such as I saw years ago where six or seven men had applied forceps and pulled on them in order to extract the child. We suppose that the present generation of physicians are being benefited by the teaching which they received eight or ten years ago; they are now beginning to do the work, and to do better work, and the men who did the bad work have gotten out or are getting out of obstetrics altogether. In other words, the teaching which we have done has brought men forward who are doing work along the line of three essential things—antepartum examination or prenatal care, asepsis, and non-meddlesome interference in labor, and the puerperium, which are the cardinal factors for handling cases well.

There is a good deal being said about prenatal care at the present time. Everybody who is teaching obstetrics has been doing good antepartum work, which is nothing but prenatal care. Every one who makes a business of doing special work in obstetrics is giving particular attention to prenatal care. It is of the greatest importance, but I do not think that we are giving enough attention to what the word prenatal care means. It does not mean having a lot of people see patients and make card indexes and not accomplish anything. It means having these patients seen by *physicians* who judge of impending complications. It makes mighty little difference in the result whether these patients are visited and asked social questions, etc., by so-called trained investigators; what should be done is to have the blood pressure taken, the pelvis carefully measured, the position of the child determined, and attention paid to proper diet and hygiene. All these things, when carefully attended to, will do more good in regard to the fetal mortality than any other one thing we may do.

In regard to Dr. King's paper, I enjoyed everything he said. If every member here will read over that paper when it is published, and read it five or six times, he will get a great deal of benefit from it as they do from anything that Dr. King writes. I enjoyed it very much.

The paper of Dr. Pomeroy seems to be a little pessimistic. I am not very pessimistic about these things. I think everything is going along properly; I think we are putting obstetrics on the basis where it belongs; it is being put there very rapidly, and I think the doctors are largely to blame for the bad care that the public gets. The public is demanding better care, and pretty soon they will demand it all the time and in every case; the doctors do not give the care, thought and attention that they should to these cases under discussion because they do not like the work, and are not sufficiently well remunerated, but they feel they have got to do this work in order to build up a practice. This is a great mistake.

I have been much interested in traveling post-graduate instruction. It has offered a new thought to me, and I think it is something we ought to take up seriously.

In regard to the last paper, the paper of Dr. Slemons, whether the gynecologist should be an obstetrician or the obstetrician become a gynecologist, no one said that both ought to be trained as surgeons. That covers the whole thing. If a man is trained as a general surgeon, he may be called later to do obstetrics or gynecology as a specialty if he pleases. It certainly seems to me that the obstetrician can do better work if he is a surgeon, or is trained as a surgeon, than if he devotes his attention to the gynecological part of the problem entirely. I certainly see no reason why gynecologists should not be better gynecologists because they know obstetrics, but I do not believe any persons should attempt to do either as a specialist unless he is competent as a general surgeon in the first place. If he chooses to direct his attention to the center of the body later, he is entitled to do so.

Dr. Irving W. Potter, Buffalo: These papers have been exceedingly interesting and very practical. The whole matter resolves itself into one of education. First, the education of the attendant and second the education of the public. Now, the education of the attendant is a matter that begins early. There are two classes of men practicing medicine today, one class having been trained by a preceptor before entering college. The man who misses training with a preceptor of one or two or three years is missing a great deal. He learns many things in handling patients and in work that the man who goes to college and then to a hospital and then begins to practice misses.

In the education of the attendant, the greatest point, is the failure to recognize what he has. A practitioner is called to see a case or to take care of a case of labor, and even if he examines that patient he fails to recognize the condition. For instance, the fontanelles are not easily discovered, and he forgets sometimes that every child has an ear on its head, and that the ear is always on the side of its head. If that point is remembered by the man in attendance, it will help him out wonderfully in his work.

Another thing is the amount of time that is necessary to care for these cases and the very poor pay that is given the attendant. That comes in the matter of education of the

public. The public are pretty keen on this subject. Patients will pay a very good price for a mastoid operation or an appendectomy, and they are coming to the point where they will pay for their obstetrics, and it does not require very much work on the part of the men who are doing obstetrics and are teachers to bring this about. True, it has been a long time coming, but it is coming.

There is another thing which I think will be eliminated. I come from Buffalo where we have a large foreign population. We have something there that we have no business to have; we have the midwife; there is no occasion for the midwife in any locality. We have as large a foreign population in Buffalo, in proportion to our population, as any place, but we are gradually getting away from midwives. When the examination of midwives becomes as rigid as it should, there will not be any more midwives. District nurses can take care of patients very well.

I have a great deal of respect for the general practitioner because I was one myself for a great many years. We have men in general practice who take care of confinement cases in order to hold the family because they fear they are going to lose their business if they do not do so. That is wrong; they do their patients and themselves an injustice. If a practitioner does not like obstetrics, or gynecology, let him get out and do general work, and his patients will be much better pleased and he will get better results from his other work and be better thought of by his patients.

If in the teaching of obstetrics the idea could be hammered into everybody that it is a surgical procedure, it would be better, it seems to me, for obstetrics is a surgical procedure and always will be.

Then as to the use of forceps and so on by the man who is untrained, and the non-use of the gloves and the non-preparation of his patients for delivery. All these things will come, but if we can educate first the attendant and then the public, things will be a great deal better.

DR. FRANK DE W. REESE, Cortland: I was much interested in Dr. Markoe's paper and the position he gave in connection with delivery. I want to add this point: in delivering a woman we should use all the forces we can muster. With reference to the position that Dr. Markoe gives in the chair with the thighs flexed on the abdomen, and so forth, to facilitate delivery we can get the same effect in bed as Markoe gets, by taking a triangle bandage, or a towel tying it up, making a sling or loop, placing it over the knee and teaching the woman to pull from the knee. This is a device I have used for twenty years, and many times I have been called in consultation in which I have used it and the women have expressed great relief. It has a splendid psychological effect and the time of delivery is materially shortened.

DR. JAMES E. KING, Buffalo: I was particularly interested in that part of Dr. Markoe's paper in which he discussed his tenement house technic. He spoke of the instruments being placed in a canvas bag and boiled and then carefully placed upon a table properly prepared. The patient was then placed on another table and at this point he left us. During the time that I taught obstetrics, I had great difficulty in outlining what, to me, was a satisfactory technic. I found that it was a very simple matter to prepare the instruments and to have them at hand in a sterile condition, but that is the preparation of the patient in the necessary manipulation for that preparation, a great many opportunities are presented for failures and lapses in technic. I would like to know what Dr. Markoe's teaching is in this respect, because it would seem from the practical standpoint to be one of the very important things of his subject.

DR. JAMES W. MARKOE, New York City: It has been a great pleasure to me to have heard these papers, and I regret that in my enthusiasm I was unable to finish the reading of my paper. I will try to answer the questions that have been asked.

At the Lying-In Hospital we have about seven thousand cases each year, and to do the work properly we have sixteen house officers who go with the students. When a student goes out to a case he is followed in a short time by a house officer, and this house officer may have five or six other cases to see, and so does the next house officer and so on in this way until all the cases are seen.

In regard to the use of bichloride of mercury: it means a long explanation to go into it and to tell you exactly what it means, but suffice it to say, we have used bichloride of mercury for twenty-seven years largely because in those days it was the agent that everybody used in surgery. Nobody thought of using anything else until lately. I think it was about five years ago that we tried the experiment of giving up the use of bichloride and tried treating the cases without it. We attempted simple cleanliness. We have never used gloves in the out-patient department because we could not afford them. It would cost four thousand or five thousand dollars a year to supply students with these gloves. We have to depend upon them wash-

ing their hands thoroughly in hot water. It does not seem credible to me now that we have to use bichloride of mercury in our outdoor service, for I never use it in my private practice, nor do I advocate it being used by the practitioner. Our students in the outdoor work are undergraduates who are doing this work under our supervision, and I really do not know what to say about it. Perhaps Doctor McPherson can throw some light upon the subject. The curious fact is that when we gave up bichloride of mercury in washing the hands, we had a lot of fever and morbidity which we never had before. When we returned to its use again we got good results.

In regard to asepsis and laying the instruments down on the table—the table on which the instruments are laid must be clean.

Every obstetrician should be a surgeon before he attempts to specialize in obstetrics.

GYNECOLOGY-OBSTETRICS AS A DEPARTMENT IN A GENERAL HOSPITAL.—REASONS AND RESULTS AT THE NEW GREENPOINT HOSPITAL.*

By ELIOT BISHOP, M.D.,
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THE care of the patient, or, to go further, the care of the individual, so that he or she may not become a patient, or, if a patient, good health, present and future, may speedily become effected, is the desideratum of the practice of medicine in any of its branches. By what means can this best be obtained? Individualities cannot be forgotten. Many a good lawyer, or merchant, or engineer was spoiled by the man being educated in medicine. Many a good laboratory research worker, with misdirected energy, stands at the operating table to the detriment of the patient.

Given the proper personality, the opportunity for him to work is the next consideration, and only in hospitals can the work we are considering be done. I have helped operate upon fibromata, and cystomata in houses in which the only water supply was a pump outside the door. Patients got well under such circumstances, and one may say that the desideratum was obtained. Truly, and yet such work does not produce an expert gynecologist, and only by becoming an expert gynecologist, can one develop the finished technic that does more than to cure a patient of a deadly ill, but, in addition, robs surgery of its horrors by easing a convalescense, and approaching the irreducible minimum in future invalidism. You will all grant me, I'm sure, that the hospital is the only place where the best work of this type may be—no, *can* be done. I mean the best work not only for the individual patient, but also in its development of itself, and the education of those who are to carry it on.

Given, then, the individuals and the institution, only by well thought out organization, and shrewdly devised division of labor, can the best results be obtained. When we consider the enormous number of patients who are females with their especial pelvic ills due to disturbed anatomy and, let me emphasize this, disturbed physiology, I feel that no large hospital may be completely organized without a gynecological-obstetric service. These organs are for reproduction, the consummation being the delivery of a child, and only by the intensive study of anatomy and physiology can accurate diagnosis be made, and only on accurate diagnosis can a cure be effected.

My line of argument for all this may seem to be a case of hysteron-proteron, but whether the cart is before the horse or not, I'll ask you to ride with me to-day, and to those of you who follow this line of work, I hope the trip will show you some views of interest. I'm going to take you away from this pleasant up-State city to a part of the Borough of Brooklyn, where there are two police precincts in which 160,000 people reside, and, until a year and a half ago, no hospital existed. These people are now very largely foreign born—many of the adults speaking no English—coming in general from Central and Southern Europe. They have come to what was a good residence section in comparatively recent years; but now three social factors are operative: ignorance and poverty have laid a field for vice. With the first two—ignorance and poverty—Nature always sends large families with, on the one hand, the debility produced by frequent child-bearing and child-raising; and, on the other, the invalidism produced by poor obstetrics, which, to the shame of the medical profession, goes hand in hand with poverty. I say this frankly, for I assume that every one of us at some time has done careless obstetrics because of surrounding poverty. The third factor—vice—also coupled with poverty produced prostitutes and prostitution; and abortionists and abortions.

The late Commissioner of Charities recognized the need of a general hospital for acutely ill patients in this section, and, at the cost of $900,000, built the Greenpoint Hospital to contain 200 beds, all chronic cases to be taken at once or later to the Kings County Hospital. There was no question of its great need in the neighborhood. The good Sisters at St. Catherine's Hospital in the Williamsburg section had been turning away patients for years, as had the Eastern District and the Williamsburg, a couple of miles away. To-day the hos-

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pital is full, and the greatest error that seems to have been made, is that the hospital is not of twice as large a capacity. What the City Fathers will do about this is the pressing need of the near future.

A word about the physical plant will not be, I hope, amiss. The main building is "T" shaped, its broad top presenting to the sun, and a rear guard of five accessory buildings forming a crescent at the north—from the west to east being the male employees' dormitory, and the large pathological building containing rooms for resident students, several laboratories, and an ambulance garage. Immediately at the base of the "T" is a power plant, laundry and store-rooms. Placed symmetrically with the first named buildings are the Nurses' Home, and the female employees' dormitory. The upright of the "T" in the main building is largely for service—kitchens, etc., on the ground floor; while above, successively, are dining-rooms, staff quarters, assembly hall, and a large roof garden. The top of the "T" presents on the ground floor to the east a large observation ward, visiting staff room, directress of nurses, Steward's and Superintendent's offices, female admitting ward, record room, and general office. Continuing to the west, are the waiting-room, X-ray laboratory, male admitting ward, pharmacy, and out-patient department. The Superintendent occupies, as living quarters, two floors over the main entrance; over which, on the next floor, is a large house laboratory. On four floors, at either end, is a ward of twenty-five beds. The Surgical Service and the Medical Service each have a floor and share on the third floor two wards for children of thirty-five beds each. On the fifth floor, connected by a delivery suite of four rooms are located the gynecological-obstetric wards. Many detailed alterations were necessary. A ward in the center intended for children was divided into a labor and delivery room, and the lavatory converted into a sterilizing and wash-room, and a door cut through into the west ward's quiet room made available an overflow labor or twilight room. The west ward's solarium became an ideal sunny nursery with a separate bathing-room. The convalescents' dining-room of the East Ward made a fine room for examinations, cystoscopy, and minor procedures. The service rooms off the roof garden give a great chance for septic patients to have fresh air. A ward at the north end will become a dormitory for pregnant women who need hospital care. While not perfect, this is a very efficient arrangement for work and the care of patients.

The most interesting development of the institution was the organization of its personnel. Commissioner Kingsbury and Deputy Commissioner Wright, of the Department of Charities, made the first step in the rational solution of the problem by appointing six physicians of note in the Borough who formed the Advisory Committee. To quote one of these men: "This was done so that the visiting staff should not be formed necessarily of the family physicians of politicians." These six men, three of them surgeons, two internists, and one gynecologist-obstetrician, appointed a chief in each service: Medicine, Surgery, and Gynecology-Obstetrics. These nine men constitute the perpetual Advisory Board of the hospital. Each chief had a free hand in appointing such associates and assistants as he saw fit—the specialties being classed as branches of either Medicine or Surgery. Next in importance to a single chief, each service has a paid trained Resident. Fortunately, each chief brought a tremendous amount of confidence and enthusiasm, so that in a new-born institution, an *esprit* was immediately developed similar to one of our tried and true hospitals of years of existence. We started with no bad traditions of long standing. Nothing had to be broken down. Hand in hand with the spirit, material things began well—a generous allowance was made for the most modern equipment for scientific work. Not that impractical fads were intended or allowed to develop, but to the standard implements of the early decades of our brilliant gynecology, were added the newest appliances of established worth.

Don't consider, for a moment, however, that no obstacles were met. To discuss, or even enumerate them would bring to this paper entirely too much of a personal touch. These obstacles were so great that they shook the administrative side of the institution, and the Greenpoint Hospital, like many another, has its gravest problems there. We may talk about and direct others with compass and charts, especially charts, but it has been my experience that the temperaments of medical men are the worst of all in the midst of that *bête noir* of modern efficiency—"red tape." I care not—dare not discuss this, but I would like to say that the first patients were admitted and operated upon, before we had in the building a pus basin, or an enamel pail. A sixty-dollar anæsthetizing machine was delivered, but the forty-dollar motor needed to run it was cut out to save money! One twenty-four hours passed without a loaf of bread in the building. These are mentioned as examples, and not complaints.

Nothing, however, curbed the constantly infecting enthusiasm of the three chiefs, and through it all stood firmly and helpfully, the Advisory Committee, and especially its secretary, who so worthily presides here to-day.

Let us banish the thought of these discouragements and consider what we may or may

not have accomplished. Patients come to us of two sorts: (1) those acutely ill, brought in by the ambulance; and (2) those with an elective type of case referred from (a) the dispensary, and (b) outside sources, either lay or medical. The ambulance brings in patients in real emergency, for example, well advanced in labor, or with ruptured ectopic gestation, and also, owing to the type of practice, and practitioners, patients who are doing badly, or are felt to be doing badly, for example, post-partum, post-abortal, and, let me add, *post-curetal* infections. These patients frequently need a good deal of study and observation before an accurate diagnosis can be made.

The usual elective type of case is in patients who have been sent in, as I have stated from either the dispensary or some outside source, but with this sharp distinction, that those who have been to the dispensary have had a good deal of their study made, and, in most instances, the accurate and almost always the working diagnosis accompany the patients.

This brings us naturally to a discussion of that, to my mind, extremely important part of a hospital—the out-patient department. Here many a patient's fate is settled—is she or is she not a subject for surgery. Here also is judgment passed on the surgeon—does he or does he not give his patients relief from symptoms, and, incidentally, has he or has he not corrected his surgical pathology? Here the gynecological dispensary and the ante-partum clinic is each in charge of a man of wide experience, and one intimately connected with the ward services in the hospital. Under such conditions, the rut of routine can't exist in the out-patient department, and, conversely, behind the knife or forceps of the operator stands the constant question: "In what condition will this patient be in four weeks or four months, when she visits the dispensary? Will she be well and happy, or will my colleague find cause for a black mark?"

The matter of proper assignment of patients to gynecology or obstetrics has, in many institutions with separate services, or even with alternating services, been at times a cause of friction. Here, however, with no alternation of responsibility on the part of the chief, and a four months' alternation of work by the two associates, no cause of friction can exist, so it becomes a problem of the best nursing care. It was arbitrarily decided that a patient who presented the problem of the passage of a viable fetus through the obstetric pelvis should go to the obstetric division. Thus, all miscarriages, abortion, ectopics, and puerperal infections are assigned to the gynecological division, while premature labor and Cæsarian sections are cared for by the obstetrician of the time being. Early toxemias, presumably non-operative, are put in either ward as the exigency of the service puts a demand on the flexibility of the bed supply. It is apparent, then, that with a continuous service under one chief, one resident, and group of internes, and a nurse in charge of the two wards, the patient must be sure of proper treatment as far as assignment to service goes. The spectacle of a bleeding abortion—whether tubal or uterine—being passed from one service to another and then back to the first, has happened in our best hospitals too many times to be overlooked.

The patient having been admitted to the proper service, we feel that proper and complete history taking is the next essential. This is exemplified particularly well in the matter of ectopic gestation; for on what material do we base more of our diagnosis than on a history. During the first fourteen months of the hospital's existence, and when the gynecological census averaged a dozen patients, we had fifteen cases of ectopic pregnancy, and I will digress a few moments to consider the diagnosis in these cases. Thirteen of these were operated on in 1916, and they were reviewed before the section on Gynecology-Obstetrics of the New York Academy of Medicine by my colleague, Dr. Onslow Gordon, Jr. Eight of his series he considered easy of diagnosis, and five were difficult. He says: "In carefully searching for the process by which we arrived at a proper diagnosis, I can find no one constant factor, unless it be a careful study of the history as a *whole*. . . . There is no one point in the history constantly present. One case had no period of amenorrhea; another no vaginal bleeding; and still another no abdominal pain. The physical findings varied from a case showing no palpable evidences of pregnancy, no abdominal mass or tenderness, to a case with definite physical signs of pregnancy, and an abdominal and pelvic tumor of about 15 cm. in diameter. The physical signs, therefore, show such a wide range of variation, dependent chiefly upon the period of gestation, that they are of little value except to substantiate a diagnosis made possible by the history."

The history forms we use, we had no choice of, and are those of all the hospitals of the Department of Charities of the City of New York. What is the ideal in history forms will never be decided, I'm sure, because we are dealing with personal equations. The distinguished chairman of this section, myself, and an interne, each will take a history in an individually different manner. For the training of the novice, I believe it is essential that he follow a printed form, and the forms that we use are very complete, and I believe that they have helped to keep our internes in habits of painstaking thoroughness. There is a multi-

plicity of blanks, but they are all of use, and I submit them herewith for your inspection.

The history having been taken, to include, as you will see, all the general facts and symptoms, the patient has her urine and blood pressure completely examined, for the twofold purpose of diagnosis and prognosis. Often, we learn not only for what, but when, why, and why not to operate. The history taker of the service is the interne and his, then, is the first chance at examination and at such time he enters down, and signs to, on the history, his anatomical findings, his diagnosis, and his advice as to procedure. We feel very strongly that herein lies a cornerstone of the successful institution—thorough instruction for everyone. The patient is then examined and the same notations made, in turn, by the resident, associate on duty, and the chief. You may say: "a multiplicity of opinions," and our answer is: "praise be! there is." For only on the free discussion that such a system engenders can everyone from interne to chief be kept out of a rut. While there is a multiplicity of opinions, there is none of authority. The decision as to procedure having been made, the conduct of the case is assigned to the proper person. For the benefit of the Central Office of the Department, there is, as you may see, a special blank of diagnoses: admission, working, and final. At the request of the Commissioner, the second one is to be made in forty-eight hours.

Most of the gynecological patients are for operation, because they have been under observation and treatment in the dispensary. This does not mean that they come in to-day, and are operated upon to-morrow. Two factors properly make for delay—accurate diagnosis may take several days, and much needed preoperative rest is frequently apparent in these poor souls—many of whom are just from the wash-tub, over-worked, and under-fed, tired and anæmic. Consultation with the medical and special colleagues is frequently called for, and we feel sure that their advice has lessened our morbidity, and kept our mortality at "nil." I want to force this point, for it has been my experience, and I know that it must have been that of many others, that we see a patient today for the first time, whether in office, or dispensary, or ward, maybe just off the ambulance, and to-morrow we operate. There are factors here that are not to the discredit of the medical man, however, for above all we have economic considerations. What a crying shame that health *should* be measured by the pocketbook! Delay means immediate money loss—expense during illness, and a delay in the return to income-producing. Few private hospitals are so endowed that they can carry many charity patients over long illnesses. In this rest period, what can be done, aside from the essential gynecological investigations? The entire human machine may be overhauled. Are the kidneys functionating well? Have we a mild pyelitis that needs treatment, and there are many such? Is the arterial tension proper, and how is the heart muscle? Is the hæmoglobin high enough, not merely to carry her through anæsthesia, but to make for more rapid convalescence? Is the oral hygiene good? Is the gastro-intestinal tract functionating properly? And does the nervous system need rest from mental and physical irritation? These simple questions are so suggestive that I won't take your time to answer them. Locally, many patients need care, for example, a severe endotrachelitis is surely a menace to primary union of a vaginal plastic operation, or a total abdominal hysterectomy. While other procedures are being carried out, those things that our general surgical confrères sneer at, tampons and douches, are demonstrably of value. For evidence, I'll state that of about ninety secondary perineorrhaphies that have been done by visiting, resident, and house staff, only one has become infected—in a colored woman, whose retroverted, but infected uterus was suspended but not removed. This is also to be considered in the light of our extremely simple local preparation which I'll refer to now. The patient is given a soap and water shave the afternoon before operation, and about ten o'clock the night nurse gives a douche of 2 per cent solution of Liquor Cresolis Compositum. Under the anæsthetic, the parts are washed with soap and water with a sponge on the fingers, the patient is then catheterized, the catheter being dipped in argyrol, wheeled into the operating room and draped. There has been as yet no instance of post-operative cystitis.

A patient having become operable, as we say, our immediate systemic preparation for any type of operation is very simple. After midnight the night before, nothing by mouth is given except small amounts of water; two hours before operation a soap suds enema, and, an hour before, a hypodermic of morphine and atropine. The local preparation for laparotomy is also very simple. The abdomen is given a soap and water shave the afternoon before operation; just before the morphine, the abdomen is washed with soap and water, and alcohol, and benzine, and half-strength Tr. Iodine is applied, and a sterile towel strapped on. Just before the incision is made, Tr. Iodine is painted on and the patient is draped.

Anæsthesia is induced by the drop method, with the Montgomery etherometer, and the open cone, and, in the hands of both an ex-

perienced anæsthetist and a tyro, we have been satisfied with this means, applying, as I shall show you, a real test.

Our operating-room technique is not elaborate, but was elaborated from observation in many clinics in New York and other cities. Soap and water and alcohol are all we use to prepare the hands of the operator, his two assistants, and the only nurse who scrubs up, an experienced graduate. This team, aside from the four months rotating interne, is as nearly fixed as possible. Our method of attack and repair is the same, no matter who is the operator, which, of course, standardizes procedures as much as possible. For the cervix, after either amputation or repair, we use single strands of No. 2 chromic gut. In the perineum, which we repair by either the Emmet or a modification of the Hegar-Holden method, we have used both plain and chromic looped sutures; one perineum with plain gut separated high up before the patient was to leave the hospital, and was repaired again immediately, and this determined us to use chromic for the buried sutures. Either chromic or silkwormgut has been used for the perineal skin at different times.

Our method of opening, protecting and closing abdominal wounds, we feel has been our highest techical development. The skin is prepared with Tr. Iodine. The operator stands at the patient's left, and a left rectus incision reaching from the symphysis to as near the umbilicus as is necessary is employed, and, unless a vessel of large size is encountered, no fat haemostasis is now attempted. The aponeurosis is cut, its lower half by the operator, and its upper by the assistant, almost simultaneously. The fibres of the muscle near its inner edge are separated, and the peritoneum is opened as usual. The patient is put in high Trendelenburgh posture, and the Balfour self-retaining retractor is placed with the wound edges protected with a wet towel on either side, clipped above, and held by the suprapubic blade of the retractor, below, thus exposing no skin or wound edge. The intestines are pushed up by the Pryor trowel, their disappearance being facilitated by good anaesthesia, and the simple but often forgotten maneuver of lifting the upper angle of the wound. With attention to these details, it is the rarest exception to use a laparotomy pad to wall off intestines in order to get exposure; and only by good exposure can finished detailed work in the deep pelvis be carried out. To recapitulate, complete anaesthesia, fascia cut down to the symphysis, high Trendelenburgh posture will automatically expose the pelvic contents, without the use of packing in almost every case. The Pryor trowel, highly polished, acts as a retractor as needed, and reflects light, in addition, into the depths of the pelvis. Between two of these trowels, a stick sponge can clean the cul-de-sac without even touching the bowel or the parietal peritoneum. Another blow to trauma! The next factor in morbidity is peritonealization, and this we try to make as complete as the pathology will allow. When salpingectomy has been performed, especially with the idea of leaving a functionating ovary, it has been done after the method of Norris which he describes in his "Gonorrhea in Women," actuated by the studies of Sampson on the ovarian blood supply.

A number of different suspension operations have been done, the most of late having been after either the method of Montgomery, or the Webster-Baldy, the writer having preference for the former, and his feeling rather borne out by the observation of his colleague in the dispensary. For retroversion, however, I refer you to the authoritative article of my chief, Dr. Frederick C. Holden in the *Journal of the A. M. A.* for August 15, 1914, where he makes the strong logical point of suiting the operation to the individual patient.

When a hysterectomy is done, the cervix is removed, prolonging and complicating the operation, but removing a chronically infected area, however, thus preventing the frequent symptom of leucorrhea. The suspension of the vaginal dome to the round and broad ligaments is, of course, carefully completed. Prophylactic appendectomy is almost a routine procedure.

On retiring from the abdomen the peritoneum is caught with the finest mosquito clamps during closure with a running plain loop suture that everts the peritoneal edges. Occasionally a suture ligature may be needed in the muscle, but by this time, all fat layer bleeding has stopped from retractor pressure; so with several cat-gut sutures overlapping the fascia, reinforced by three or four silkworm gut sutures over bolsters, not much material is buried in the wound, which is washed twice with saline to get rid of fat globules that are detached, and small loose clots. The skin is closed with skin clips. We have given some thought to the kind of cat-gut to be used. Until recently we used single strands of No. 2 plain gut. Two wounds separated and we changed to No. 2 chromic gut.

How many wounds have suppurated? Out of approximately 130 clean laparotomies done by nine operators, three have become infected —one a Cæsarian section, one a sub-acute salpingitis, the patient leaving the hospital in three weeks, and who presents no hernia after several months observation, and the third

whose infection was so slight that she left in less than three weeks. Three infected wounds with no serious sequelæ in 130 laparotomies!

So much for our wounds—how about our convalescences? These patients, I'll remind you, have no pre-operative catharsis, except for the one enema, and after returning to the ward, are allowed morphine as soon as restless and in pain, and have from two to five doses the first forty-eight hours, and rarely need any afterward. With rare exceptions, they have had no irritation from laparotomy pads, no pulling from a manually held retractor, and they need, and get, no post-operative enemata. To repeat, since the opening of the hospital, we have given no post-operative enema to a laparotomy patient, nor a lavage—a few times a rectal tube has been used. There is, as a rule, a spontaneous movement on the sixth to tenth day. Patients are out of bed on the tenth or eleventh day, and if no movement has occurred after a day out of bed an oil enema is given and occasionally as late as that a cathartic. We have no *calomel day*, no *salts morning*, no high, low, copious or stimulating enemata. We have had but one patient whose vomiting persisted into the second post-operative day, and she was the only one to get saline by rectum. Distention has invariably been slight; our patients have looked happy in 24 hours, and gas pains (whatever they may be) have been gone and the pulse is down at the second or third day. This is a simple but gentle technique, and with this series of cases we feel that there must be a definite relation between cause and effect.

On leaving the hospital, a discharge examination is made by the operator, checked up by that ubiquitous sceptic, the interne. Before such a critic, a reputation well may tremble. The post-operative findings are charted, and the immediate result pronounced upon. The patient is then given a talk about her condition, revisits, and post-operative care, and informed that her cure has only just begun, and that it may mean a question of months under care before she can assume all her burdens. The majority of these patients have no family physician to whom they may be referred, and they return to the dispensary in which an associate is in active charge. To the dispensary, also, goes at each visit, her hospital history, so that all her findings, diagnostic, operative, and discharge, are readily at hand. In case of a return to the wards, her hospital history, and the dispensary history return with her. In other words, in the institution wherever the patient may be, there, also, are all her records made at the Greenpoint Hospital.

I have at some length, and in some detail, given you the practice of an ideally arranged service in a general hospital. We feel that the patient in such an institution is better cared for than in a special hospital or so-called "frauen-clinic," for here we have in active attendance, internist, surgeon, neurologist, dermatologist, and all the other specialists. All these help to keep our special study from becoming too narrow, so that the patient is simply a case of pelvic problems. The desideratum referred to in my introduction is, we hope, never lost sight of—the best care for the individual. Conversely, we feel that the intensive study of woman, her anatomy, physiology, psychology and sociology, is necessary, and only by such intensive study can we get the results in (a) diagnosis, as evidenced by our series of ectopic pregnancy, and in (b) refinement of surgical technique to produce the long series of cases, 330 patients, with no mortality—not a single death in a year and a half—and with only two gynecological wounds of the abdomen infected, and the slightest degree of post-operative morbidity that it has been our fortune to observe.

PAIN PHENOMENA IN OBSTETRICS.*

By STUART B. BLAKELY, M.D.,
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THE travail of childbirth is as old as the race. Parturition is the only normal physiological process that is accompanied by pain. It is the most striking phenomenon in the practice of obstetrics. Information available on the subject is most meagre and unsatisfactory. These facts justify further inquiry into these pain phenomena.

Although pregnancy and the puerperium present interesting and important pain phenomena, the time at our disposal limits the discussion strictly to the pain phenomena of labor. We are not concerned with the cause of their onset. We are not now interested in the motor and reflex phenomena of parturition, except to note that so close is the association of cause and effect in labor-pain production that the word "pains" has become synonymous with uterine contraction. This paper will discuss only the subjective symptom of pain occurring during the course of childbirth. Let us, therefore, now proceed to the consideration of the causes, the characteristics, and the localization of the pains of labor.

The chief causes in their production are (1) uterine contraction; (2) consecutive stretching of the cervix with its attachments, the va-

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 24, 1917.

gina, the perineum, and the vulvar orifice; and (3) pressure of the advancing fetus on the brim, contents, and walls of the pelvis with stretching of its joints. The pain is produced by pressure on or stretching of plexuses, trunks, and end-organs of nerves carrying afferent impulses. The nerve supply of the uterus, cervix, and upper vagina is through the sympathetic system, that of the rest of the tract and the pelvis through the spinal nerves. Pains of the first stage are due to uterine contraction and cervical dilatation; those of the second stage, to uterine contraction and to the pressure and stretching exerted by the advancing fetus on the birth canal; those of the third stage, almost solely to uterine contraction. The causes of labor pains, therefore, are nearly, if not quite, purely mechanical and traumatic. Two other elements that have been cited as possible causes in their production are the forcible contraction of the abdominal muscles—most felt at their insertions, and an anæmia of the lower spinal cord.

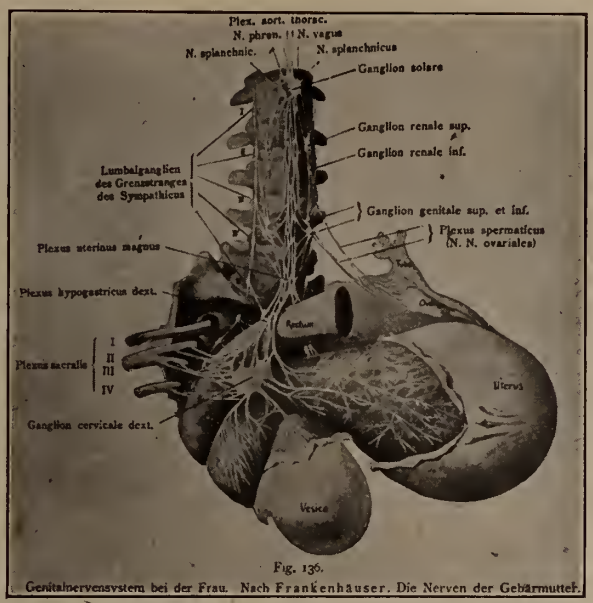


Fig. 136.

Genitalnervensystem bei der Frau. Nach Frankenhäuser. Die Nerven der Gebärmutter.

Certain characteristics have been described as being peculiar to the pains of labor. They are associated with forcible uterine contractions. They are more or less intermittent with increasing severity, lengthening duration and lessening intervals as the labor proceeds. They are often called involuntary, a term that really refers to their cause, for all pain is involuntary. The older writers classified them in the four following groups, in order of their appearance: 1. Praesagientes, or foreboding pains that occur during early cervical dilatation—up to a diameter of 1 to 2 cm. The French writers term them "mouches," biting or annoying pains. 2. Preparantes, or preparing pains, during which full cervical dilatation takes place. This is the so-called "period of despair," for toward its close the suffering is often acute. 3. Propellantes, or propelling pains. 4. Conquassantes, or shaking pains. The pain of uterine contraction—beside the element of colic peculiar to the forcible contraction of any hollow viscus with smooth muscle walls against resistance—is more often described as dull and heavy, less often as sharp. The pain of cervical dilatation is usually complained of as breaking. The pain of the pressure and stretching exerted by the advancing fetus is spoken of as tearing, stretching, bursting, shooting, etc., depending somewhat on the tissue or tissues involved at any given moment. These terms are descriptive, but indefinite, as are all terms used to describe painful sensations. We can do no better.

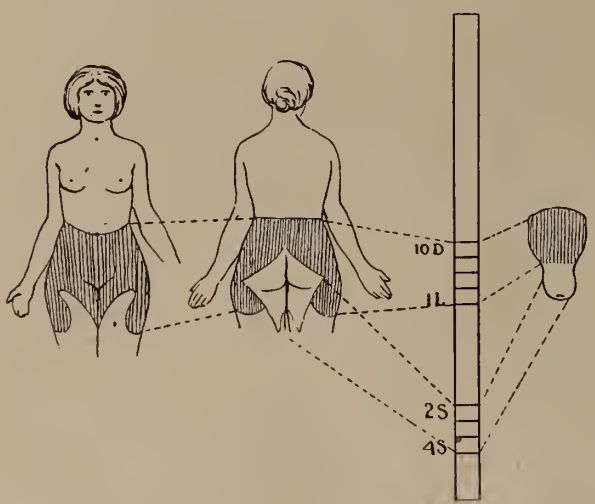
The severity of labor pains are dependent on a variety of factors, many of which are impalpable and unknown. They are profoundly affected by psychical influences, but here again we are prone to confuse a motor activity with a resulting subjective sensation. If the pains stop, they do so because the uterine contractions have ceased. Individual idiosyncrasy, education, mode of life, and race are determining elements. The strength and suddenness of uterine contraction and the resistance offered to them are important factors in the production of suffering. The severity of the pain presents wide variations. Some labors are nearly painless. Women have given birth without consciousness of its occurrence. At the other extreme is the picture of almost unbearable distress.

The localization of the pains of labor is of great interest. It opens up the whole subject of somatic and visceral pain, a vast and nebulous realm, to enter which is to be lost. However, to better understand the localization of some of the pain phenomena of labor, it is essential to touch briefly on visceral pain, to recall to memory the nerve supply of the uterus, birth canal, and pelvis, and to review the peripheral sensory distribution of the segments of the spinal cord involved.

It is generally admitted that the viscera are insensitive to pain. This means that stimuli, ordinarily painful when applied to the periphery, have no corresponding effect when applied to viscera. Pain can be produced in viscera, however, if the stimulus be "adequate," a highly necessary, but also highly indefinite term. The pain thus produced is not felt in the viscus, but in some area on the periphery of the body. It is accordingly called "referred" pain. The peripheral area in which the painful sensation is felt, or to which it is referred, is connected with the same segment or segments

of the spinal cord in which the impulse from the stimulated viscus is received. To summarize—stimulation of a viscus, adequate to produce pain, creates an impulse that passes through the sympathetic to certain definite segments of the spinal cord, and is felt subjectively in the peripheral sensory distribution of these segments.

To the best of belief, the body of the uterus is connected through the sympathetic with the tenth, eleventh, and twelfth dorsal, and the first lumbar segments of the spinal cord. The peripheral sensory distribution of these segments is the lumbar region of the back, and the lateral and anterior aspects of the abdomen from about the level of the umbilicus down onto the thighs. Here is felt the pain produced by uterine contraction. The cervix is connected with the second, third, and fourth sacral segments of the cord. The peripheral distribution is the sacral and coccygeal region extending onto the buttocks and down the back of the thighs. In this area is felt the pain of cervical dilatation. The foregoing segmental connections and distribution follow, in the main, the scheme of Henry Head.



The segments of the spinal cord with which the uterus is connected, and their peripheral sensory distribution according to Head.

The nerve supply of the pelvis, vagina, perineum, and vulva is of spinal origin, chiefly through the pudic nerve. Pain originating here by pressure or stretching is felt locally in the parts named, or in the distribution of nerves derived from the sacral plexus.

It is unnecssary to describe stage by stage the localization of the pains of labor. It can be easily determined. During the first stage sometimes the pain of cervical dilatation predominates, at other times that of uterine contraction. For example, compare the severe sacral pain complained of in many cases of dry labor, with the localization of the pain in a case of a fully dilated cervix but with a head not engaged or obstructed at the brim. In the second stage, the pain originating in the branches of the spinal nerves often overshadows that of uterine contraction. In the third stage, to the pain of uterine contraction is sometimes added a slight pain produced locally by the extrusion of the placenta.

The study of all pain is very involved and beset with great difficulties, but is worthy of great effort. Our knowledge of it is fragmentary and incomplete. This paper has endeavored, briefly and in an elementary manner, to discuss the causes, the characteristics, and the localization of the pains of labor. It is presented, not with the idea of being exhaustive or without mistakes, but to bring to your thoughtful attention a subject of which the profession hears so much, but really knows so very little.

SARCOMA COMPLICATING PAGET'S DISEASE OF BONE. REPORT OF CASE.*

By LEDRA HEAZLIT, M.D., F.A.C.S.,
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THE following case report gives a fairly typical clinical picture of the relatively rare disease known as osteitis deformans, complicated by giant celled sarcoma.

Mr. A. J. L., clergyman, single, age forty. Family history negative. Born in Norway, where he spent his boyhood life on a mountain farm herding sheep and doing other outdoor work in summer and going to school in winter. Never sick, always physically strong. Came to United States at age of eighteen. Worked in brick yard, then worked on farm in summer, attending school in winter. Later worked in coal mine and grocery store and, during winter attended Wyoming Seminary, where he graduated in 1900. He afterward worked his way through college and theological seminary, from whence he entered the ministry. Denies venereal infection.

Symptoms of present trouble began in spring of 1913, first noticing pain and weakness in both feet. Thought he had flat feet and wore arch supports without benefit. Later developed general stiffness throughout body, particularly in lower extremities. First came under observation in June, 1915, complaining of painful swell-

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 24, 1917.

ing occupying spine of left tibia. This had developed recently and caused pain on walking. Had been treated for rheumatism.

The patient presented the appearance of one prematurely old. Medium height and fairly well nourished but anemic. High, prominent forehead. Large "square" type of head. "Round shoulders," due to moderate kyphosis of dorsal spine. Walked in a stooping attitude, sometimes described as "ape like," flat footed and with a limp. Noticeable outward curvature of both femurs and both tibias, producing marked "bow-legs." General movements of body appeared stiff and awkward. Tender swelling over mid-spine of left tibia, small, hard, circumscribed and apparently osseous in character. Radial and temporal arteries markedly atheromatus. Examination of heart and lungs negative. Urinalysis negative. Wassermann on blood negative. Radiograph of left tibia and fibula showed area of disease corresponding to external tumor and extending above and below, well into medullary canal. The X-ray interpretation was "syphilitic

Forearm. Ulna, seat of osteitis deformans. Note "worm eaten" appearance of olecranon.

osteitis." He was, therefore, put upon antispecific treatment including salvarsan, administered intravenously, for a period of two months without benefit.

On September 21, 1915, patient was admitted to Auburn City Hospital, and on September 29th the tibia was opened over seat of swelling and a portion of spongy tissue removed for examination. Histologic diagnosis of the specimen was "giant celled sarcoma." The remainder of the skeleton was then radiographed by Dr. S. E. Austin and the true nature of the primary bone condition revealed. Lesions, characteristic of osteitis deformans, were found in the skull,

Hands, showing spongy condition of phalanges and some metacarpals.

nearly all the long bones, in both hands and in both feet.

In view of the dubious prognosis in connection with the general bone disease and the probability of already developing metastases of sarcoma, it was decided to try Coley's mixed toxins for its effect upon the latter disease. Injections of the toxins were administered at intervals of five to seven days for next three months. Although small doses were employed, there was some reaction following each injection and a depressing effect upon the general health produced. This was so marked at the end of a month, that he was returned to his home in a small village for two weeks to recuperate. On his return a radiograph taken of the affected bone, showed apparent improvement and the toxins were again administered over a period of two months, when it became obvious that the apparent improvement had given place to enlargement of the area of sarcomatous degeneration. Dr. C. E. Coon, of Syracuse, at this time saw the patient in consultation, corroborated the diagnosis and advised removal of the sarcoma.

On January 11, 1916, under ether anæsthesia, the bone was reopened and a large cavity, extending several inches up the shaft of the tibia, was emptied by the curette of soft sarcomatous tissue and packed with gauze. Gradual filling in of the cavity with new bone tissue took place, so that by March 17th the wound was healed and he left the hospital in fair general health to resume his work.

About two months later he returned complaining of weakness in legs and pain in both thighs. Radiograph showed complete healing at site of the sarcoma in the tibia but two similar lesions in center of each femur. Operation for the removal of sarcomatous tissue was advised and re-

fused. On June 13, 1916, I was asked to see him in consultation at his home and found a pathologic fracture of the right femur at the seat of the lesion. He accepted advice and returned to hospital.

Operation June 19, 1916. Seat of fracture exposed. Shaft of femur for a distance of several inches found reduced to a shell with many splintered fragments and cavity filled with pulpy mass. Soft tissue removed by curette. Many loose fragments of bone removed, the remaining splintered ends dove-tailed together, and held in position by Parham-Martin bands. Leg put in plaster. Recovery from operation was slow and complicated by a severe pyorrhœa alveolaris and a persistent stomatitis which interfered with proper nourishment. No progress being made in the effort to improve his general health and failing to secure union of fracture, he was again returned to his home on August 19th. Leg still in plaster. Two months later he was reported as much better. On November 25th I was again called to his home in consultation to find a pathologic fracture of the opposite femur, at site of the lesion. Both legs were put in plaster. During the following two months, according to the report of his physician, he developed tumefactions in both radii and right humerus. The latter bone gave way to fracture. There was a progressive failure of strength until death from exhaustion February 16, 1917. Autopsy was not permitted.

Left tibia, showing sarcoma.

Since Sir James Paget[1] in 1876, in a paper presented before the Medico-Chirurgical Society of London, reported five cases of a rare form of chronic inflammation of bones, which he named osteitis deformans, the literature has been well supplied with descriptive cases and theories of causation of this disease. DaCosta, Funk, Bergeim and Hawk,[19] in 1915, published an exhaustive study of five cases, with a review of the literature to June 1, 1914. These authors had found up to that time, 213 cases, twenty-three of these were observed by Paget himself, covering a period of thirteen years, following his original communication.

Paget's observation that the malady was a "rare disease of bone" is borne out by the fact, that DaCosta[19] found three cases only, in the records of over 38,000 admissions to the Jefferson Hospital and that Hurwitz [17] found a similar number of cases, in over 30,000 admissions to the Johns Hopkins Hospital.

This disease, when sufficiently advanced, presents a characteristic clinical picture which should be readily recognized.

The case reported presented a nearly complete symptomatology but failed of immediate recognition, on account of allowing opinion to be based on X-ray findings in a single bone. In the early stage it may easily be confounded with syphilis; which, at one time, was thought to be an etiologic factor. In doubtful cases it is only by a thorough radiographic study of the entire skeleton that a diagnosis can be made. In ad-

Right femur after spontaneous fracture.

vanced stages of the disease the combined clinical and X-ray pictures are quite pathognomonic.

The pathologic process is probably not an inflammatory one, as the name implies, but consists essentially in a combination of bone absorption and bone proliferation. According to Higbee and Ellis,[14] who have made a careful histologic study in their case, the new tissue formation is not true bone but a substance which they term "fibro-osteoid" tissue, a production which has the appearance and consistency of bone but microscopically lacks its characteristic structure. These changes progress slowly until the bones become so weakened as to yield to the deformities so peculiar to the well developed case.

The majority of instances of this disease have been found between the ages of forty and sixty, although it is not unknown to earlier life and old age. Frengenheim[13] reports the youngest case in a child of nine who had been previously operated for sarcoma of the tibia. Elsner's[11] patient was seventeen years old, but the disease began when she was twelve. It runs a very chronic course, extending over many years, often with little impairment of general health, the patient dying of some complication or intercurrent disease. In the case of Moizard and Bourges[4] the duration was fifty-two years, the onset being at the age of twenty-one, the man dying of cancer of the stomach at seventy-three.

Sarcoma of right femur.

Schlesinger,[8] Bowlby,[3] Hurwitz,[17] and others have reported cases of the so-called mono-osteitic form of Paget's disease, stating, however, that it is very rare. The bone most commonly affected has been the femur. On the other hand, Schirmer[9] and Geoffrey Jefferson[18] both question the existence of osteitis deformans when the lesion is limited to a single bone. They believe that most of the reported cases are either instances of syphilis or insufficient examination has failed to discover lesions in other parts of the skeleton. Schirmer[9] admits that the disease may remain for years restricted to one bone but questions if the process may not later progress and attack other bones.

The etiology of osteitis deformans remains today about as obscure as when first described by Paget forty years ago. The causes suggested include rheumatism, trauma, hereditary syphilis and abnormal thyroid function. None of these theories are supported by adequate proof. Some of the later observers seem to lean towards the last named or some perversion of internal secretion as the most likely casual factor. In the case of Higbee and Ellis[14] the thyroid was very small and parathyroids were apparently absent. This suggested to them the possible effect of withdrawal of this secretion upon calcium metabolism with resulting abstraction of lime salts from the bones. In support of this theory they quote the experiments of MacCallum and Voegtlin[10] in regard to tetany, which led them to conclude that in some way the parathyroid secretion controls calcium exchange in the body.

In the case here reported my interest was especially drawn to the sarcoma, which first appeared in the left tibia and later in both femurs, both radii and one humerus. Whether this development of malignancy is to be viewed as a direct result of the osteitis deformans or simply as a coincidence, has been discussed by some of the writers on the subject and with differing opinions. In this connection, it is interesting to note that five out of eight cases of Paget's, traced to the end, died of sarcoma. In one the sarcoma developed twenty-two years after the onset of the disease.

Packard, Steel and Kirkbride,[7] in connection with their case which developed giant celled sarcoma of the skull, state that 7.5 per cent of the cases reported up to 1901 were complicated by sarcoma and remark that this percentage alone must have some significance. DaCosta[19] and associates, four years later, collected to date the cases associated with malignant disease and brought the percentage up to 9.5. These writers were impressed by the number of patients in whom the disease eventuated in sarcoma and

think the explanation is to be found in the ill regulated cellular activity, attending abnormal bone destruction and bone formation.

Accepting these statistics as based on actually reported cases, it is only fair to assume that in some instances on record as simple osteitis deformans a beginning form of sarcoma had gone unrecognized and that in certain others the complication may have developed subsequent to the report. In this event, the ratio of cases showing sarcomatous degeneration to those uncomplicated would be materially increased and point strongly to a direct relationship. Moreover, the essential pathology of the lesions in Paget's disease, namely the marked disturbance in the cellular and connective tissue elements, furnishes in itself the primary steps in the development of malignancy.

Genner, Scringer and Foster,[15] reporting a case complicated by multiple sarcoma, raise the question if the formation of sarcoma was a coincidence or an inevitable result of the morbid process and decide it was the former. They base their opinion on the facts that six years elapsed before sarcoma appeared and that no sarcoma developed in the bones most affected by the osteitis. Neither facts furnish very strong argument, in view of the testimony of many other writers. One of Paget's cases, previously cited, developed sarcoma twenty-two years after the onset of the primary disease. In Fielder's[5] patient, the sarcoma involved the sacro-iliac joint, a location not commonly affected by the osteitis. Goodhart[2] records two cases of sarcoma complicating Paget's disease. In one the tumor grew in each ileum and lower spine. In the other, sarcoma affected the ilium, spine, ribs, femurs and clavicle. In Schmorl's[16] case, tumor formation in the humerus led to spontaneous fracture. Wherry,[6] on whose patient amputation was performed for sarcoma of the tibia, believes the two diseases are associated and osteitis deformans is the predisposing factor.

However this question may eventually be decided, the fact remains that the development of sarcoma upon the previously existing osteitis has determined the fatal issue in the cases thus far reported; while it is known that the primary disease, uncomplicated, may continue indefinitely without seriously impairing the patient's health.

No treatment has met with any success in combating the progressive changes in the bones due to the osteitis deformans.

My experience in the case here reported suggests the question: What effect, if any, may we expect from the early removal of a sarcomatous focus, on the subsequent course of the disease? In my patient the primary sarcoma of the tibia was not removed until some seven months after its appearance. However, healing took place and the particular bone, which was first affected by sarcoma, remained intact. The subsequently developing foci in both femurs and one humerus were progressive and resulted in spontaneous fracture. Would extirpation of the tibial sarcoma, when first seen, have offered any protection against the development of further foci? The answer would depend on whether the secondary growths are to be viewed as metastases from the primary, or whether the various foci are simply areas of the osteitis successively undergoing sarcomatous degeneration. Be this as it may, from our present knowledge, it would seem worth while to extirpate, when the location makes it possible, any single focus or sarcoma complicating Paget's disease, in the hope of at least avoiding a pathologic fracture, with its resulting pain and permanent disability.

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MELANOTIC SARCOMA OF THE SMALL INTESTINE; WITH REPORT OF A CASE.*

By EDGAR A. VANDER VEER, M.D.,
and
ELLIS KELLERT, M.D.,
ALBANY, N. Y.

AT the meeting of the Clinical College of Surgeons, in Boston, last November, Dr. Charles Mayo, in discussing the cancer problem, made the statement that carcinoma of the ilium was a very rare condition, and should always be reported. While the case which we wish to report today is not one of carcinoma, in some respects it is more interesting, being that of a melanotic sarcoma, probably primary in the ilium. As a rule, carcinoma is more prevalent in the large intestine and sarcoma, in its various forms, is by far more frequent in the small intestine. In the *Annals of Surgery* for March, 1912, Dr. John Douglas, of New York, gives a resume of all the reported cases of sarcoma of the small intestine, showing this condition to have been fairly rare.

The following case is therefore reported because of the two very interesting pathological conditions which were found at operation, each being rather unusual in itself, and when taken together form a very rare pathological condition. The history of the case, in brief, is as follows:

Mrs. A. S., aged fifty, born in U. S. A., housewife. Was seen by me on April 25, 1915, with the history of having had, during the previous fall, a severe cough, which at the time appeared to be tubercular. She then coughed up some tissue, which upon being examined was found to be possibly sarcomatous in character. After coughing up this material she seemed to be much better until about a week before I saw her. She gave me a history of severe abdominal pain in the left hypochondriac region, and had had this pain for about four weeks before coming to the hospital. In the beginning it was diagnosed as gas in the colon. The pain originated in the left side, and would extend toward the right side. Change of position would be accompanied by a boring pain, but pain always became localized in the left side. This pain continued to increase in severity until she was brought to the hospital. For two days before admittance she vomited incessantly, the vomitus being very foul-smelling, and seeds of fruit which she had eaten were returned. For about one week before the operation she had a complete obstruction, not having had a movement in that time. Had been more or less constipated, and was obliged to take cathartics. Said her abdomen was quite hard before being seen by me, and on four or five occasions she passed dark, bloody stools. Did not vomit any blood.

Past history was negative.

Palpation revealed most tenderness along the region of the descending colon. From the clinical history of the case, and the location of the pain, a diagnosis of carcinoma of the sigmoid was made.

Because of the location of the pain, incision was made high up and through the left linea semi-lunaris. Upon opening the abdomen there was an escape of a small amount of free fluid. Examination of the descending colon and sigmoid revealed nothing, but upon further exploration there was disclosed a large mass, which upon examination proved to be an intussusception of the small intestine in the middle section of the ilium. After careful manipulation the intussusception was reduced, but through the gut there could be felt a small tumor mass, which at first felt like soft feces, but proved to be a tumor which practically filled the entire lumen of the bowel. Six inches of small intestine was resected and an end-to-end anastamosis made. Patient returned to the ward and made an uneventful, though tedious, recovery. She lived very comfortably for about six months, when there appeared to be an extension of the growth in the lungs, and she succumbed to the

FIG. 1.—Photograph of tissue coughed up by patient.

* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 16, 1916.

Fig. 2.—Everted intestine showing melanotic tumor in the mucosa.

latter condition. Unfortunately, no autopsy was allowed.

If we study the history of this case carefully, we find that the first symptom which she noticed was a gradually-increasing constipation, which required more-and-more powerful cathartics to relieve. The second symptom was the feeling of pain in the left upper quadrant, gradually becoming worse. Finally acute obstruction came on, the tumor causing an intussusception, and this intussusception was so severe as to cause the attending physician to consider surgical intervention. Aside from these symptoms (constipation and pain) there were practically none.

Intussusception of the intestine caused by a tumor is a fairly rare condition, but that it does occur is known, and cases have been reported by several men. However, malignant conditions of the intestine are fairly rare, sarcoma being more common than carcinoma. Of carcinoma of the small intestines, especially in the ilium, not more than half a dozen cases have been reported.

With regard to the treatment, we all come back to the fundamental proposition as soon as diagnosis is made—operation, endeavoring if possible to completely remove the growth. But generally the case comes so late that merely a palliative operation can be performed. This strengthens our prognosis—the earlier the operation the more chance of a complete removal and a better prospect of cure. Either an end-to-end anastamosis or a lateral anastamosis can be performed.

The pathological side of this case, which is really the most interesting part, will be demonstrated by Dr. Kellert, Director of the Bender Hygienic Laboratory, Albany, N. Y.

In conclusion, let me say that this condition is most rare. In tumors of the intestine the ilium is the most frequent site of the tumor; next in the jejunum, then in the ileocæcal region, and, lastly, in the duodenal-jejunal junction. In sarcoma the mesenteric glands are involved early; hence the high percentage of recurrence. This, of course, is dependent somewhat upon the type of sarcoma. The melanotic and round-celled are the most malignant, and the most rapid to metastasize. Again, the symptoms are so insidious that they are practically nil until the growth has attained sufficient size to manifest itself as a palpable mass or mechanical cause of obstruction, either by kink or by intussusception. By this time these tumors have metastasized, and there is extensive glandular involvement; thus, recurrence. Abdominal distention is a late symptom, and is high up. Complete obstruction is rare following, as in the cases cited, mechanical causes, kink, intussusception, or extension of growth to mesentery. Anæmia and cachexia are early symptoms, whereas ascites and melena are rare. Perforation of intestine may occur. Intussusception is not an infrequent complication of tumors in the small bowel.

It is evident that the prognosis depends upon the early diagnosis and immediate radical opera-

Fig. 3.—Microphotograph of tumor showing pigmentation of the cells.

tion, removing mesenteric glands as far as possible above and below the site of growth. Free resection of the intestine several cu. cm. above and below the tumor is necessary. Again, the size and type of tumor, distribution, situation, glandular involvement and involvement of adjacent structures, play an important role in the determination of the prognosis.

Pathologic Report.

Specimen from lung—Laboratory No. S-14-1807—received November 3, 1914, from Dr. T. Holmes of Delmar.

The specimen consists of a Y-shaped mass of tissue, one portion of which is 6 cms. and the other 3 cms. in length. The tissue is greyish-white in color, blood stained and the mid-portion resembles clotted blood. The surfaces are very unequal and ragged. One end of the specimen terminates in a number of slender filamentous branches and suggests a bronchial cast.

Microscopic.—The mass appears to consist of new formed tissue, blood vessels, fibrin and clotted blood. The cellular portion consists of short oval cells with pale ovoid nuclei. Masses of these cells have formed about bands of fibrous tissue and are particularly well preserved about the blood vessels. Interspersed among these cells are numerous lymphocytes, eosinophiles, and polynuclear neutrophiles. There are large areas of necrosis and portions of the blood clot are undergoing organization. The appearances are those of very active granulation tissue.

Tumor from the intestine—Laboratory No. S-15-819—April 26, 1915.

Specimen consists of a portion of small intestine 12 cms. long. The serosa appears normal. There is no increased thickness of the intestinal wall. Projecting into the lumen from the mesenteric border is a flattened, irregularly circular tumor mass measuring 4 x 3.5 x 1.5 cms. It is black in color and rather firm. The point of attachment, though broad, is much smaller than the diameter of the tumor. The surface is smooth, uneven, greyish-black and covered with mucus. The mucous membrane beyond the tumor, is also covered by an excessive amount of mucus. Cut surface is deep black, smooth, and structureless. The growth appears to involve the muscle coats, but does not extend to the serosa.

Histology.—The tumor consists chiefly of polyhedral or rounded cells containing large irregular or oval vesicular nuclei. The cytoplasm is pink staining and frequently vacuolated. The larger portion of the cells are filled with numerous small, brownish-black granules. These particles are so numerous as to obscure the nucleus and cell structure. An occasional cell is found containing two or three nuclei. The tumor cells have a distinct tendency toward an alveolar arrangement. Frequently the cells are found in long columns and there are areas where the narrow bands of stroma have formed large spaces filled with tumor cells arranged very irregularly. Very little inter-cellular substance is present. The surface of the growth is necrotic and mucous membrane cannot be recognized. The intestine at a distance from the tumor appears normal. The blood vessels are few in number and small. Between the tumor and the serosa is a narrow band of fibrous tissue infiltrated with lymphocytes, eosinophiles, few plasma cells and pigmented tumor cells. Sections of the tumor stained for iron do not react, the brown pigment granules remaining unchanged.

A search through the existing literature indicates that primary melanotic tumors of the intestine are extremely rare, secondary pigmented growths more common. The greater number of cases already reported appear to be lymphosarcomata and are frequently multiple. Libman in 1900 made a very complete review of sarcomata of the intestine, adding five new cases, three of which had symptoms resembling appendicitis. He notes that in nearly every case the obstruction was produced not by the size of the tumor, but by the invagination which resulted.

Thomson in 1898 reported a case of very extensive metastases to the small intestine secondary to a primary melanotic sarcoma of the big toe. There were twenty large secondary growths extending into the lumen from the duodenum to to the ileocæcal valve. The pigment varied in amount and hæmorrhage was present. There was a tendency for the tumors to become cystic.

Rolleston in 1896 noted the presence of numerous polypoid melanotic tumors secondary to a growth in the right eye. They were small and resembled mucous polypi. The growths appeared to start in the mucous membrane, the larger ones occupying the mucous and submucous coats. In this case there were metastases to all the abdominal organs and the bones. The liver weighed sixteen pounds. Microscopically the growth was a spindle-celled sarcoma.

Primary melanotic tumors although most commonly found in the skin and eye, have been noted in other tissues as the ovary, thyroid, adrenal and urethra. Adami cites the above instances and also speaks of his doubt concerning the primary nature of such growths until seeing a melanotic sarcoma originating in the mucosa of the common bile duct. This specimen was exhibited and described by Dr. Duval.

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SOME PHASES OF THE PRESENT TREATMENT OF FRACTURES.*

By JAMES M. HITZROT, M.D.,
NEW YORK CITY.

A decade ago it was evident to all surgeons interested in the question of fractures that the results of the then existing treatment of fractures were not entirely satisfactory and that the outcome of such treatment gave evidence of none of the signs of progress which existed in the other fields of surgical practice.

During this decade fractures have been receiving more attention and one needs only to review the files of the surgical publications during that period to see the immense amount of literature which has resulted from this increasing interest in broken bones. Much has been accomplished, but except in a very general way, no satisfactory progress has as yet resulted.

The pertinent question is—why? At least three factors have operated to prevent what should be the normal improvement in the treatment of this surgical injury:

1. The attitude of the medical profession.
2. The prevailing belief of the laity with regard to a fracture.
3. The absence of a standard scheme for recording the data necessary to establish a standard of treatment and a standard result for any given type of fracture.

For purposes of discussion one may roughly divide the profession into three groups. 1. Those who believe that the proper handling of fractures requires a special training in the problems peculiar to fractures, a special group of qualifications, namely, a knowledge of the physics, anatomy, and pathology of fractures, and a special surgical equipment and armamentarium. 2. Those members of the profession who can find no interest in fractures unless there is an operation in the case. 3. Those who believe that fractures can be efficiently handled by any one with a medical degree.

Naturally the outcome of such varied beliefs can only result in a great variation in the methods of treatment instituted and a still greater variation in the nature of the results thus obtained. In the hands of the first group one can find little to criticize except perhaps the inevitable desire to increase the various methods of operative procedure beyond a rational level. However, in the hands of this group the results are standard, and on a whole produce the same approximate result for any given type of fracture, the only variation being that referable to the method of treatment pursued. Their equipment is satisfactory and they are constantly giving to the subject that concentrated study which must of necessity, bring about a standard result, i. e., the best result to be obtained from the proper treatment of a given type of this form of injury.

In the second group one finds men professing surgery as a vocation who can find no interest in the routine type of fractures and whose chief interest rests upon those types of fractures which give them an opportunity to try the latest operation in vogue for which they are neither mentally nor technically equipped. Hence we hear that so and so was operated upon for his broken leg, that the operation was unsuccessful, that he lost his leg or died, or some equally unpleasant story. Fortunately this group is rapidly diminishing in number.

In the third group, however, one finds the real obstruction to progress. Doubtless there are many members of the medical profession who could treat fractures properly were they to give to that subject the time and interest which are required to acquire the necessary proficiency. The fact remains that except in very exceptional cases they have very little knowledge of this intricate subject.

This group of men represents by far the largest. It is the family practitioner who boasts that he does no surgery, yet invariably treats the fractures that come to him who is the real obstruction to progress. Frankly I do not believe that except in the hands of the first-mentioned group that there has been any progress whatever during the past decade and I do not believe any satisfactory advance can be brought about until the profession as a whole comes to realize that the treatment of a broken bone means considerably more than the so-called setting of a fracture and the laying on of that panacea a splint or splints.

Proficiency can only result from the careful study of and the practical experience with a large number of fractures so that the early recognition of the necessary method of treatment for the given fractures can be promptly and efficiently instituted. Much of the operative work upon bone is done to correct errors in the early treatment because of the failure of that treatment, and the prompt recognition of the prospective failure of the type of treatment instituted must needs be the sine qua non for success.

The prevailing belief of the laity with regard to a fracture is largely the result of the attitude of those members of the profession with whom they come in contact. By far the largest group believe that all that is required is the setting of the fracture and that the process is a simple matter.

Another group is grossly apprehensive. Everything is bound to be wrong because all fractures result disastrously, hence they distrust any surgical attendant and usually refuse that proced-

* Read before the Medical Society of the County of Westchester, March 20, 1917.

ure essential to produce the proper result until it is too late.

A smaller group show a definite sense of appreciation of the mechanical difficulties to be surmounted.

The most complicated types of fractures are sent to the hospital with the information that the treatment there will make them as good as new. It won't. Nature is kind but it does not promise the impossible.

The proper education of the laity lies in the hands of the profession. Unless the profession give that education it will only be a matter of time before the insurance companies furnish it for their own protection. These companies will sooner or later come to realize the essential difference between proper and improper handling of the fractures for which they must pay, and will eventually demand an accurate knowledge of the subject from the medical attendant. This fact is already under consideration by several of the most important companies. They will before long tabulate the names of the men equipped to care for the injured workmen for whom they must pay, and it behooves us to anticipate any such action by preparing ourselves to give to the treatment of fractures the attention which that injury requires to produce the best results.

The modern methods of treating fractures comprise four great groups.

1. By massage and mobilization (Lucas-Championniere).
2. By manipulation with fixation by some external device after reduction.
3. By extension methods,

a. By adhesive plaster with a straight limb (Bardenheur and the Cologne School).

b. By adhesive plaster with a fixed limb (Zuppinger Hodgen and the combined traction of Stimson).

c. By transfixing rods, nails, etc. (Codvilla, Steinmann, Lambret, Puenu, Mathieu, Finochetti stirrup, etc.).

4. By open operation.

At present there is in existence no generally accepted method of tabulating the various fractures and the results obtained by any of the above forms of treatment and the lack of an established standard scheme for recording the data from which might be deduced the proper or standard treatment for any given type of fracture has been one of the main drawbacks to progress. It is quite evident that varying types of treatment produce very satisfactory results for practically identical types of bone injury. One school employs one type and has no use for another. But as yet no definite standard scheme for recording the essential data has been put into commission so that definite conclusions might be drawn as to the essential value of any given method of treatments compared to any other treatment or any other group of methods.

Until such a scheme comes into existence which will give universal records for all men handling fractures, and until such records are conscientiously kept there can be no definite knowledge regarding the treatment most uniformly successful (i. e., that treatment which produces the best result possible) except such as is gathered by a few individuals who do keep such records.

Sooner or later such a form will come into universal use. The American Surgical Association has adopted such a recording blank but it has not yet been generally accepted. Before any such scheme can come into existence many terms which are at present loosely used will have to be definitely defined and properly understood so that what is a good result or what is meant by good function will not mean so many different things as at present. The following scheme has been used by the writer for approximately eight years:

SCHEME FOR RECORDING FRACTURES.

Name Age Occupation
Date and time of injury
How injury occurred
Previous treatment
Location of fracture
Type of fracture
simple
compound
Deformity
In long axis shortening
Transverse axis lateral displacement, angulation, etc.
Other displacements
Character of line of fracture
From examination
From X-ray plates
Other examination such as operation
Treatment
Time instituted (how long after injury)
manipulation
Method of reduction
traction (character and type of)
Method of fixation (type of)
used (type of)
Anesthesia
not used
If operation is resorted to (type of)
Causes of failure of other treatment
Time of operation as related to time of injury
direct
Type of fixation used
indirect
Observations at operation
of injury

Complications and sequelæ
of treatment
After treatment
Massage time begun
Passive motion " "
Active motion " "
Baking " "
Other details " "
Time of repair, i. e., time of removal of fixation
Result
Anatomical, noting callus, amount of displacement, etc.
Deformity, shortening, angulation, etc.
Functional
Specify range of all movements in neighboring joints as compared to opposite
Industrial
Compared to opposite side
Muscular power
Atrophy measured
Complications
X-ray examination
Before reduction
immediate
After reduction
when fixation is removed
Late pictures

One may formulate the following as necessary for the correct treatment of fractures:

1. Unnecessary manipulation under improper surroundings should be avoided. Splint the fractured area (in the long axis of the limb if an extremity) and transport the patient to a place suitable for the handling of the injury in question. If the patient is in shock or pain, use morphine.

2. Reduce the fracture as soon as possible after the injury. This reduction should not be delayed beyond two hours.

(It was the consensus of opinion at the meeting of the New York Fracture Society held March 7, 1917, that reduction should not be delayed beyond three hours.)

3. Reduction and the proper and complete examination to determine the type and character of the fracture should be done under an anesthetic. (Naturally the same general contra-indications to the use of an anesthetic apply here as are found to apply in other fields of surgery.

4. Have an X-ray plate made if such a plate can be made without unnecessary delay. No reduction should be delayed, however, beyond the time set in paragraph 2 to await an X-ray. An X-ray must always be made after a reduction and should be made the day of the injury.

It is perhaps superfluous to add that the surgeon should interpret the X-ray plates himself.

5. Every fracture treated by traction should have an X-ray taken with the traction apparatus in position and in full operation.

6. Every fracture of the long bone should have the proximal and distal joints included in and immobilized by the fixation apparatus.

7. The fixation apparatus used should be easily removable, procurable everywhere, and should not be applied too tightly.

8. If the fracture is obviously irreducible, or if the X-ray taken after the supposed reduction shows that that reduction is unsatisfactory, other treatment should be instituted promptly.

9. Operation should be done within the first fourteen days, four to seven days for the smaller bones, nine to eleven days for the larger bones. All the cases operated upon later than two weeks should be considered as late operations. (Obviously operation may be done immediately for complicating injuries to the soft parts.)

10. The chief contra-indication to operation is inexperience on the part of the surgeon.

11. The prognosis for fractures in the first two decades (up to 20) is usually favorable. In the decades between twenty and forty the prognosis depends upon the character and location of the fracture, the temperament of the individual, and the treatment instituted. A very bad fracture excellently handled in a patient willing to do his utmost to regain the function of the injured limb will give a very different result from that obtained in a patient unwilling to do anything which suggests the possibility of pain. In the decades beyond forty the prognosis should be guarded especially as to function and pain, and the results obtained as a rule are worse as age advances.

12. Massage is an essential part of the after treatment, skilfully given it is adjunct in the treatment of fractures. Unskilled massage is distinctly dangerous. It is the writer's belief that the early massage is an essential part of the surgeon's care of the case and should be given by the surgeon himself. Later when the danger of displacement at the site of fracture has passed, the massage may be given by a trained masseur, but only by one trained in the proper method of massage as adapted to fracture work.

A lantern slide demonstration was given to demonstrate:

1. Types of fractures in which there is no displacement and which obviously require no treatment other than fixation to prevent subsequent displacement and deformity.

2. Types of fracture which if reduced under anesthesia within four hours after injury as stated in pp. 2, result satisfactorily.

3. Types of fractures which require operative treatment to produce a proper result. (Largest number of slides.)

4. Border line cases.

5. Cases with displacement in which reduction is impossible whether operative or otherwise. (Pelvis and scapula.)

Application for Examination for Appointment in the Medical Reserve Corps, United States Army

....., 191

To the Surgeon General, U. S. Army,
Washington, D. C.

SIR:

I hereby make application to be examined for appointment in the Medical Reserve Corps, U. S. Army, and inclose testimonials as to my character and habits.*

I certify that to the best of my knowledge and belief I am laboring under no mental or physical infirmity or disability which can interfere with the efficient discharge of any duty which may be required of me if appointed in the Medical Reserve Corps, U. S. Army, and that the answers given to the interrogatories below are true and correct in every respect.

I furthermore state my willingness to proceed to such point for examination as may be designated by the Surgeon General, with the understanding that the journey entailed thereby must be made at my own expense.

INTERROGATORIES.

1. What is your name in full (including your full middle name)?
2. What was the date of your birth?
3. Where were you born? (Give State and city or country; if foreign born, give country.)
4. When and where were you naturalized? (For applicants of alien birth only.)
5. Are you married or single?
6. Have you any minor children; if so, how many?
7. What is your height, in inches?
8. Your weight, in pounds?
9. Give the nature and dates of all serious sicknesses and injuries which you have suffered:
10. If either parent or brother or sister has died, state cause and age in each case:
11. Do you use intoxicating liquors or narcotics; if so, to what extent?
12. Have you found your health or habits to interfere with your success in civil life?
13. What academy, high school, college, or university have you attended? State periods of attendance from year to year, and whether you were graduated, giving date or dates of graduation:
14. Name any other educational advantages you have had, such as private tuition, foreign travel, etc.:
15. Give all literary or scientific degrees you have taken, if any, names of institutions granting them, and dates:
16. With what ancient or modern languages or branches of science are you acquainted?
17. How many courses of lectures have you attended? Names of colleges and dates:
18. When and where were you graduated in medicine?
19. Have you been before a State examining board? If so, state when, where, and with what result:*
20. Are you a member of any State medical society? If so, give its name:
21. Have you had service in a hospital? If so, state where and in what capacity, giving inclusive dates of each kind of service:
22. What clinical experience have you had in dispensary or private practice?
23. Have you paid particular attention to any specialty in medicine; if so, what branch?
24. What opportunities for instruction or practice in operative surgery have you had?
25. Have you previously been an applicant for entry into the United States service? If so, state when, where, and with what result (if rejected, state why):
26. Are you a member of the organized militia? If so, state with what organization and in what capacity:
27. Have you been in the military or naval service of the United States as cadet or otherwise? If so, give inclusive dates of service with each organization, designating it:
28. What occupation, if any, have you followed other than that of student or practitioner?
29. What is your present post-office address?
30. What is your permanent residence?
31. (Signature of applicant).....
32. The correctness of all the statements made above was subscribed and sworn to by the applicant before me this day of , 191 .

(Signature of Notary).....

*Testimonials as to character and habits from at least two reputable persons must accompany this application. Political recommendations are not necessary.

* This application must be accompanied by a certificate from the proper official that the applicant is duly registered to practice medicine in the State in which he resides.

Medical Society of the State of New York

District Branches

ANNUAL MEETINGS FOR 1917.

First District Branch—Saturday, October 20th, in New York City.

Second District Branch—Monday, October 29, 1917, in Brooklyn.

Third District Branch—Thursday, October 4, 1917, in Troy.

Fourth District Branch—Thursday, August 30th, in Amsterdam.

Fifth District Branch—Date not yet appointed.

Sixth District Branch—In Watkins; date not yet appointed.

Seventh District Branch—Thursday, September 27th, 1917, in Canandaigua.

Eighth District Branch—In September, in Buffalo.

Meeting of the Council

In accordance with Chapter IV, Section 1, of the By-Laws, a meeting of the Council of the Medical Society of the State of New York was called at 17 W. 43d Street, on May 31, 1917. As there was not a quorum present the meeting was adjourned till June 2d.

The adjourned meeting of the Council was held at the State Society offices, 17 W. 43d Street, New York City, on Saturday, June 2d, Dr. Alexander Lambert, President, in the Chair. Dr. Floyd M. Crandall, Secretary.

The meeting was called to order by the President at 10.45 A. M., and on roll call the following answered to their names: Drs. Martin B. Tinker, Alexander Lambert, Thomas H. Halsted, Albert Warren Ferris, Marcus B. Heyman, Floyd M. Crandall, Frank Van Fleet, James F. Rooney, Joshua M. Van Cott, Frederic E. Sondern, Samuel Lloyd, Henry Lyle Winter, Arthur J. Bedell, Richard Giles, Arthur H. Terry, James P. Marsh, Lew H. Finch, James F. McCaw, Arthur W. Booth, and Albert T. Lytle.

A quorum being present Dr. Lambert announced the meeting open for business.

It was moved, seconded, and carried that Dr. Louis Faugères Bishop be appointed Delegate from the Medical Society of the State of New York to the Vermont State Medical Society.

The Secretary read the following letter from Dr. Ordway:

"Albany, N. Y., May 29, 1917.

"Dr. Floyd M. Crandall, Secretary, Medical Society, State of New York, New York City, N. Y.

"DEAR SIR: I hereby make application to have the Medical Society of the State of New York waive jurisdiction over my membership and allow the Massachusetts jurisdiction to control my membership in the American Medical Association. This application to the Society has been suggested by Dr. Alexander R. Craig.

"Very sincerely,

"(Signed) THOMAS ORDWAY, M.D., Dean
Albany Medical College."

It was moved, seconded, and carried that the Society waive jurisdiction over the membership of Dr. Ordway.

The Treasurer, Dr. Van Fleet, made a report in which he suggested that the Society invest its surplus funds in Liberty Bonds. He also drew the attention of the Council to the resolution of the House of Delegates in regard to increasing Mr. Lewis' salary, and to the necessity for economy.

Moved by Dr. Van Fleet that these matters be referred to the Finance Committee with power.

Moved by Dr. Marsh, seconded, and carried, to amend this motion and take up the consideration of the Treasurer's recommendations in order, first the Liberty Bonds; second, increasing of salary of the Counsel, and finally the question of economy.

Moved, by Dr. Lytle, that the Treasurer be instructed to invest an amount, not to exceed $5,000, in Liberty Bonds. Seconded; motion lost.

Moved, seconded, and carried that the salary of the Counsel be increased 25 per cent and that Mr. Lewis be directed by the Council to employ an assistant, whose salary shall be paid out of the salary paid to Mr. Lewis by the Medical Society of the State of New York from May 1, 1917, to May 1, 1918.

It was moved by Dr. Van Fleet, seconded, and carried that the contract with Mr. Lewis be dated May 1, 1917.

It was moved, seconded, and carried that the funds of the Society be deposited in the Guaranty Trust Company and in the Union Dime Savings Institution.

It was moved, by the Treasurer, seconded, and carried that the Council draw the attention of the Committees of the Society to the great necessity for economy.

The President appointed Dr. Arthur W. Booth a member of the Committee on Scientific Work.

Dr. Van Cott, Chairman of the Committee on Public Health and Medical Education, nominated the following members for his committee: Drs. Allen A. Jones, Charles Stover, Thurston H. Dexter, Joseph L. Moore, Linsly R. Williams, John M. Swan, Luzerne Coville, and Henry E. Clarke.

It was moved, seconded, and carried that these nominations be approved.

Dr. Bedell, Chairman of the Committee on Arrangements, nominated the following members for his Committee: Drs. Frederic C. Conway, Thomas W. Jenkins, Howard E. Lomax, Andrew MacFarlane, Leo H. Neuman, James F. Rooney, and James N. Vander Veer.

It was moved, seconded, and carried that these nominations be approved.

Dr. Sondern, Chairman of the Committee on Medical Research, nominated the following members for his Committee: Drs. S. A. Brown, F. M. Crandall, B. F. Curtis, A. H. Doty, H. Emerson, J. Ewing, S. Flexner, W. P. Healy, A. F. Hess, S. W. Lambert, W. H. Park, W. M. Polk, J. E. Sadlier, J. B. Squier, J. S. Thacher, S. W. S. Toms, H. L. Winter, F. C. Wood, E. H. Bartley, W. F. Campbell, J. R. Kevin, J. C. MacEvitt, F. Overton, J. M. Van Cott, H. C. Gordinier, A. MacFarlane, A. Vander Veer, H. E. Baright, G. C. Madill, C. Stover, T. W. Clarke, C. B. Forsyth, H. G. Locke, A. W. Suiter, L. Coville, R. P. Higgins, B. W. Stearns, J. P. Creveling, W. T. Mulligan, E. A. Nevin, G. K. Collier, G. W. Cottis, J. A. Gibson, V. M. Rice, N. G. Richmond, B. F. Schreiner, and H. U. Williams.

It was moved, seconded, and carried that these nominations be approved.

Dr. Winter, Chairman of the Committee on Medical Economics, nominated the following as members of his Committee: Drs. S. A. Brown, A. F. Chace, G. C. Madill, H. G. Webster.

It was moved, seconded, and carried that these nominations be approved.

The following Committee on New Members was appointed by the President: Dr. Martin B. Tinker, Chairman; Drs. Frederic E. Sondern, and James F. McCaw.

The following Committee to revise the present Workmen's Compensation Laws was appointed by the President: Dr. J. F. Rooney, Chairman; Drs. Henry Lyle Winter, David Bovaird, Frederick H. Flaherty, and Samuel J. Kopetzky.

The following Committee on Counsel was appointed by the President: Dr. William Mortimer Brown, Chairman: Drs. Frank Van Fleet, and Richard Giles.

The following Committee to Pass upon County By-Laws was appointed by the President: Dr. Floyd M. Crandall, Chairman; Drs. James P. Marsh, and Joshua M. Van Cott.

The following Committee to Consider Redistricting the District Branches was appointed by the President: Dr. Albert T. Lytle, Chairman; Drs. Arthur H. Terry, and Lew H. Finch.

Moved, by Dr. Winter, seconded and carried that Dr. Lloyd be given the power to name a Chairman to carry on the work of the Committee on Scientific Work in case Dr. Lloyd is called abroad on military duty.

Dr. Tinker asked for the co-operation of the Councilors in the campaign for new members.

Moved, by Dr. Lytle, that the Council discourage the use of Casualty Companies by the members of the State Society.

Moved, by Dr. Rooney, seconded, and carried that this question be laid on the table.

Dr. Bedell, Chairman of the Committee on Arrangements, suggested May 21, 22, and 23, 1918, as the date of the next Annual Meeting.

Moved, seconded, and carried that this date be adopted.

Moved by Dr. Bedell, seconded, and carried, that the meeting of the House of Delegates be convened on the afternoon and evening of the Monday preceding the first day of the next Annual Meeting.

Moved, by Dr. Rooney, that the action of the Council, taken last December, changing the time of the meeting from Tuesday morning to Tuesday evening, be rescinded and that the general meeting of the Society take place at noon on the first day of the meeting.

After a discussion on the action taken by the State and County Societies in regard to the practice of physicians called into the service of the United States, it was moved, seconded, and carried that the Chairman of the Committee on Legislation and the Chairman of the Intermediary Committee take the matter up with the Department of Education and arrive at some means of taking care of physicians who are called into active service.

Dr. Winter read the following report of the Intermediary Committee:

"The Intermediary Committee reports that it received and accepted an invitation from the Commissioner of Education to be present at the annual convocation of the Board of Regents held in Albany. Dr. Van Fleet and the Chairman attended, the balance of the Committee being prevented from attending for sufficient reasons. Through the courtesy of Dr. Finley we were presented to the Board of Regents on the evening preceding the convocation. The results of that meeting were to establish permanent and friendly relations between the Regents and the Medical Society of the State of New York.

"Subsequently the Committee met the State Board of Medical Examiners and Dr. Downing, representing the Department of Education, in consultation regarding the efficiency of the present medical practice act. After discussion it was generally agreed that the law should be amended, and the Secretary of the State Board of Medical Examiners was asked to make the initial draft of a bill to be considered at some subsequent meeting.

"At a meeting held in New York City, to which Dr. Rooney was invited, the bill published in the JOURNAL which provided for annual re-registration and prosecution by the Attorney General of the State, instead of local district attorneys was approved.

"This bill was presented to several of the County Societies, the Chairman going to Rochester to present it to Monroe County, and was approved. In New York County the bill was strongly opposed. Dr. Rooney, Dr. Downing of the Department of Education, and the Chairman, attended a special meeting of that Society to present the bill but were unsuccessful, the bill being practically unanimously rejected.

"The Department of Education agreed with this committee that inasmuch as the County of New York objected so strongly no effort would be made by the Department to present the bill to the Legislature.

"We believe that while the effort at legislation which was made was withheld from the legislature the relations which have been established with the Regents have been and will continue to be of great value to the Society."

Moved, seconded, and carried that Mr. A. H. Wicks be appointed auditor for the coming year at the same salary as in the past.

Moved, seconded, and carried that the Committee on Finance authorize such expenditures as it considers advisable, and that the officers, chairman, and members of the committees incur no expense on behalf of the Society, except railroad fares, without the approval of the Committee.

Moved, seconded, and carried that in order to encourage increase in membership for the year 1917, all members who are elected between October 1, 1917, and December 31, 1917, and who shall pay during that period their state assessment, may have the same credited to 1918, provided that they request it. All whose assessments are so credited shall be entitled to malpractice defence for 1917, but shall not be entitled to receive the Directory or JOURNAL for 1917. State assessments so credited shall be immediately forwarded by the County Treasurer to the State Treasurer.

Moved, seconded, and carried that officers and members of Committees upon presentation of vouchers may have their railroad fares paid for attending regular meetings, provided the bills be presented within sixty days after they have been incurred; otherwise they will not be paid;

That Delegates to the American Medical Association may have their railroad fares paid upon presentation of proper vouchers, on condition that they attend all meetings of the House of Delegates. Bills for said expenses must be presented for payment within sixty days after they have been incurred; otherwise they will not be paid.

Moved that the annual dues of all members who are called into the service of the U. S. Army or Navy be remitted during the continuation of the present war.

Moved, seconded, and carried that this motion be laid on the table.

There being no further business the meeting adjourned.

FLOYD M. CRANDALL, *Secretary.*

County Societies

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

REGULAR MEETING, BROOKLYN, MAY 15, 1917.

At the regular meeting of this Society, held in the Kings County Library Building, the following resolutions were unanimously adopted:

WHEREAS, Chapter 7, Section 4 of the By-Laws of the Medical Society of the State of New York has been amended to read: "The Committee on Legislation shall consist of a Chairman to be elected by the House of Delegates, and of the chairmen of the legislative committees of the constituent county societies."

AND WHEREAS, The Medical Society of the State of New York has shown by the adoption of this amendment that it recognizes the fundamental principle that all questions on medical legislation which may affect the whole state should primarily be referred to the State Society, that attempts at handling such questions should not, as heretofore, be left to the spasmodic effort of the unorganized few, and that what is needed for successful operation is a permanent, representative organization that shall reach every smallest part of our state:

AND WHEREAS, The plan here to be outlined has, for some time, been in operation in the Medical Society of the County of Kings, and has been found to be effective,

Therefore be it Resolved, That the present organization of the legislative committee of the Medical Society of the County of Kings be recommended to each county society in the state, and to the state societies of the other states.

And be it further Resolved, That the plan recommended be as follows: The Chairman of the Legislative Committee of the State Society to be chosen, if possible, from the State Capitol. The legislative committee of each county society to be so arranged that it shall always consist of a physician from each assembly district, and an additional physician from each senatorial district. The duty of the chairman of the legislative committee of the county society, by reason of the fact that he is also a member of the

legislative committee of the State Society, to be to give to the members of his committee information coming to him from the chairman of the legislative committee of the State Society, to advise them in regard to proposed medical legislation that may need to be combatted or furthered, and to get from them information arising from their interviews or correspondence with the legislators of their respective districts.

The duty of the members of the legislative committees of the county societies to be to ascertain the views or position on medical legislative matters as they arise of the assemblymen or senators from whose district they were appointed, and to try to influence these legislators in favor of proper measures and against mischievous medical legislation.

And further be it Resolved, That the Medical Society of the County of Kings recommends that the machinery of such an organization be put in operation as soon as possible, believing that its use would result in successfully combatting pernicious medical legislation.

And further be it Resolved, That copies of these resolutions be sent to the president of each county society, to the president of the State Society, to the Governor of the State of New York, to the Chairman of the Legislative Committee of the State Society, to the editors of the leading medical journals, particularly of the STATE JOURNAL, to the *Journal of the American Medical Association,* and to the president and secretary of the American Medical Association.

THE MEDICAL SOCIETY OF THE COUNTY OF ALBANY.

SPECIAL MEETING, ALBANY, Thursday, June 21, 1917.

Owing to the absence of both the President and Vice-President, the meeting was called to order by the Secretary, Dr. E. S. Haswell, at 8.45 P. M.

Reading of the minutes of the May meeting by the Secretary. Approved.

Reports of Officers and Committees:

The Board of Censors, having reported favorably upon the names of Drs. Joseph I. Dowling and Thomas M. Holmes for membership in the Society, a ballot was taken and the applicants were declared elected.

Upon vote of the Society the Scientific Program was proceeded to:

SCIENTIFIC PROGRAM.

Address by Charles S. Wilson, Commissioner Agriculture of the State of New York, Chairman of the New York State Food Supply Commission.

Demonstration of Orthodontia by Plaster of Paris Models—George H. Caddick, D.D.S., Albany.

Discussed by Arthur J. Bedell, M.D., Albany.

"Surgical Aspects of Certain Types of Bone and Joint Lesions, as Shown by Radiograph." Lantern slide demonstration, Joseph L. Bendell, M.D., Albany.

Commissioner Wilson in his address requested the Society to appoint a committee to suggest and devise a means whereby proper information relative to food conservation could be introduced into the homes of the families of Albany County.

Owing to the lateness of the hour, Dr. Bendell withdrew his paper, which was a disappointment to his friends; but he promised to give it at an early meeting in the fall.

The society then returned to the regular order of business.

The following resolution was passed:

"WHEREAS, The most excellent resolution and form of agreement adopted by the State and County Societies for the conservation of the practice of those absent on military duty affects and governs only those physicians who are members of the State and County Societies; and

"WHEREAS, There are a large number of physicians over whom the State and County Societies have no jurisdiction and who, without being subject to discipline or penalty, might appropriate the practice of military absentees; therefore,

"Be it Resolved, That it is the sense of this Society, that such legislation should be enacted which will amend the Education Law so that the State Department of Education and Board of Regents shall have power to regulate, govern, control and to hold to a strict accountability all regularly licensed physicians, who may or shall take over or care for the practice of military absentees, and to impose such penalty or penalties for proved infraction of the same, as they may deem just and proper; furthermore,

"Be it Resolved, That a copy of this resolution be transmitted to Albany County's representatives in the state legislature and to the New York State Department of Education."

Following the resolution there was a considerable discussion relative to the care of the practice of military absentees, participated in by Drs. Christian Hacker, C. W. L. Hacker, Philip Hacker, Edward Stapleton, Henry Mereness and Howard Lomax.

On vote of the Society, the resolution was adopted.

In accordance with the request of the Commissioner of Agriculture Charles S. Wilson, it was voted that the President appoint a committee to suggest and devise a means whereby proper information relative to food conservations could be introduced into the homes of the families of Albany County.

ESSEX COUNTY MEDICAL SOCIETY.

SEMI-ANNUAL MEETING, ELIZABETHTOWN, JUNE 5, 1917.

The meeting was called to order at 2.45 P. M. by the President, Dr. T. H. Canning. On roll call the following answered to their names: L. G. Barton, Jr., J. Breen, T. H. Canning, E. R. Eaton, J. H. Evans, C. S. Faulkner, H. S. McCasland, C. R. Payne and R. T. Saville.

The minutes of the last meeting read and approved.

The Secretary reported one member lost by death since last meeting, and two members gained, one by election and one by transfer.

The president appointed as committee to draft resolutions of regret at the death of Dr. F. M. Noble of Bloomingdale, Drs. Sayville, McCasland and Brown.

The President appointed the following Auxiliary Medical Committee for National Defense, Dr. H. S. McCasland, of Moriah, and Dr. E. R. Eaton, of Crown Point, to serve with himself as chairman *ex-officio.*

SCIENTIFIC PROGRAM.

Major Richard Derby and Capt. Frederic T. van Beuren, of the Medical Reserve Corps, spoke. on Medical Preparedness and the need of the National Government for medical men at the present time.

Mr. James P. Heaton, Secretary of the New York Committee on Feeblemindedness, addressed the meeting on the question of feeblemindedness in New York State.

A rising vote of thanks was extended to Major Derby, Capt. van Beuren and Mr. Heaton for their assistance.

MEDICAL SOCIETY OF THE COUNTY OF SCHOHARIE.

SEMI-ANNUAL MEETING, MIDDLEBURGH.
Tuesday, June 12, 1917.

The following members were present: Drs. Simpkins, Shafer, Rivenburgh, Bentley, Driesbach, J. J. Beard, Burgett, Low, Jr., D. W. Beard, Myers, Wharton, Best, Becker, Snyder and Odell.

The following officers were nominated for 1918: President, W. E. Low, Jr.; Vice-President, W. W. Burgett; Secretary, H. L. Odell; Treasurer, L. R. Becker; Censor, W. T. Rivenburgh.

Scientific Session.

Victor C. Myers, Ph.D., Professor of Pathological Chemistry, New York Post Graduate School, gave a very interesting and helpful talk on and clearly indicated the necessity for the chemical examination of the Blood in Diabetes and Nephritis.

Dr. L. Whittington Gorham, of Albany, N. Y., entertainingly demonstrated the increasing prevalence of cancer in plants and animals, especially man, and showed the need of its early recognition. Major Henry L. K. Shaw, and Captain Edgar A. Vander Veer of Albany fittingly completed the program by very convincing talks on "Medical Preparedness—The Physician's Duties and Opportunities."

MEDICAL SOCIETY OF THE COUNTY OF FRANKLIN.

Regular Semi-Annual Meeting.

Saranac Lake, Tuesday, June 12, 1917.

The President, Dr. A. L. Rust, in the chair. Members present, 23; visiting physicians present, 10.

The Comitia-Minora met at 12.15 P. M.

The business meeting was called to order at 12.30.

The minutes of the last meeting were read and approved.

Report of the Comitia Minora was read and approved.

The matter of "National Defense of Franklin County in the State of New York" was taken up, and after some discussion the President appointed the following:

"Auxiliary Medical Committee for National Defense of Franklin County, N. Y.," Drs. W. N. Macartney, of Fort Covington; J. S. Van Vechten, of Chateaugay, and C. A. Hastings, of Malone.

Obituary sketches of the late Drs. A. E. Moody and S. W. Outwater were read by the Secretary.

The following officers were nominated for election at the next Annual Meeting:

For President, Dr. William N. Macartney, Fort Covington; Vice-President, John A. Grant, Malone; Secretary and Treasurer, George M. Abbott, Saranac Lake; Censor for three years, Charles C. Trembley, Saranac Lake; Delegate to State Society, John W. Blackett, Fort Covington.

At 1 P. M. the meeting adjourned to the Berkeley Hotel for lunch.

The Scientific Session was called to order at 3 P. M. and the following addresses given and papers read:

Vice-President's address, "Morton's Metatarsalgia," William N. Macartney, M.D., Fort Covington.

"Feeble-mindedness," Mr. George A. Hastings, New York State Charities Aid Association.

"Surgical Types of Painful Digestion," Claude C. Lytle, M.D., Ogdensburg.

"Some Results of Medical School Inspections," William A. Howe, M.D., State Department of Health.

"Helio-Therapy and the More Recent Additions to Chemo-Therapy in Tuberculosis," Edgar P. Mayer, M.D., Trudeau Sanatorium, Saranac Lake.

"Surgery of the Gall Bladder," John D. Harrigan, M.D., Alice Hyde Hospital, Malone.

Some very interesting discussions followed.

Book Reviews

The Principles of Human Physiology. New (second) edition. By Ernest H. Starling, M.D., F.R.C.P., F.R.S., Jodell Professor Physiology University College, London. Octavo, 1,271 pages, 566 illustrations, 10 in colors. Cloth, $5.00 net. Lea & Febiger, publishers, New York and Philadelphia, 1915.

This second edition of Starling's Human Physiology, coming so soon after the publication of the first, is evidence of the esteem it has won among medical students. Books of inferior merit are not likely to have a second edition called for soon. The rewritten chapters, and additional matter that has been inserted, indicates the rapid strides physiology has made within recent years. Any medical man who has to depend upon a book on physiology that was published ten to fifteen years ago, for his information on that subject, is seriously out of touch with the progress of his profession. Take, for instance, the subject of dietetics and compare the teachings of a decade ago with those of this volume and the reader will not be long in discovering that a revolution has been wrought of capital importance to every practicing physician. The old notions were based, almost wholly, on tradition and guesswork. The new are the outcome of careful, painstaking experiments for which we now have fact. The isolation of the amino acids, the experimental study of the effects of their different kinds upon the nourishment of the organism, the discovery of the proportions in which they must be used to provide a properly balanced diet, the new knowledge of the energy-holding capacity of fats, proteins, starches, sugars, etc., and the effects upon metabolism of the secretions of the ductless glands, were all things unknown to graduates of less than a generation ago. Not to know these now is to be hopelessly in the rear of progressive medical science.

The volume is divided into four parts. The first, occupying 170 pages, treats of the structure of the cell, its constitution, chemistry, and source of energy. The second, with 296 pages, treats of the muscular system and the mechanism of bodily movement, followed by a concise account of the different parts and different functions of the nervous system. The third, having 712 pages, is devoted to metabolism, digestion, food-stuffs, the blood, the circulation, the lymph, respiration, temperature regulation, renal excretion, the ductless glands, etc. The fourth, filling 169 pages, is devoted to the physiology of reproduction. There is a chapter upon the chemical defenses of the organism against infection in which Ehrlich's side-chair theory, the nature of cytolysins and the nature of opsonins are explained. The volume ends with an unusually complete and useful index that greatly facilitates a busy man who needs to consult it in a hurry upon some immediately important topic.

Among the newer subjects introduced are (a) Mendel's theory of heredity, (b) the chemical constitution of the proteins, (c) the nature of osmotic pressure, (d) the ionization of the inorganic salts and the electric condition of the cell, (e) the hormones, (f) karyokinesis, (g) the evolution of the nervous system through an accumulation of adaptations, (h) the ferments in analysis and synthesis, and (i) chemical equilibrium and mass action. All of these are subjects which every educated physician, who aims at keeping abreast of medical science, should know something about.

The author's preface to his second edition asks for suggestions upon points in which coming editions may be made more useful. The reviewer looked, in the discussion upon the physical structure of protoplasm, for some reference to the chondriosomes, but in vain. These recently demonstrated motile bodies of minute size can hardly fail to be of great importance to the physiologist. Prof. Mall has pointed out that they appear to have already disproven the theories of the reticular and alveolar structures of cytoplasm, a fact in itself of immense value to students. No subject is fraught with greater importance for the future of physiology than that of chemical reductions in the cells. How are the hydroxyl groups removed from hexoses and replaced by hydrogen so as to form the fatty acids and the amino acids of the proteins? In the animal organism the reverse of this process seems common. We know practically nothing about how these reactions can be brought about within the cells. If our dearth of knowledge in this could be firmly impressed upon students at college it might stimulate some of them to

undertake research work along this path. Beginning with a study of the Cannizzaro reaction they might be able to solve this problem and remove it from its present condition of mystery. The author, in his chapter on the proteins, refers to the so-called "nucleo-proteins" some considerable new light on which has been shed by Prof. Walter Jones. The latter considers them as protein nucleates where they are real chemical entities and states that "in reality 'nucleoprotein' means rather 'a method of preparation' than a chemical substance." (Nucleic Acids, p. 7.) R. G. E.

A Manual of Biological Therapeutics. Sera, Bacterins, Phylocogens, tuberculosis, glandular extracts, toxins, cultures, antigens, etc. Press of Parke, Davis & Co., 1914. 174 pp., 12 mo.

Much of real value to the practitioner of present day therapeutics is contained in this manual of a well-known chemical and drug firm. It is a well indexed outline of the various preparations of bacterial origin. Illustrations of the company's laboratories and farms add to the attractiveness of this little book, and the cuts of bacteriological and pathological slides make it decidedly instructive. It is like a good commercial catalogue.

W. S. H.

The Organism As a Whole, from a Physicochemical Viewpoint, by Jacques Loeb, M.D., Ph.D., Sc.D., Member Rockefeller Institute for Medical Research. 51 illustrations. G. P. Putnam's Sons, New York and London. Knickerbocker Press, 1916. Price, $2.50.

This volume is published as a companion to a former treatise by the same author on *The Comparative Physiology of the Brain.* In it Dr. Loeb seeks to show that not only every physiological process of the individual organs of the body is purely physicochemical in character but that the whole organism, as a harmonic unit, owes its unity to physicochemical conditions. He rejects all vitalistic guiding "principles" or "forces" as spurious causes and holds that Darwin's theory, by disregarding the physicochemical constitution of living matter, is incomplete and, therefore, inefficient as an explanation. Sutton's chromosome theory of Mendelian heredity and McClung's chromosome theory of sex are accepted as probably true. The author, however, agrees with Conklin in the belief that the nucleus does not carry all that there is of heredity, but that the cytoplasm of the unfertilized ovum has a rough embryonic structure that holds the discrete Mendelian factors together in development. He thinks, too, that while the chromosomes are the carriers of Mendelian characters the cytoplasm controls genus- and species-heredity. In agreement with Sachs he believes that specific substances, present in the cytoplasm, are responsible for the direction of growth, regeneration, and morphogenesis. The distribution of these substances, to different parts of the egg and of the cells, determines, as he views the matter, the course of development. His chapter on Regeneration will be of particular interest to medical men because of its bearings on subjects of direct value to them. He holds that the word "stimulus" is being greatly overworked and used to disguise our ignorance or lack of interest in the underlying causes of the phenomena of life's reactions. Metchnikoff's theory of senescence, which holds that it is due to phagocytic activity and chronic poisoning from bacterial toxins, is favorably presented. His view of the cause of life is that it is due to an excess of synthetic (anabolic) over hydrolytic (katabolic) processes and that death always occurs on the cessation of oxidations. All instincts and tropisms are held to be purely mechanical so that movements due to them are, like the rolling of a wagon-wheel when the wagon is in motion—inevitable.

The book is one that compels thought and opens up a wide vista for the intelligent comprehension of man as an organism. This reviewer unhestitatingly commends it as a most valuable addition to any medical library notwithstanding the fact that it is not directly medical. No book of this kind could be expected to be criticism-proof. Many medical men will radically disagree with the views of its author. This, however, rather enhances its merit, to careful and clear thinkers, as new view-points, on knotty problems, stimulate investigation and study. The reviewer dissents strongly against the all-too-common, but erroneous, idea, Dr. Loeb endorses, in respect to the theory of natural selection being dependent on *fluctuating variations.* Nowhere, in any work of Darwin's, has a diligent search been able to find a single particle of evidence for this chiefly American notion of Darwin's theory. To this misunderstanding of the theory is probably due the failure to see that only the cumulative adaptiveness of tropisms needs explaining and not the tropisms themselves. Neither galvanotropism nor gravity requires a biological explanation and yet both control animals, *nolens volens.*

R. G. E.

The Expectant Mother. By Samuel Wyllis Bandler, M.D., Professor of Gynecology in the New York Post Graduate Medical School and Hospital. Illustrated. W. B. Saunders Company, Phila., 1916. 213 pp., 8vo., cloth.

An excellent treatise in plain and simple language for the expectant mother, of value also to doctors, nurses, and medical students.

There are short descriptive chapters, illustrated, of the anatomy of the generative organs, menstruation, fecundation, impregnation, nourishment and growth of ovum, nausea and toxæmia of pregnancy, food and diet in pregnancy, abdominal support, care of breasts, superstitions of pregnancy, value of regular examinations and urinalysis, labor as to date, preparation, various stages and anæsthesias, post partum stage, care and complications, twilight sleep, instruments, cæsarian section, abortion, placenta prævia, accidental hemorrhage, tubal pregnancy, eugenics, puberty and gland secretions.

The book is well written and contains much that is of value to the pregnant woman. T. B. H.

Deaths

Franklin Burke, M.D., New York City, died June 8, 1917.

Augustus A. Hussey, M.D., Brooklyn, died June 20, 1917.

Robert B. Kennedy, M.D., New York City, died June 27, 1917.

Herbert Maxon King, M.D., Loomis, died June 24, 1917.

Alexander McKee, M.D., Glens Falls, died June 17, 1917.

Edmund J. Palmer, M.D., New York City, died May 30, 1917.

Augustus A. Rosenbloom, M.D., New York City, died June 28, 1917.

Barton D. Skinner, M.D.. Greenport, died June 22, 1917.

Edward Franklin Smith, M.D., Richmond Hill, died June 15, 1917.

William C. Walser, M.D., New Brighton, died May 21, 1917.

Harriet N. Watson, M.D., Albion, died May 2, 1917.

Brooks H. Wells, M.D., New York City, died July 6, 1917.

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ORIGINAL ARTICLES

PRESENT STATUS OF SERUM THERAPY.*

By RUFUS I. COLE, M.D.,

NEW YORK CITY.

IT is common observation in trade that following the introduction of every good article there arises a host of imitators. So it is true that any scientific discovery with apparent practical bearing leads at once to a multiplicity of applications, some justifiable, other extremely far-fetched, and without scientific basis. The discovery that following recovery from certain natural or artificial infections, the fluids of the body contain substances injurious to the infecting organism, and that the injection of such sera into other animals causes them in turn to be immune or even cures them after infection has already occurred, had such an obvious practical bearing that it is no wonder that the hope at once arose that this discovery could be made applicable to all kinds of infection, and during the twenty-five years which have elapsed since these fundamental observations were made, this justifiable hope has led to all kinds of attempts to apply these facts to a multitude of infectious diseases, and even to some diseases not infectious. We are still in the midst of these attempts, some of which have been abortive; others have been fruitful of the greatest good to mankind, and others, by far the greatest number, with the value of the results still unsettled.

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 24, 1917.

As the true and just history of peoples and political events can only be written in retrospect, so the proper evaluation of present serum therapy can only be made by a historian of the future. At present we can only attempt to judge by the evidence so far presented and by scrutinizing carefully try to discover whether methods proposed are based on sound principles and on well substantiated experimental evidence, always remembering of course that no theories or laws are immutable, and that at any time discoveries may be made which disagree with what were considered firmly established principles and which may overthrow such principles. While the receptive attitude toward the bizarre and uncommon is undoubtedly the proper one for the experimentalist, for him whose chief function is to apply new discoveries a more skeptical attitude is undoubtedly justified. We find among practitioners of medicine, however, two groups of men, or oftentimes two points of view combined in the same individual, the greatest skepticism, combined with the greatest credulity. This arises from his two very sympathetic and humanitarian desires, first to do no harm, and second to leave nothing undone that may be of any benefit to his patient. It is the latter desire, combined with lack of time to weigh carefully all the evidence, that has led many to employ therapeutic methods, especially so-called biologic therapeutic methods, which have little or no clinical evidence to support them, which are not based on sound experimental observations, and which in many cases not only do no

good, but are actually harmful. In bringing about this state of affairs the commercial houses which manufacture biological products are much to blame. When one remonstrates with commercial houses for manufacturing and advertising sera and vaccines that have no established value, one always meets with the reply that they are only manufactured to meet a demand on the part of physicians. This I believe is usually not the case; the demand is not spontaneous, but is usually brought about by the glowing and frequently misleading advertisements of the manufacturers. The physician should always be on his guard; he should obtain his evidence, so far as possible, from the original publications of the scientific workers, not from the advertisements of manufacturers; he should try to use those methods that are well established, wisely and with sufficient intensity and attention to details to obtain results, and when he undertakes to employ methods which are not so well established and the principles of which are not so well formulated, he should always remember that his efforts are of an experimental nature, that they should be carried out with the greatest care and attention to detail, in order first that no harm may result, and second that the results obtained may be of importance in establishing the value or worthlessness of the procedure and so may advance knowledge and be of good to others.

Diphtheria Antitoxin.

Those forms of therapy which have the best theoretical justification and which experience has shown to be the most efficacious are those which aim at the neutralization of the toxic products of bacteria, by substances which appear in serum following recovery from disease or following artificial immunization. The examples of the therapeutic sera of this class which have proved most efficacious are diphtheria antitoxin and tetanus antitoxin. The therapeutic value of the former is now universally recognized, but this general recognition has come only slowly with the accumulation of an enormous amount of evidence, both clinical and experimental. It should also be remembered that many improvements have been made during the past few years, both in production and administration of this serum. In the first place, owing to improvements in manufacture, the serum employed today is extraordinarily stronger than that formerly used. Behring has reckoned that in the early days of serum therapy the sera employed were at least twenty times weaker than the weakest sera employed today. Second, it has come to be generally recognized that the earlier the serum is given, the greater the effects obtained. If every case of diphtheria should receive diphtheria antitoxin immediately at the onset, preferably before the membrane is formed, probably the mortality from this disease would be almost nil. It is almost unknown for a doctor or nurse in the diphtheria wards of an infectious disease hospital to die of diphtheria, undoubtedly because treatment is instituted at once, with the onset of an angina. And finally, with the clear-cut conception that the purpose of administration of antitoxin is to neutralize the toxin in the blood as early and as rapidly as possible, there has resulted the general administration of larger amounts in the form of a single large dose, rather than repeated small ones, and, in the very severe cases, the administration of serum intravenously.

While improvements have been made in the therapeutic use of diphtheria antitoxin, still greater advances have been made in its prophylactic applications. Both clinical and experimental evidence have now fully demonstrated that following the administration of 1,000 units of diphtheria antitoxin a person is immune to diphtheria for from two to four weeks. This procedure has shown its great value in preventing the spread of epidemics and also in preventing the spread of diphtheria among children in hospitals where other contagious diseases are present.

Studies of the blood of normal persons have shown that the blood of many such persons possesses well-marked antitoxic powers, even though such persons had never suffered from the disease. These observations have indicated that natural individual immunity is probably dependent on this natural content of the blood in antitoxin. It remained, however, for Schick to devise a method by which the presence of antitoxin in the blood could easily be detected. This discovery is probably the most important single observation in regard to diphtheria, at least from a practical standpoint, that has been made in recent years, and is especially important in relation to the question of preventive inoculation and prophylaxis. Schick has shown that if very small amounts of diphtheria toxin (1-50 of a minimal lethal dose for guinea pigs) be injected into a human subject, a characteristic local reaction with redness and infiltration occurs, if the person's blood does not contain an appreciable amount of antitoxin. On the other hand, if the patient's blood contains sufficient antitoxin (0.01 unit per cc. [Behring] or possibly even less [Park]) to prevent symptoms of the disease, no reaction occurs. It is evident then that a negative reaction shows that a person is immune. Park and Zingher have tested over 10,000 persons by this method and have found 65 per cent of younger children and 80 per cent of adults immune to diphtheria. It is now considered quite safe to permit those showing a negative reaction to go without immunizing serum. It is evident that this lessens very greatly the number of those requiring immunizing doses.

A further great step in the prevention of diphtheria has been the introduction of active immunization with mixtures of diphtheria toxin and antitoxin. In 1907 Theobald Smith demonstrated that active immunity in guinea pigs may be produced by the injection of a mixture of toxin and antitoxin, which produces no local lesion nor any general symptoms, and that this immunity persists for several years. He fully recognized the possibilities of the practical application of this method of immunization in human beings. Later, Behring took up the matter and introduced the practical use of this method of immunization. This method has now been developed and used very largely and has been made very practical by the work of Park and Zingher. They have immunized a very large number of children, and with improved methods (giving three injections) have been able to demonstrate that 95 per cent or more of such children are protected, and their observations show that protection may last a year, and in a small group that could be retested, two years. These tests of immunity have been made possible by the Schick reaction. They have also used this reaction before immunization to determine which of the children are not immune and should therefore be immunized. By these procedures they have been able to render actively immune all the children in certain institutions and asylums. The method is now being extended to schools and it seems quite possible that in time all the susceptible individuals in any community may be rendered immune to this disease. By these measures, theoretically at least, diphtheria may be entirely eliminated.

Tetanus Antitoxin.

As compared with the results of treatment with diphtheria antitoxin, the attempts to render tetanus antitoxin of practical therapeutic use have been somewhat disappointing. It has required twenty-five years to accumulate experimental evidence showing the reasons for the discrepancies in the results obtained from the use of these two forms of sera, in principle so much alike. Even today the matter is not entirely clear. It is quite true that the amount of study given to the serum treatment of tetanus has been distinctly less than that given to the study of the treatment of diphtheria. The reasons for this are two: first, the fact that the first clinical results were discouraging has not led investigators to analyze so carefully the various steps of infection and cure, and second, the disease is not so prevalent and consequently the discovery of methods of cure are not so important. The coming of war with the great increase in the incidence of tetanus due to penetrating, ragged and soiled wounds has changed this, however, and during the present war, knowledge of methods for preventing and curing this serious disease have become of great importance. During the three years of the war a great deal of new knowledge has been accumulated, and with our entry into the struggle, it becomes of great importance that this knowledge be disseminated and utilized.

Probably the most important reason why the results in tetanus serum therapy have not proved of such great value as serum therapy in diphtheria is that, whereas in diphtheria the disease may be recognized at or very soon following the onset, in tetanus the production of toxin has undoubtedly been going on for days before the first symptoms become manifest. It is as though we could only treat diphtheria after the fifth or sixth day of the disease, at which time many observers believe that the administration of diphtheria antitoxin does no good. In addition to the necessary delay in the giving of tetanus antitoxin, however, there are also undoubtedly differences in the two diseases, depending upon differences in the mode of distribution of the toxin and differences in the site where the toxic effects are produced. Owing to the work of Meyer and Ransom, there has gradually developed an opinion that tetanus toxin is chiefly distributed through the axis cylinders of the nerve trunks, and does not follow the usual paths of distribution of soluble substances throughout the body, namely the lymph and blood. The exact point where injury is produced by tetanus antitoxin is still unknown, though it undoubtedly occurs in the central nervous system, the brain and cord, and affects chiefly the reflex arc between the sensory and motory cells. Much experimental work has shown that the central nervous system is highly inaccessible to foreign substances introduced into the general circulation; therefore if the tetanus toxin is immediately taken up by the peripheral nerves and exerts its effects within the cerebro-spinal axis, the possibility of neutralizing the toxin at any time or place seems wellnigh hopeless. Further and later observations, however, have indicated that this conception of the mode of toxin distribution may not be entirely correct, and furthermore we now have methods for bringing therapeutic measures more directly into contact with the central nervous system than was formerly thought possible.

There have been certain experimental difficulties in the way of the solution of the problems concerned, one of the chief being that tetanus in animals differs somewhat from that in man, in the former case the symptoms being at first localized in the muscles nearest the point of lesion and spreading from here, so called tetanus ascendans, and in the case of man the nerves almost invariably first attacked being those of the face and jaw, namely those muscles with the shortest nerve path to the central axis. Experimental studies, however, have shown that

in man, at least, tetanus toxin is widely distributed throughout the body, at least in the early stages of the process, through the blood stream. Its passage to the brain and cord undoubtedly occurs by way of the nerves, but there is considerable evidence to indicate that, after all, transmission may not be directly through the axis cylinders, but may be through the lymph in the perineural lymph spaces, and in the lymph spaces within the nerves themselves. If this is the case, it is theoretically possible that, if sufficiently large doses of antitoxin be administered, a considerable amount of the toxin present in the blood and lymph spaces may be neutralized. Moreover, it is possible that some of the toxin already present in the central nervous system can be neutralized, provided it is not yet firmly fixed by the ganglionic cells, and provided that the antitoxin can be brought into immediate contact with the nervous tissues. The studies of Flexner on cerebro-spinal meningitis have shown the great importance of bringing the immunity substances into close contact with the infecting principles, especially when the latter are confined in foci, and especially when those foci are in the central nervous system. These studies have shown that, while substances introduced into the circulation pass with difficulty into the cerebro-spinal fluid, and so into the central nervous system itself, it is possible, by means of lumbar puncture to introduce immune substances directly into the spinal fluid which surrounds the brain and spinal cord, and undoubtedly penetrates the nerve tissues through the canilicular system surrounding the vessels and nerve cells.

These new facts and observations have profoundly modified the methods of serum treatment of tetanus, with what at present appears to be marked improvement in the results. I cannot do better than to state briefly the recommendations of Nichols for the treatment of this disease. He recommends that immediately on the appearance of symptoms, 3,000 to 5,000 units in 10 to 15 cc. of salt solution be injected intraspinally, the patient being under a general anæsthetic, and that at least 10,000 units be injected intravenously; that the intraspinal injection be repeated in twenty-four hours, and a subcutaneous injection of 10,000 units be made three or four days later. It is apparent that these recommendations follow closely the theoretical indications based on the previous brief discussion of the nature of the process. The effects of large doses given intravenously and intraspinally are undoubtedly making a marked improvement in the results of the treatment of this disease in the present war, as contrasted with the mortality in our own Civil War and in the Franco-Prussian war, where the mortality was 90 per cent or more. During the present war, in the hospitals in England, though the treatment has not been carried out in a strictly ideal way, of 231 cases treated during the first year of the war, there was a mortality of 57.7 per cent, and the second year, among 195 cases, a mortality of 49.2 per cent. While the evidence indicates that large doses of serum given subcutaneously, or better, intravenously, are of definite value in this disease, the combined intravenous and intraspinal treatment offers the most hope, and it seems that in the future all cases should be treated in this way.

Of still greater value and practical importance, however, than the treatment of cases of tetanus with antitetanic serum, is the prophylactic use of this serum in all cases where infection with tetanus bacilli may be suspected. Under these conditions we have the advantage of the offensive, and can attack the invader before he has had a chance to produce destruction. This situation now is more analogous with that we have to meet in diphtheria. Experiments have shown that, following the injection of 1,500 units of tetanus antitoxin, the blood contains neutralizing principles for the tetanus toxin for from eight days to two weeks. Moreover we now have definite clinical evidence that during this period such persons are immune to the disease. The practical value of this method of immunization is well shown by the results of the prophylactic use of tetanus antitoxin following Fourth of July injuries. In 1903 when the *Journal of the American Medical Association* began a campaign to bring about a reduction in the number of such injuries and the deaths resulting from them, there occurred 4,449 deaths and injuries due to such accidents, with 417 cases of tetanus. Last year there were 850 injuries and deaths, and not a single case of tetanus. The kind of wound most frequently followed by tetanus is the blank cartridge wound. In 1903 there occurred 1,672 blank cartridge injuries and 477 cases of tetanus, a ratio of 1:40. In 1915 there were 295 blank cartridge wounds, but only one case of tetanus, a ratio of 1:295. Last year, notwithstanding 185 blank cartridge wounds, there was not a single case of tetanus reported. As the *Journal of the American Medical Association* states, the decreasing proportion of tetanus cases to such injuries is doubtless due to the more general and prompt use of antitoxin.

These observations, striking as they are, are even less convincing than the experience in the present European war. During the first two months when the British Expeditionary Force was sent into France there occurred in September, sixteen cases of tetanus among every one thousand wounded, and in October, the number reached thirty-two per thousand. Only a small amount of tetanus antitoxin was sent out with the first Expeditionary Force, and only when the number of cases became alarming were steps

taken that every injured man should receive a prophylactic dose. About the middle of October these prophylactic injections began to be carried out systematically, and there was an immediate fall in the incidence of cases. In November the incidence was less than two cases per thousand wounded, and has remained at about that level ever since. The routine prophylactic dosage recommended at present by the War Office Committee for the Study of Tetanus is 500 units.

Attention must be called to the fact that in certain cases, although prophylactic doses have been administered, symptoms may appear weeks or even months later. These cases are usually those in which foreign bodies have been present in the wounds, and tetanus has developed, following even very slight surgical procedures to remove these foreign bodies. For this reason the committee has further recommended that a second injection of 500 units be given in all cases of septic wounds after an interval of seven days; in cases of long continued septic wounds, especially those caused by shell or bomb, third and fourth injections at seven-day intervals are recommended. We Americans should not allow the lessons so recently learned to go unheeded, and not only in military, but those of us in civil practice, should, in the future, be severely censored, at least by ourselves, should cases of tetanus arise in our practice through failure to carry out prophylactic antitetanic injections.

Antibacterial Sera.

In addition to the therapeutic sera which I have mentioned, which are based on the principle of neutralization of toxin by antitoxin, numerous attempts have been made to make practical the employment of other sera, which aim not at the neutralization of poisons, but which are intended to inhibit the activities of the bacteria, either by destroying the bacteria directly or by so changing them that they become vulnerable to the normal defensive mechanism of the body. By immunization of animals to bacteria such as typhoid and cholera, sera may be obtained which have a highly destructive lytic action on the bacteria. There have been some attempts to employ such sera therapeutically; their failure has been ascribed in part to the fact that for the action of the serum certain additional principles in the blood, such as complement, are necessary, and that under the conditions of treatment these additional factors may be lacking. Other explanations have been offered, but, whatever the explanation of the failure, these sera have not proved of practical value, although certain studies of anticholera sera, made in Russia, indicate that this serum may be of some value if used intravenously, and in very large amounts. It is true that antityphoid sera has never been tried consistently and in a thoroughly satisfactory manner. Attention has lately been drawn to the possibility of this form of therapy in typhoid fever by the work of Gay and Chickering. At present, however, their observations are few and their results should be considered tentative.

It is quite possible that the serum of animals immunized against bacteria may prove beneficial in preventing or curing infection in other animals or man, without such serum possessing any direct harmful effects on the bacteria themselves. Indeed, many such sera which are effective experimentally, at least, are now known. It has been attempted to explain the action of such sera by their content in opsonins or bacteriotropins, or even as due to their content in agglutinins, and Bull has lately shown that intravitem agglutination of bacteria may make a great difference in the results of experimental infection. It should be stated, however, that the exact mode of action of many of these antibacterial sera is still unknown.

Antipneumococcus Serum.

As an example of such an antibacterial serum, I should like to call your attention to antipneumococcus serum. Without going into the historical development of the subject, I may say that it was long ago demonstrated that by repeated injections, first of dead, then of living cultures, animals could be rendered very resistant to the subsequent injection of very large doses of virulent pneumococci. In other words they are immune. Second, it has been shown that the blood serum of such animals, when injected into other susceptible animals, is able to save the latter from what would otherwise be a fatal injection, in case the serum and culture be injected simultaneously, or even if the injection of the serum follow that of the culture, provided that the interval of time be not too great. These are facts which have been demonstrated over and over again, and about which there can be no doubt.

Following these observations a number of attempts were made to employ such immune serum therapeutically in the cure of pneumonia by Foa, Klemperer, Washburn, Pane and later and in larger extended series by Römer. The results of all these attempts were disappointing and from our present knowledge we now know that, prepared and employed as they were, very little or no result could be expected. In 1909 and 1910, however, Neufeld and Händel reported experiments which they made in the use of a serum prepared by immunizing a horse against a single strain of pneumococcus obtained from a case of pneumonia. They showed that this serum was apparently effective in certain cases of pneumonia but in others it seemed to have no value. They collected a number of strains of pneumococci from various cases of

pneumonia and found that experimentally the serum was active against only a limited number of these. They therefore decided that pneumococci were not all identical.

In 1910 the study of pneumonia was commenced at the Hospital of the Rockefeller Institute, and in part our attention was directed to the study of methods of specific cure, especially serum treatment. Cultures were obtained from a large series of cases of pneumonia, and animals were immunized against various strains so obtained. In testing the protective value of these various sera against all the strains it was found that the organisms, by their immunological properties, could be divided into at least four groups or types. A report of this study was made in 1912 by Dochez and has been further extended and elaborated by Dochez and Gillespie and other workers in the hospital. From the results of these studies it is evident that pneumococci are not all identical, that they may be divided into several groups, and that the immunological relationships of the individual organisms in at least three of these groups are absolutely specific. Type I and Type II are specific group types and the organisms belonging in these groups have been found to cause about 65 per cent of the cases of pneumonia that we have observed in New York. In Group III have been placed those organisms which not only have specific immunological characteristics, but differ from the others also morphologically, in the possession of very large capsules and also are characterized by the production of a very thick, viscid exudate in infected animals. About 10 per cent of the cases of pneumonia are due to organisms of Type III. The remaining pneumococci have been included in Group IV. These have much less specific immunological reactions and differ very largely among themselves. The organisms of this group produce, in general, less severe infections than those of the other types; they represent the type of organism commonly found in normal mouths, and the question of specific therapy against this group of organisms is extremely complicated, since almost as many sera would be required as there are different strains of organisms. So far as the organisms of Types I and II are concerned, however, the problem is less complex, since specific sera of high potency can be produced, and each of these sera is effective against all the organisms of the group.

These observations seem to have an important bearing upon the whole question of antibacterial serum therapy and offer one explanation, though possibly not the only one, why such sera in the past have not proved of value. There are no reactions which we know which are so specific as the so-called immunological reactions. By them differences in complex substances such as proteins can be detected when no other methods are able to show the slightest difference between them. This matter of antibody specificity is of importance not only in connection with antipneumococcus serum, but, in connection with all antibacterial sera used for treatment. It has been possible to produce a serum of very high potency, as tested by protective power in animals, against organisms of Type I, of somewhat less strength against those of Type II, and Dr. Wadsworth has produced an immune serum, which, however, is of slight protective power, by the immunization of animals with organisms of Type III. Theoretically, therefore, we are in possession of sera which should have some value in the treatment of natural infections in man due to these three types of organisms. Clinical studies have now been carried out in a considerable number of cases, and it has been found that, so far as we can judge, the Type I serum has quite marked curative value in the cases due to this type of organism. Type II serum apparently has much less effect, indeed, it will require considerable more experience to learn whether this has any effect at all, while, owing to the fact that the Type III serum is so weak in experimental study, it has not been felt justifiable to attempt to use this serum in human patients.

Up to the present attention has been devoted mainly to the treatment of patients suffering from Type I infection with the homologous serum. Since this serum is experimentally much the strongest, it is quite evident that if this does not give satisfactory results, none of the others can. Moreover, since this type of infection includes about one-third of the cases of pneumonia, it is evident that it is a sufficiently important condition to be considered as a distinct and separate entity. To carry out this form of treatment practically, however, has required developing practical methods for determining, in the individual case, the exact nature of the etiologic organism concerned. Such methods have now been devised, which, while not entirely simple, nevertheless, can be carried out in any good clinical laboratory. Moreover, the New York City and also the State Health Departments are now able to make these differentiations of the type of pneumococcus present in sputum sent to them for examination.

The results in the treatment of these cases of Type I which have been obtained in the Hospital of the Rockefeller Institute are most encouraging. One hundred and three cases have now been treated with but eight deaths. When this is contrasted with the mortality of 25 to 30 per cent in this type of infection before specific therapy was undertaken, and in other hospitals where no such therapy is being carried out, it seems probable that very definite improvement has been made in the method of treating this kind of infection. More important, however,

than mortality statistics is the effect of the serum upon blood cultures, and upon the local lesion, and upon the appearance of immune bodies in the blood. Good results have also been obtained at the Brigham Hospital in Boston and at the Presbyterian Hospital, New York, and reports lately received from the Army Health Department show that the results of serum treatment of cases of Type I pneumonia occurring among the troups on the Texas border, have been extraordinarily good. In order to make this serum effective, however, there are several requirements. First, it should be given early in the disease, a statement which is true of all forms of serum therapy. Second, it must be given in large amounts, and finally it should be given intravenously. It must be remembered that, whereas with diphtheria antitoxin in most cases we are working with a considerable margin, the amount of toxin in the blood being small, in pneumonia we are treating a very serious disease, with an agent which is relatively weak. To overcome the severe infection it is necessary, therefore, to use promptly and actively all the resources which we possess.

The objection is sometimes raised that the method is too complicated and too expensive. It is complicated, but as I have stated elsewhere, so is the treatment of appendicitis. It is expensive, and I might also say, so is the treatment of surgical conditions. However, with more extensive production of the serum, and reduction of manufacturers' profits, it will undoubtedly be possible to obtain the serum at a price that will make it available to all.

Antimeningococcus Serum.

Another antibacterial serum, the value of which seems definitely proven, is antimeningococcus serum. The discovery which has made this form of therapy effective is the method of local application by direct intraspinal injections, the importance of which was first demonstrated by Flexner. In addition to the mode of application, however, the question of immunological specificity of the different types of meningococci plays a role in the treatment of meningitis, just as it does in pneumococcus therapy. In the earlier studies made in this country no striking differences in the strains of meningococci from cases of meningitis were observed, though it was noticed that an occasional strain was resistant to the action of the serum. This being exceptional, it was explained on the basis of fastness. From the nasal secretion of certain individuals and from certain cases of meningitis occurring in France, however, Dopter isolated a number of strains that were not affected by the immune serum employed. He prepared a serum against these and found that they were more affected by this serum than by the original one. On the basis of these observations, it has become customary to consider the original strains which in the past greatly predominated, normal meningococci, and the latter group, studied by Dopter, as parameningococci. The immunologic difference in these two types, however, is not clear-cut and fixed, as it is in the case of different types of pneumococci. It has not seemed practical, therefore, with meningococci to produce different sera effective against the various groups as with pneumococci. In the language of the side-chain theory, it seems that all the various strains of meningococci possess common receptors; some may have more of the normal variety, others of the para group; in addition, some may have receptors common to a number of strains of which other strains have none at all. It has seemed most advisable and practical therefore to produce sera by using as large a number of strains as possible, and choosing these so that the entire receptor range may be covered, and this is the method now employed in the manufacture of meningitis serum in the Rockefeller Institute by Flexner and Amoss.

Following the outbreak of the war a considerable number of cases of cerebro-spinal meningitis occurred among the soldiers in camp in England, as well as among the civil population. Previous to this time the Rockefeller Institute had given up the preparation of this kind of serum, and the serum employed in England was largely that prepared by the commercial houses by the injection of a single strain, or at the most a few strains. Very soon after the outbreak of the disease in England reports of the use of the serum began to appear which showed apparently little or no effect from the use of the serum. It seemed evident that the serum being employed probably did not contain antibodies against the prevailing organisms causing the epidemic. Certain reports showed at least that almost as many cases were due to organisms of the parameningococcus type as to the normal type. Cultures were therefore obtained from England and France and the manufacture of antimeningococcus serum was again undertaken at the Rockefeller Institute, using a large number of different strains as above mentioned. This serum has now been employed in Europe to a considerable extent and the results show that the difficulty surmised was probably the correct one, for the effects obtained now are very favorable and are similar to those previously obtained in this country with the intraspinal use of this serum.

A report on the occurrence of cerebro-spinal fever in the English navy by Surgeon General Rolleston has now appeard. During the first year of the war there occurred 170 cases with a mortality of 52.8 per cent. One hundred and five of these were treated with serum, and of

these 64 died, a mortality of 61 per cent. Since August 1, 1915, when they began to use the serum furnished by the Rockefeller Institute, there have occurred 104 cases, with a mortality of 35.6 per cent. Ninety-five of these cases were treated with serum and only 30 died, a mortality of but 31.6 per cent.

The experience in England and the lessons learned will undoubtedly be of great value to us. The danger of epidemic meningitis where large numbers of young men are collected together under such conditions as prevail in training camps, is well recognized. It seems that at present there can be little doubt of the value of serum treatment in this disease, when proper serum is used and when it is correctly employed. It is hoped that with present knowledge, if such epidemics do arise, it will be possible to contend more successfully with them than has ever been the case in the past.

Antistreptococcus Serum.

The conditions among streptococci as regards immunological specificity are still more confusing than those among the other infectious bacteria I have mentioned; no entirely satisfactory grouping of streptococci based on any properties, immunological or other, has yet been made. These bacteria cause a great variey of lesions and infections. The mechanism of recovery and the nature of immunity is still obscure. Until we have more knowledge we must consider that serum therapy in this form of infection is purely empirical, and those who employ this form of treatment should do so with full recognition of this fact. For the same reason it is impossible to draw any conclusions as to its efficacy or to decide in which special forms of infection its employment is indicated.

It is not my purpose, nor is time available, to consider all the various anti-bacterial sera that have been employed against the various infectious agents. It has rather been my purpose to call attention to certain of them which have a sound clinical and experimental basis and which exemplify the guiding principles in this form of therapy, and especially to call attention to those sera which seem to have a practical importance in this country at this time.

Serum from Convalescent and Recovered Patients.

There is another form of specific serum therapy which has received some attention and which is possibly promising of results, that is, the injection, into a patient sick of an acute infectious disease, of serum obtained from another patient following recovery from the same disease. Following recovery from most infectious diseases the patient not only is immune for a longer or shorter time but in the diseases whose etiology is known and where methods for testing are available, it has been found that the serum contains immune principles effective against the etiologic micro-organism. It must be remembered, however, that in such instances the content in antibodies is slight, very much less than that of the serum of animals artificially immunized against the specific bacteria. It is theoretically possible, however, that this content is sufficient to make the serum applicable for therapeutic purposes in cases where the specific etiologic agent is unknown or under circumstances in which it is impossible to produce immune serum in animals.

This method has been attempted in scarlet fever, in which disease the etiologic agent has not yet been determined. Two years ago Dr. Zingher gave the results of his own experience with this method before this society, so that I need do no more than refer to the matter here (since I know of no other extensive trials that have been made with the method since). He was wisely conservative in his estimation of the value of the method. In some cases, however, there occurred a critical fall in temperature following the injections and in most cases the symptoms associated with the intoxication of the disease were ameliorated.

Treatment of Poliomyelitis by Injections of Serum.

A second application of this form of therapy has been made in the proposed treatment of poliomyelitis.

In 1910, Flexner and others showed that the blood serum of recovered patients and monkeys contained neutralizing substances for the poliomyelitis virus, and Flexner and Lewis attempted to prevent the development of the infection in monkeys by the administration of such serum. Their results, while not definite, were suggestive. In 1911 Netter attempted the treatment of cases in man by the subdural injection of the serum of recovered patients. Netter and his associates later reported observations on thirty-four cases. They showed that these injections were harmless and they believed them to be distinctly beneficial or curative. Amoss and Chesney during the past summer have treated twenty-six cases in this way. They believe that the following conditions should be observed: (1) Early and prompt diagnosis and treatment; (2) intraspinal injection of immune serum; (3) injection of immune serum directly or indirectly into the blood. They furthermore think the serum should be obtained from recently recovered cases and not from old ones.

Their results are very suggestive. Apparently the treatment is more effective in arresting paralysis than in rapidly bringing about its retrogression.

They lay stress on the non-specific leucocytic reaction which follows the injection of serum, but believe that the action is enhanced by the presence of specific antibodies.

Zingher has also reported on the results of intraspinal treatment of 173 cases with immune serum and 43 cases treated with normal human serum. The immune serum was mostly obtained from old cases, one to thirty years following the attack. He thinks the results were favorable.

It is to be remarked that Flexner has shown that the injection of foreign substances into the cerebrospinal fluid increases the ease of infection from the *nose* or blood. It is therefore important that during an epidemic the diagnosis of poliomyelitis be very definite before foreign serum is introduced or thereby there may arise danger of infection if it be not already present.

Flexner has suggested that the injection of such foreign substances may also facilitate the passage of antibodies from the blood into the spinal fluid. It is possible that if normal serum is effective this may be the mechanism of its action. Since the immune bodies, however, are present only in very small amounts prior to the fifth or sixth days, it is hardly likely that this mechanism can be very effective and where possible immune serum should be employed.

Non-Specific Serum Therapy.

The forms of serum therapy which I have discussed so far have for their purpose the administration of specific immune principles, antibodies in the Ehrlich nomenclature, with the idea that thereby the pathogenic organisms may be prevented from developing or that the toxins produced by them may be neutralized. During the past few years other forms of serum therapy have been introduced, in which the serum is supposed to be effective entirely apart from its content in immunity principles. In these forms of therapy the serum is supposed to be effective on account of chemical substances which it contains, or by producing local or general physical or chemical reactions, or by acting in some way as yet entirely unexplained.

The following are briefly some of these forms of non-specific serum therapy.

First, so-called autoserum therapy. In this method blood or serum is removed from the circulation and injected elsewhere in the body. This procedure has been tried in a number of different diseases, especially skin diseases, and lately Goodman and also Faber have reported good effects having been obtained in chorea by the injection of the patient's own serum into the subdural space. As in the conditions in which these methods have been tried the etiologic agents are not known, indeed in certain of them it is doubtful if we are dealing with infectious diseases at all, the matter cannot be discussed from any standpoint of immunology. In the case of the treatment of chorea it is possible that the injection of serum may have some effect by changing the permeability of the meninges, as has lately been shown by Flexner to occur following the injection of all sorts of substances into the spinal canal, but until further evidence of the effectiveness of this method is obtained, it is idle to speculate as to its mechanism.

Again, an entirely new form of serum therapy was introduced by Swift and Ellis, namely the treatment of tabes and cerebrospinal syphilis by the injection of the patient's own serum into the spinal canal after the patient had received an intravenous injection of salvarsan. Others have employed for the same purpose the injection of serum to which small amounts of salvarsan have been added outside the body, and still others have injected murcuriolized serum. All these methods of treatment seem to be useful and with their introduction there has apparently been made a distinct advance in the treatment of cerebrospinal syphilis. The results seem to show that with the Swift-Ellis method better results are obtained and the injections are followed by fewer permanent unpleasant effects than occur with the other methods where drugs are added to the serum, in vitro. It is of much interest that in the Swift-Ellis method the results apparently do not depend entirely on the salvarsan contained in the serum, for this, in the small amount of serum injected, is extremely small. Moreover, heating the serum, as is done before the injection, increases its effectiveness, as is shown by the greater spirochæticidal power of such serum as contrasted with the unheated serum.

Non-Specific Protein Reactions.

Finally, during the past few years considerable attention has been given to the fact that good results are said to have resulted in various infectious diseases from the reactions following the non-parenteral introduction into the body of all sorts of foreign proteins, and foreign blood serum has become one of the favorite substances with which to produce such non-specific reactions. It has long been known that the subcutaneous or intravenous injection of such substances is frequently followed by chill, elevation of temperature with subsequent fall of temperature, and occasionally collapse. We owe the introduction of this method of therapy, however, principally to the results claimed from indiscriminate vaccine therapy or from mixed vaccines. Certain physicians have claimed that in many cases the results of vaccine therapy were just as good following the administration of non-specific vaccines as following the administration of vaccines prepared from the bacteria causing the disease. I have no doubt that in many cases this is true. It has been claimed that tuberculin

is effective in syphilis, and good results have been claimed to have followed the administration of diphtheria antitoxin in all sorts of infectious diseases. No one can deny the possibility that such reactions may be of value in infections. Personally I do not think that the clinical evidence so far presented is convincing. Nevertheless, the efforts that have been made to explain those supposedly good effects are justifiable and praiseworthy. There can be no doubt that such injections produce definite and marked physiological effects. They may induce leucocytosis, they may be accompanied by changes in anti-ferment content of the blood, it has been claimed that they stimulate antibody formation or so-called mobilization of antibodies. All these observations are of great scientific interest.

Serious objections, however, should be made against the indiscriminate use of this method for therapeutic purposes on the basis of these observations. Before this method of therapy should receive general employment, we should first have evidence that the effects said to be produced do occur in the human body, and if so that they are beneficial, and finally that they are not likely to do harm. I do not believe these requirements have been met as yet. The use of this method of treatment by the general practitioner at present is unscientific and unjustifiable. If the method has elements of good, the proper conditions for obtaining the good effects and avoiding the harmful ones must first be carefully worked out by those with the time and facilities required for making the necessary studies.

Anaphylaxis and Serum Disease.

In conclusion I should like to say a few words in regard to the so-called serum reactions and serum disease. Following the parenteral introduction of foreign proteins into the body several kinds of reactions may occur. First, we may have the kind of reaction I have just mentioned, which is non-specific, and represents an acute sudden intoxication with a foreign protein or its degredation products. Second, in persons who have previously received foreign serum or protein or occasionally in those who are not known to have received such injections, there may occur following the injection of serum a sudden reaction, with rapid and difficult breathing, suffusion of the face, sometimes quite marked circulatory disturbances and frequently skin rashes. This reaction is quite specific and is undoubtedly identical with, or very analogous to, the reactions seen in animals following the second injection of foreign protein, so-called anaphylactic shock. Finally, following the injection of foreign protein at an interval of from six to eight days up to several weeks, or occasionally earlier as in the so-called accelerated reactions, there may appear a symptom complex which has been called serum disease. The cardinal symptoms of this condition are elevation of temperature, skin rashes, especially urticaria, œdema, glandular enlargement, and joint pains. These three phenomena or groups of phenomena should be kept quite distinct.

The first form—the intoxication—we have no method of avoiding completely—though if the serum be given warm and very slowly it is probable that the reactions are less severe. Some persons seem to show these reactions with each injection; others never show them. Undoubtedly different samples of sera differ in their tendency to produce these reactions and it seems that fresh sera produce them more frequently than sera which have been allowed to stand or ripen before use. They may even occur following the injection of salt solution, as is evidenced by the reactions following salvarsan, especially when the salt solution is not properly prepared. In specific serum therapy at present we must consider the occurrence of such reactions as a distinct drawback to the method and should try to prevent it so far as possible. To some extent the frequency of such reactions may be lessened by using old serum, by so far as possible using concentrated serum, and by discarding lots of serum which are known to frequently cause them.

If, however, we have good evidence that a specific serum is beneficial we should not allow the possibility of this reaction to weight heavily in our decision as to whether to use serum or not. I have now given huge intravenous doses of serum, from 100 cc. to a total of 1,650 cc. given over several days, in several hundred patients, and while these immediate reactions have at times occurred, they have in no case been serious or, so far as I could see, affected the outcome of the disease.

Second, the so-called anaphylactic reactions. Severe reactions of this kind are extremely rare. Many of those who have had the greatest experience in the administration of diphtheria antitoxin, tens of thousands of cases, say they have never seen a fatal case due to anaphylaxis. Fortunately we have means of guarding against this reaction. Persons who have asthma, hay fever, or are known to have other forms of protein sensitiveness are likely also to be sensitive to horse serum and special precautions should be taken in such cases. In animals it is known that an anaphylactic shock, even if mild, leaves the animal for a time refractory. This is also true in man and Besredka has shown that by giving extremely small doses, repeating frequently, a little larger dose each time, animals may finally safely be given large doses of the serum to which they are sensitive. Even merely giving the serum very slowly may prevent reaction. The same phenomena are also seen in

man. If time is available, it is advisable to desensitize a patient by giving ½ to 1 cc. of serum subcutaneously six to eight hours before large doses are administered intravenously. We do this regularly in administering antipneumococcus serum, giving the small dose immediately on the patient's admission to the hospital. By the time the type of infecting organism is determined, the patient, if previously sensitive, is at least partly desensitized. Then in giving the first large dose of serum intravenously we always proceed very slowly, taking at least fifteen minutes to introduce the first 15 cc. If no reaction occurs the injection may proceed more rapidly and subsequent injections may be given at an ordinary rate. Finally if patients are very sensitive to horse serum this can be detected within an hour by injecting a minimal amount of serum into the skin and observing the local reaction which occurs following it, the so-called skin test. Severe anaphylactic shock should not occur, and with our present knowledge the possibility of its occurrence is not an important factor in serum therapy.

Finally as to serum sickness. This occurs following small doses as well as following the injection of large amounts. It is distressing but is never serious, so far as I know. Von Pirquet who has made the chief study of this condition and has observed very many cases has never seen one end fatally or seen one with permanent bad results. I have never seen a fatal case and know of no one who has.

Those who employ serum therapy should be familiar with all these non-therapeutic effects. They should not influence him however in undertaking this form of therapy (provided he is convinced of its efficacy) any more than the fact that quinine may cause unpleasant effects on the special sense organs influences him in the administration of this valuable drug.

In conclusion I may say that in the short space of time available I have tried to present truthfully my conception of the present state of serum therapy, the advantages as well as the pitfalls associated with it. If we disregard all the chaff and consider only those forms of serum therapy in which the value is well proven, we must believe that this form of therapy has been of the greatest good to mankind. The practising physician, however, should keep close to earth and employ only that which has been tried and found to be of value. That there is so much that is unsatisfactory and obscure should not make us hopeless, in reality it is an encouraging sign. Out of all the efforts to solve the problems will undoubtedly come great improvements and extension of the scope of this therapeutic method.

THE PRESENT STATUS OF VACCINE THERAPY.*

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IT would appear that an apology should be offered in attempting to write a paper upon "The Present Status of Vaccine Therapy," for, from a rather exhaustive perusal of the current literature it would seem that, excepting the brilliant results obtained in the realms of prophylaxis there is no perceptible status. It is in an aberrant negative phase, which has succeeded instead of preceded the positive manifestations.

Shortly after the year 1902, when Wright evolved the theory and practice of vaccine therapy, as guided and regulated by the opsonic index, then the members of the profession were vieing one with another in reporting wonderful cures of desperate cases that had stubbornly resisted all other means of treatment, even such uniformly fatal conditions as Hodgkin's disease became as simple and easy to control as are cases of recurrent furuncles. But, now, apparently thumbs have been turned down and vaccine therapy has been forsaken for newer and, therefore, more interesting fields of endeavor.

Why this great change of opinion respecting the efficiency of this branch of medicine? It would seem that the teachings of Wright are sound and that his theories rest upon broad foundations that embrace the basic truths of immunity. To err, however, is human, and almost invariably in the virgin enthusiasm of applying a new treatment there is an inexplicable something that so warps the judgment that one is frequently lead to believe that a much desired recovery has occurred, when, in truth, it has not. Frequently, periods of transient improvement are thought to be cures and are promptly reported. Soon overdue relapses transform our early enthusiastic faith to disappointment and our opinion of the method has been decidedly lowered. In reality, we, ourselves, are to blame in not properly judging the many phases a disease may assume, and in not withholding our findings until time has given them a true value. Except, when the effects of a new treatment are so remarkable and so striking that they are unmistakable, it is notoriously difficult to accurately put it in its proper position. For instance, no two cases of pneumonia ever occurred under conditions that might be considered identical, for there are so many internal and external factors that are beyond our knowledge and control that may cause totally different terminations in cases, which to the best of our information, should have progressed side by side like identical experiments in two test tubes. It usually requires years of the closest study of hundreds of cases

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before even a tentative opinion may be given relative to the true status of a therapeutic measure. Many competent men, however, who were not completely carried away by the initial unsound enthusiasm, who saw its limitations and also its possibilities, consider that there is a place for vaccines in the armamentarium of every progressive physician and that place, *is,* at present, unassailable.

One phase of this subject, which, unquestionably has some good features, has also immeasurably retarded a sound logical development of vaccine therapy. I refer to unwarranted statements and false claims of many wholesale manufacturers. It is granted, that, so far as we have been able to discern, the staphylococci, the bacilli of the typhoid group, the bacillus of whooping-cough and others are not divisible into so-called strains, thus one culture of staphylococcus aureus, no matter where it was found or how grown, may be used to exactly the same advantage in the preparation of a vaccine as is the very organism isolated from the lesion which we propose to treat. This efficacy of some of the stock vaccines has lead to a most rampant and undesirable commercialism of the whole field of vaccine therapy, not only are stock vaccines advertised to cure every conceivable illness of an infectious nature, but their use has been advised in the treatment of conditions where bacteria have no etiological relationship. In order to lessen the diagnostic *effort* of the medical profession, five or six bacteria are frequently compounded into one vaccine and each of the organisms may be represented by several strains. So the more complex of these vaccines are so gauged and bored that they are likely to hit almost any condition at which they are aimed. It appears that they are gotten up with the express purpose that they may be used without brains. The other evening in reading an article upon this subject there were actually six different diseases, pneumonia, arthritis and asthma among them, that had been treated with one compound vaccine and all of the patients made wonderfully rapid and uneventful recoveries. Not only have vaccines been unduly exploited, but other bacterial products of a semi-secret nature have been given catchy names and we are asked to inject them into the toxin laden bodies of our patients and expect a wise Providence to produce a cure, and for which these unknown compounds seek a vicarious praise. Judging from the amount of literature that has flooded us all, it would seem that the profession had been lead quite astray and that the reaction is liable to be much more pronounced than is desirable.

In his early teachings Wright advises that his methods should be limited to the treatment of chronic infections, but later his views became modified and now certain acute conditions fall within the scope of this specific treatment.

It is not practicable, within the limits of a paper of this character, to analyze a long list of specific infections that have been treated by this method and to draw inferences relative to its efficiency, but we should like to emphasize a few conditions that have appeared to be particularly responsive.

We are convinced that few who have given it a fair trial will deny that it is not of decided benefit in overcoming chronic pustular conditions, particularly those of staphylococcic origin. We consider it a specific for recurring boils; persons who have had crop after crop for months and even years are promptly and permanently cured by the proper use of vaccines. Every carbuncle should be followed by a course of injections. In the treatment of chronic ear and sinus infections, particularly those of staphylococcic and pyocyanic origin, vaccines are of distinct value. It is not meant that they can replace indicated surgical measures, but when used in conjunction with these, those patients will do better who have been given the benefit of active immunization than will those who are denied its use.

Acne is another chronic pustular infection and in many cases the staphylococcus aureus is a prominent etiological factor. It has been our experience that when this organism is found in great numbers, good results are to be expected. Our conclusions are in agreement with those of others that the vaccine of Sabouraud's bacillus has little value.

We cannot refrain from dwelling upon the use of vaccine in the treatment of chronic colon bacillus infection of the urinary tract, particularly the cystitades of women. We feel that our conclusion may be questioned, for the literature is teeming with reports of inadequacy. Billings and Cabot and many others have met with rather indifferent results, but we have had a moderate number of cases that have reacted most gratifyingly.

Mrs. M., a patient of Dr. K., had been a chronic invalid for seven years and had consulted many physicians in a vain endeavor to obtain relief from a distressingly irritable bladder. The urine contained a large amount of pus and culture gave a pure growth of the colon bacillus. Twenty-one injections freed the urine from pus and repeated cultures were sterile. Dr. K. characterized her as being the "happiest woman in town." She had previously been obliged to deny herself to callers even in her own home, but now she may remain out an entire evening with no discomfort.

That was in 1912, and today she remains free from her cystitis. Another case, Cora G., a patient of Dr. B., was the most remarkable of our series. She had been ill for more than eight years. The irritation was so great that she

was obliged to urinate as often as every half hour and was in constant distress from the pain and tenesmus. This continuous suffering had a most damaging effect upon her general physical condition and particularly upon her nervous system, so that when Dr. B. first saw her in September, 1912, she was in a most pitiable state. At that time she was cystoscoped and it was thought the appearance of the ureteral apertures were suggestive of a tubercular infection. Microscopic search for the tubercle bacillus and inoculation experiments were negative. Culture gave a moderately profuse growth of colon bacillus. She was given her initial dose of autogenous vaccine on September 26, 1912, and the last on April 13, 1913. She was symptomatically and bacteriologically cured, and when seen one week ago reported that she has never suffered a return of her bladder symptoms. It will take a strong argument to convince me that the results of these two cases were not directly due to the specific action of the vaccines.

At present the literature is teeming with articles exploiting the theory that good results attributed to vaccines are not specific in character, but are caused by a non-specific reaction of the body cells (particularly those of the red bone marrow), against a foreign proteid. Albumose, proteos, milk and egg albumens have been intravenously injected and have resulted in a most profound reaction. A chill, high fever and a leucocytosis which are frequently followed by marked improvement in the condition of the patient. Similar good results have also followed the apparently questionable procedure of injecting colon and meningiococcic vaccines in typhoid patients.

Such revolutionary theories are rather disturbing to those who hold almost a religious reverence for the masterful work of the great German school, which is responsible for much of our present efficiency in prophylaxis and therapy.

Perhaps a note of warning should be sounded, for, if these empirical substances have produced good results, who can foresee what may not be thrown into our blood streams in the hope of finding something still better.

Vaccine treatment as applied to gonorrheal conditions, particularly those of a chronic nature, has not produced more than moderately encouraging results, although the literature indicates that there are still zealous advocates.

Warden is skeptical as to the value of those vaccines because his studies have lead him to believe that the diplococcus of Neisser is a most peculiar organism. It would seem that it is particularly fragile and may be compared to a droplet of fat in an emulsion. He claims that when vaccines are in preparation the organism undergoes a lytic process and immediately loses its identity. We are to believe, then, that a gonorrheal vaccine is merely a solution of the autolized bacteria. This may be true, but it is also true that the antigenic power is retained so that the wrongly named vaccine, nevertheless, still retains a specific identity.

Smith reports encouraging results in the treatment of gonorrheal complications by the production of an anaphylactic reaction. Perhaps such methods do produce bodily conditions which are unfavorable to the existence of certain parasitic bacteria, such heroic treatment is certainly not without danger and should be considered unjustifiable.

Vaccine therapy has, naturally, a much more limited field in the treatment of acute infections than it has in those of a chronic nature. It would appear desirable, as a therapeutic measure, only in those diseases that run a protracted course, in those with a high mortality, and in those that have developed untowards complications, and this measure is used, possibly, when the case has become desperate.

In the first years of vaccine therapy, the so-called negative phase was believed to be an absolute contra-indication for its exhibition in acute conditions. It was thought that the short, sharp period of increased bacterial activity, added to the already poisoned economy, would possibly be more than the patient could bear, and was, therefore, unjustifiable. Later studies have somewhat minimized the danger of the negative phase, and new developments along different lines have opened up new avenues in approaching this most interesting phase of the subject so that it now appears as if we were really on the threshold of a new era in therapy, that may possibly stand out as clearly and wonderfully as has the era graced by the names of Ehrlich and Behring.

Typhoid fever, in which prophylactic vaccination has been so wonderfully successful, was perhaps the first acute illness in which vaccines were systematically used. Many observers, including Frankel, Petruschky and Watters, have been enthusiastic devotees of vaccine treatment, and have claimed that by its use the course of the disease has been shortened, complications have been prevented and that relapses seldom occur. The profession as a whole, however, was skeptical and vaccines were never widely used.

In 1907 another step forward was the introduction of Besredka's sensitized vaccine in which the bacteria are suspended in an homologus immune serum. Gordon has published an account of his own results in streptococcal septisemia and says that the evidence leaves no room for doubts as to the efficacy of the treatment, the special advantage being that the toxicity of the vaccine is eliminated or diminished; second, that the vaccine may evoke immunizing response when an ordinary vaccine produces none; thirdly, the response is accelerated, and

lastly that there is no temporary diminution of specific resistance, or in other words, no negative phase. It must be said, however, that this method of sensitization does not appear to have universal application, for many vaccines presumably sensitized by a corresponding serum have produced a marked reaction and other symptoms which point to a negative phase.

The sensitized vaccines were, of course, frequently used in the treatment of typhoid, but still the results, although promising, were not remarkable enough to lead to any widespread use by the profession at large.

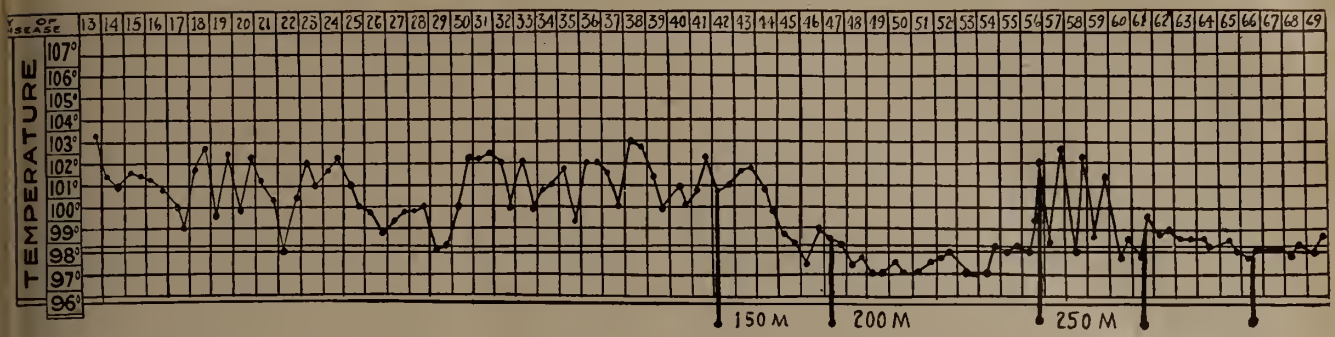
In 1916 the writings of Gay, who used this type of vaccine intravenously in typhoid fever, seemed to indicate that at last we were approaching a method of treatment that was really specific and was destined to revolutionize the treatment of typhoid fever. He found that very soon after an intravenous injection there was a marked chill, followed by a rise of temperature and a high leucocyte count, which manifestations were followed within a very few hours by marked amelioration in symptoms, and he found that in about 40 per cent of the cases the disease terminated by crisis and was, therefore, materially shortened. In about 40 per cent more of the cases it required two or three injections at intervals of a few days to overcome the fever, and in the remaining cases the condition was but little influenced. This seemed a great step forward, but soon after our ideas and conceptions became confused by the writings of Jobling, Peterson, Hoekton and others who have used colon vaccines, meningiococcic vaccines, and foreign proteids intravenously and claim to have gotten the same results with typhoid fever that Gay did along specific lines.

That school which holds that all the benefits attributed to vaccines are non-specific results of the injections, claim that the good may be traced to a combination of reactions among which the most prominent are the leucocytosis, the hyperpyrexia and a stimulization by the foreign proteid injected, of the hematapoitic tissues, which causes a great pouring out into the blood stream of anti-bodies, or ferments, which overcome the infection. They claim that the anti-bodies are not specific in the strict interpretation of the word, but are capable by means of complement of uniting with the causative bacteria.

These new phases of research and thought certainly open up wonderful opportunities for real work, but it seems wise that along these lines we should wend our way very carefully, for they certainly lead away from the accepted concepts evolved by the old masters of immunity, and which have been productive of epoch making discoveries. A word of caution should also be introduced that possibly the production of these violent reactions may be developed at a price that is too dear to the patient.

We have emphasized some of the unpleasant features of the commercialization of vaccines, but honesty compels us to mention the universally favorable reports that are constantly increasing in number relative to the efficacy of pertussis vaccine when used, not only as a prophylactic measure, but a curative as well. Physicians affirm that the course of the disease is noticeably shortened and its severity lessened by the use of vaccine. Naturally, it is impossible that autogenous vaccines will ever have any wide use in this disease, and it is very questionable if they would prove more efficient than a stock.

Two years ago I was requested by Dr. J. to prepare an autogenous vaccine from a patient, A. F., aged 20, who was taken ill on the second day of November; he developed a moderate temperature, headache, malaise, and congestive symptoms of the nasal and pharangyl mucous membranes, and was thought to be suffering from an attack of the grippe, but instead of improving he became rapidly worse. His temperature was continuous, with the exception that it touched normal on one or two days; he developed a slight systolic murmur, his spleen became enlarged, repeated Widal examinations were negative and a moderate lucocytosis, together with the other symptoms, left no doubt that he was suffering from pernicious endocarditis. He became delirious, greatly emaciated, lost sphincteric control, and three consultants who saw him on December 11th, the fortieth day of the disease, pronounced his condition to be most desperate and believed that he could live but a very few days. On that day blood cultures were taken, and every plate developed numerous colonies of the streptococcus veridans, and on the forty-second day, 150 millions of dead organisms were injected. Within three days the temperature dropped to normal and 200 million were given on the forty-seventh day. The patient improved very rapidly; he became rational and the temperature held normal for twelve days (no more vaccine had been given because the improvement had been so marked that it was believed the infection had been overcome). On the fifty-eighth day the temperature again began to rise and the patient developed a sharp relapse which continued only a few days. More vaccines were given on January 3d and were continued every five days for a long period. The temperature again became normal, the improvement continued and the patient made a complete recovery. This case was in such a desperate condition, and such remarkable changes occurred after using an autogenous vaccine, a relapse took place when it had been discontinued and subsided again when treatment was resumed, that we are convinced that recovery must be attributed to the use of the vaccine. It might be that a similar happy conclusion would have ensued had we injected colon vac-



cine, mengiococcic vaccine, milk or proteos, but at present the arguments of those holding the unspecific theory are not strong enough to convince many that the use of unspecific remedies, when specific may be obtained, is wise or justifiable.

It is realized that we have merely scratched the surface of this interesting subject, but also realize that it is beyond the scope of a paper of this character to cover the field exhaustively. We have been interested in the treatment of intestinal toxemias by high colon vaccines, as used by Satterlee, in the treatment of asthma, of chronic bronchitis and of chronically recurring colds, and have seen encouraging results follow the use of vaccines, but believe that time alone can only give them a true standing.

In closing, I should like to summarize our beliefs as to the present status of vaccine therapy.

Conclusions.—In the treatment of a moderate number of chronic infections, particularly those of a pustular nature and produced by the staphylococci, vaccines are of greater use than are other methods at our command.

As a rule, autogenous vaccines are preferable and are absolutely necessary, if we wish results in the treatment of colon bacillus infections.

Those who study their cases, who make exact bacteriological diagnosis and who administer autogenous vaccines, with a proper dosage and at correct intervals, will invariably get better results than those who hazard a guess as to the nature of the offending organism, who obtain a vaccine that may or may not contain the causative organism, and who give a dose every day until the vaccine is exhausted.

That performance is *not* vaccine therapy (as defined by Wright), but it is surprising how much of such slovenly practice masquerades under that title.

In the therapeusis of acute infectious conditions much good work has been done and good reports have been given by numerous workers, especially in the treatment of pertussis and the bacteriemias including typhoid fever.

It would appear that we are now almost upon the threshold of an era which *may* revolutionize the treatment of certain diseases, which heretofore we have been obliged to leave uninfluenced, *except* in an expectant way.

Whether these conditions will yield to a specific vaccine as suggested by the research of Gay, or whether vaccines have had their day and will be supplanted by the intravenous application of unspecific stimulation of the hematapoitic tissues, which are believed to be the origin of protective ferments, is a question the future alone can decide. But let it be urged that we be honest skeptics of the latter theory until its claims are more clearly shown than at present, and until it be proven that these massive reactions are as harmless to the patient as we should like to believe.

THE PRESENT STATUS OF DRUG THERAPY.*

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MEDICAL opinion today is dominated by the spirit of research. Scores of investigators are at work to discover new means of alleviating human suffering or of preventing and curing disease. There has probably never before been a period in medical history when new methods of prophylaxis and therapy followed each other in such rapid succession. Yet since by far the greater portion of these methods concern bacteriological and biological products—vaccines, non-specific substances, sera—and the dietetic management of disease, the time seems opportune to inquire into the present status of drug therapy.

As I read medical opinion there is a strong drift away from drug therapy. I meet it on every hand, in talks with other physicians, in medical journals, and in textbooks on pharmacology and therapeutics. The same tendency is evident in the curricula of the medical schools.

With laudable enough impulse practitioners turn to the latest cure. But should we not ask ourselves whether in our enthusiasm for the new we are not neglecting old and tried remedies. May it not be that at times our therapeutic judgment is clouded by the glamor of a name or by the glowing advertisements of a manufacturer

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 24, 1917.

who has seized upon a fleeting opportunity? I have practised medicine long enough to see many "latest cures" sink into oblivion.

In reading the textbooks of fifty or a hundred years ago, it is difficult to believe that their authors, many of whom are recognized today to have been endowed with an unusual gift of observation, could have been so accurate in observing the symptoms and signs of disease and yet so unreliable in estimating the results of their therapy. That they made mistakes is obvious, but this scarcely justifies condemnation of the whole fabric of their teaching. Their methods were those of empiricism, but it should not be forgotten that empiricism has given us some of our most successful therapeutic agents; for example, vaccination against small-pox, quinine for malaria, mercury and the iodides for syphilis, and ipecac for entamebic dysentery. I am not sure but that the complete list is longer than the list of specifics evolved by the experimental method.

I would not have you understand me as disparaging the search for new remedies or the experimental method as applied to the old. But I do mean that a remedy which has been found useful by generations of physicians should not be discarded merely because its actions have not been subjected to the tests of a modern laboratory or necessarily when the experimental and clinical results are at variance. The experimental method may be lacking in control quite as much as the clinical. The conclusions reached by different experimenters concerning the same therapeutic agent do not always agree. Furthermore, it is rarely, if ever, possible to reproduce in laboratory animals the conditions which are encountered at the bedside and for which the remedy is applied. Yet oftentimes this fact, if not overlooked, is ignored.

A consideration of the present attitude toward strychnine will serve to illustrate my meaning. A few years ago opinion was practically unanimous that strychnine was a reliable cardiovascular stimulant. Today its actions are in dispute both among pharmacologists and clinicians. Dixon states that strychnine is an important cardiovascular stimulant. Sollmann denies that it has such action except in subtoxic or toxic doses. Among clinicians, Cook and Briggs found that strychnine raises blood-pressure in disease. Cabot was unable to observe a rise. The preponderance of evidence derived from bedside studies with the sphygmomanometer indicates that strychnine does not, at least uniformly, cause a rise in blood-pressure. On the strength of this evidence many clinicians deny that strychnine possesses any value as a cardiovascular stimulant in disease.

My criticism of this conclusion is that the experiments lacked proper control. The conclusion is based entirely on the assumption that to act as a cardiovascular stimulant a drug must increase blood-pressure. I do not believe that this is true. The action of digitalis proves indisputably that it is not true, for digitalis at times may either not affect blood-pressure or may cause it to fall. I have seen it fall some 30 mm.

In the face of conflicting opinions concerning the action of a drug, each clinician is compelled to depend upon his own experience. My experience has led me to believe that strychnine is one of the most reliable cardiovascular stimulants we possess.

In this connection I would express the conviction, drawn from long-continued, careful study of the pulse with the finger, that there are characters in the pulse, discernible through the tactile and muscle senses, which no instrument of precision yet devised is capable of depicting. They are not the grosser changes which come, early or late, in circulatory failure, such as arrhythmia. They concern rather the tonus of the artery, the shape of the wave passing under the finger and the "push" behind the wave. It is characters such as these that are summed up in the word quality. And to me it is a curious paradox that, while no one disputes a clinician's ability to detect with his finger a falling off in the quality of the pulse, a rise in blood-pressure or a graphic record of some kind is demanded if the same clinician asserts that he observes improvement in the quality of the same pulse after the administration of some drug.

Another instance which may be cited to illustrate the lack of adequate control in the experimental study of a drug is that of ammonium chloride. For many years clinicians have believed ammonium chloride to be a valuable expectorant. Several investigators have attempted to demonstrate upon laboratory animals the truth or falsity of this belief. None of the experiments, however, was surrounded with adequate control in that the animals were under anesthetics whose action on the bronchial secretion had not been proved and the mucous membrane of the trachea was exposed to unmoistened air. Yet the conclusion was drawn from these experiments that ammonium chloride is not an expectorant. Observations on man have successfully disproved this conclusion.

Strychnine and ammonium chloride have been selected as examples merely because they are well known and much used drugs. I have not cited them to prove the breakdown of the experimental method or even to disparage it. My object has been rather to point out that the experimental method may be open at times to the charge which has been lodged so often against the clinical method, that the experiments have not been surrounded by adequate control. Proof of value should be demanded as unsparingly of the most recent therapeutic agent or

method as of the oldest, and the proof must consist of effects on sick men.

If I have interpreted correctly the present-day attitude of the profession toward the use of drugs, the question of the remedy arises. I am convinced that drugs have slipped gradually from their proper place in therapeutics and that a remedy is desirable.

In my opinion the remedy is to be found in closer co-operation between the clinician and the pharmacologist. The investigation of the actions of drugs should not be confined to experiments on laboratory animals. In some cases such experiments should not be made at all, or at least the conclusions drawn from them should not be transferred to man. The field for such co-operative work is practically unlimited and is unusually attractive. By means of such work confidence will be restored in the drugs which are worthy of it and the useless drugs will be sifted out and discarded.

THE PRESENT STATUS OF PHYSIOLOGICAL THERAPY.*

By JACOB J. LEVY, M.D.,
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THERE has been a gradual drifting away from drug medication in many chronic conditions. This has been due to the following reasons:

1. The rise and spread of homeopathy in the early part of the twentieth century was almost entirely due to suggestion and faith, the doses being so minute that the results cannot be due to the activity of the drugs.

2. The rise of the sanitarium idea, due to the success in the treatment of many chronic ailments at the Battle Creek Sanitarium, where drugs play a very inferior part in the treatment.

3. The rise of the mechanical schools—the osteopath and the chiropracter, who use the various forms of mechanical treatment in many conditions, many people obtaining relief from these methods where drug medication failed.

The enormous increase in nervous disorders and chronic diseases during the past twenty-five years had made possible the rise and spread of Christian Science, New Thought, Mental Healing, the enormous increase in sanitariums and the success of the osetopaths and those following the mechanical methods. Man was designed to earn his living by the sweat of his brow, by manual labor. The greater part of us consists of muscles as well as bones, which act as levers. The smallest part of our anatomy is the brain, weighing between two and three pounds, and this little organ is constantly used and abused. The average person in America wants to earn his living by his wits. This constant use of the brain at the expense of the body, with lack of exercise, working under tension often associated with worry, together with the tendency for high living, all these combined are bound to lead to a break sooner or later unless the individual is endowed with a very powerful constitution. Exercise is essential to maintain the fullest functional activity of the organs. The wonderful inventions of modern civilization are doing away with the necessity of our using our muscles. Compare the mechanical activity of a farmer with that of a clerk or a lawyer. In 1790, a little over one hundred years ago, less than 4 per cent of the population lived in cities. Now, over two-thirds of the population live in cities or villages. City life seems to undermine the health of the individual, and were it not for the constant injection of new blood from the farm, after three or four generations, families would die out. Therefore, the enormous increase of these nervous disorders can be ascribed to the artificiality of our city life. It is not only tubercular conditions which are benefited by fresh air, sunlight, high altitude, it is all conditions where there is lowered vitality. Rollier has shown us the value of sun baths in the mountainous regions of Switzerland in surgical tuberculosis, especially in children. Some remarkable cures have resulted from his method of treatment.

In the past the profession has not paid sufficient attention to that great class of sufferers called neurasthenics, or, psychasthenics. It is said that at least 50 per cent of the cases that come to the office belong to this class. There is no question that the functional neurosis are rapidly increasing in America. The profession as a whole have failed to treat these cases seriously. They look upon them as hysterical and as malingerers. Fortunately, a new school has arisen. It has been highly developed by Freud, who has attempted to study these cases in great detail by psychological methods.

Psycho-analysis attempts to understand man in his social environment; it deals with his hopes and his fears, his aspirations and his despairs. Psycho-analysis has taught us that mental conflict, repression, and lack of harmony in the brain may express itself in many symptoms that we thought before were due to pathological conditions, and formerly we attempted to treat these pathological conditions, these abnormal symptoms, by means of drugs. However, the Freudian school has taught us that many of the symptoms are of mental origin and can only be treated by psychological methods. There are no class of sufferers who suffer more intensely or are more miserable than these patients whom we group under the head of neurasthenics and psychasthenics, and they demand our best efforts in their behalf. Why a physician who spends a great deal of time treating a fracture or a kidney disturbance, and does not deign it worth his atten-

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tion to heal a fractured nervous system is beyond my comprehension. The nervous system is the last to develop and is the most delicate, and when once out of gear it is most difficult to repair. It is surprising what can be done for these cases when properly handled, when given the benefit of physiological therapeutics. The European war has greatly increased functional disturbances among the soldiers. This, of course, can be expected of those who are inclined to be nervous, but Solier, the famous neurologist at Lyons, has reported hundreds of cases of nerve disturbance in strong men with no predisposition to hysteria, caused by shell explosions. They are no longer using the rest treatment in these cases, but they use physical therapy at once. He is a great believer in exercise. Formerly, it took from six months to a year to cure these cases by isolation and rest, and now they can do it in two months by means of exercise and mechanotherapy.

The hard and fast line between functional and organic disturbances is now fast disappearing. The recent work of Cannon has shown that chronic emotional stimulation in nervous individuals may be the cause of many organic conditions. Cannon, in a recent book on "The Bodily Changes in Anger and Fear," has proven that there is an increase in adrenalin produced as a result of stimulation of the sympathetic system. Cannon has shown that in emotional stress in case of struggle, such as in athletic contests, sugar is found in the urine, due to the excessive secretion of adrenalin, which in turn causes the liver to throw out more glycogen than the system can take care of, and shows as sugar in the urine. This work is opening up an entirely new field. I have recently treated a case which shows most beautifully the close relationship between the different endocrine glands. This patient was a woman who was referred to me by the late Dr. Elsner, suffering from a large fibroid, with tremendous hæmorrhages. She was referred for X-ray therapy for the treatment of fibroids. This woman was a school teacher of a nervous temperament. She consulted Dr. Jacobson five years ago. Sugar was found in the urine, no doubt due to an extensive stimulation of the adrenals, due to depressing emotion. On being told that she had glycosuria and that she must be careful of her diet she was greatly shocked and developed an exophthalmic goitre, which was treated by Dr. Tinker. Later she developed the fibroid with enormous hæmorrhages, due to a perverted function of the ovaries. In this case we had a perverted function of the adrenals, causing glycosuria, later a perverted function of the thyroid causing hyperthyroidism and then a perverted function of the ovaries which produced the fibroid and the hæmorrhages. A neurasthenic, as a result of an emotional shock, may develop either diabetes, or hyperthyroidism, or climacteric hæmorrhages or cardio-vascular changes, or a combination of these. Surgeons are beginning to realize the necessity of treating the neurasthenic basis in many organic conditions. The necessity of rest before the operation in exophthalmic goitre cases and of rest after the operation, and the realization that the exophthalmic goitre is only one of the symptoms. This is also most beautifully illustrated in cases of climacteric hæmorrhages. The old theory was that they were due to endometritis, and that curettement would cure them. Now we know that these cases always develop in neurasthenic individuals where there has been excessive stimulation of the ovaries which result in a perverted function, and as the trouble is not in the uterus primarily curettement does not cure it, but the primary condition is a perverted function of the ovaries producing a hormon which prevents coagulation of blood.

Perhaps the most remarkable therapeutic agent developed in the last few years is the use of the gamma ray in cases of fibroids. The time is not far distant when pure fibroids, especially in women over forty, will no longer be considered a surgical condition, but will be treated by means of the gamma rays. They can be treated not only symptomatically but clinically, for in many of these cases the tumor disappears entirely. I have treated over thirty cases by means of the gamma ray, and have a produced a cure in 90 per cent of them.

The use of physical therapy has greatly increased since the Compensation Act has gone into effect, as the insurance companies are anxious to get the injured back to work as soon as possible, and we can greatly shorten the period of convalescence by these methods. While a good surgical result is necessary it is more essential to get a good functional result and in a great number of cases the physical agents are a great benefit and aid to us in the after treatment of fractures and injuries. One of the most common and one of the meanest complications is adhesions, resulting from trauma or infection. There have been some advances that have been made recently in the treatment of these conditions in the last few years which I would like to bring to your attention. Baking and manipulation have been known for some time and are extremely valuable but these often fail and in obstinate cases ionization is useful, saturating the negative pole with 2 per cent solution of potassium iodide. It is even often necessary to resort to the hard rays of the Coolidge tube to aid in softening the adhesions. By the use of the various physical agents, such as baking, massage, exercise, ionization and the use of the hard rays, we have had some surprising results. Recently a very instructive case came under my observation. Dr. Pritchard sent me a man who had suffered a severe injury to the thigh, which

left his foot cold and clammy. There was a marked disturbance in the circulation and the foot became devitalized. He was sent to me fourteen months after the accident and within three months I was able to improve the circulation and bring back life to the limb by means of baking, massage and various forms of electrical currents. He was so much improved he was able to return to work and has been working ever since.

In the after treatment of these compensation cases it is necessary to get the confidence of the patient, showing him that we are working for his benefit, and we must make him understand that he will have a certain amount of aches and pains as a result of his injury for some time, but that these are not severe enough to interfere with his work and the sooner he returns to work the better he will be and the quicker he will get well. A great many of these individuals are satisfied with two-thirds of their wages without working and they are very likely to exaggerate every sensation. I never tell them their ailments are imaginary, for this would make them angry, but I tell them they are looking at their trouble through a microscope which greatly exaggerates them and makes them appear much more severe than they really are. It often takes a great deal of encouragement and a great deal of persuasion to have them even try to work, especially in cases of men over fifty who have been out several weeks. A few facts in regard to the after treatment of fractures and injuries which it is necessary to recognize is the danger of firm adhesions developing, especially in elderly people or people of lowered vitality. It is best to treat adhesions conservatively before breaking them up under an anesthetic, by baking, manipulation, ionization, for this makes the part more flexible and there is less danger of tearing blood vessels, producing a new fracture, or resulting in such marked reaction that more harm than good is done.

In my paper I have attempted to show some of the recent advances that have been made in the use of the physical agents. Psycho-analysis has taught us that man is more than a mere machine. Many disorders are psychic in origin and therefore can only be treated successfully by psychological methods. Freud has shown us that the emotions play an important role in the causation of disease, but the work of Cannon has shown us *why* the emotions produce such disastrous results, due to the excessive secretion of the endocrine glands. A normal amount of secretion is necessary to keep the body well balanced, but an excessive stimulation should only occur in cases of emergency, and if this continues constantly it leads to a perverted function and any one of many organic conditions may result. The use of the physical agents, especially the gamma ray, can often stop this perverted function, and this is best illustrated in cases of hyperthyroidism, and especially in fibroids and climacteric hæmorrhages which are known to be due to a perverted function of the ovaries.

Many new conditions have arisen since the Compensation Act has been in effect, which make it necessary to treat in its incipiency and to guard against. We have to especially guard against malingering, against exaggeration of symptoms; the idea of getting these people back to work as soon as possible by means of physical therapy and moral suasion and to influence them to become useful members of society as it is better for them, for the physician, for the insurance company and for the state. Finally, I have presented this subject before the profession because the old idea was that we were to simply treat cases with drug medication, to be pill slingers, but fortunately the laity expects more of us and I am sure that we will respond. It is the duty of the physician to use all therapeutic agents, and we will find that the physical agents such as fresh air, sunlight, gamma rays, massage, electro-therapy, hydro-therapy, mechano-therapy and psycho-therapy will often relieve and alleviate suffering where drug medication fails.

Discussion.

Dr. Allen A. Jones, Buffalo: I was unfortunate in not being able to listen to the first paper, but I heard most of Dr. Cole's paper, and the two which followed. I have been very much interested in carrying out in a small way the antipneumococcic serum treatment. Recently I had two cases which I treated with this serum. In one case we thought we had a complete recovery, because we saw the case early. We were very proud of the results in this case, but later the patient died. Strain No. 1 was found in this instance. The deadly character of strain No. 3 Dr. Cole has emphasized, and it was brought home to me very decidedly in another case in Buffalo. We were able to demonstrate so-called streptococcus mucosus and the blood culture showed the presence of the organism. Notwithstanding the highest grade of individual resistance and strength the patient died. The work of Dr. Cole excited my interest because months ago he published his results, which were stimulating and valuable. Dr. Cole also spoke of non-specific serum treatment. He did not mention asthma in this connection. After the blood has been defibrinated the serum should be injected subcutaneously. In the wards of the Buffalo General Hospital we had a man with chronic changes in the bronchi and emphysema. After eight treatments there was a decided improvement, and the patient was so well pleased that he asked for more treatments. This patient was in the wards for about eight months. The reasons for this treatment are very theoretic, and I have somewhat the same feeling regard-

ing it as has Dr. Cole. We give this treatment because it proves useful.

Dr. Louis Faugeres Bishop, New York City: I cannot allow such papers to pass without some commendation. What has been said emphasizes just what I feel. It must not be said that we older practitioners have not been willing to take up these newer methods, particularly in the treatment of chronic disease. I think this is particularly important now because there are no cure resorts such as patients formerly went to and got benefit from a combination of therapeutic measures. I think Dr. Levy has interested us very much in calling attention to the Compensation Act, for this will stimulate the efforts of physicians to getting their patients back to work. It is a fact that by its operation men not infrequently are stimulated to do better work. It encourages the use of a great many different methods towards the same end. I believe after listening to these papers that we must all try not a single method of treatment, but that the patients will be treated by a combination of many methods. Diet was of extreme importance and should be more considered. I believe in the newer methods that have produced such remarkedly good results when given by men who are absolutely sincere.

A great deal is gained when we are willing to use physical forms of treatment without claiming a specific result for each individual measure.

Dr. Andrew MacFarlane, Albany: I wish first to express the pleasure I have had in listening to this symposium and to state that my only regret is that the readers of the papers were not able to enter more into details. Dr. Cole's paper appears to me of especial diagnostic value with regard to therapeutics. His researches have emphasized the fact that pneumonia from the point of treatment is a different disease, depending upon the type of organism present. The claim that any special line of treatment has shown marked results in the cure of pneumonia no longer will have any value unless fortified by the diagnostic type of disease and the result will depend entirely on the strain of the organism responsible for the disease. Therefore this work especially makes for exactitude of diagnosis which must always proceed any real advance in therapeusis. I should like to ask Dr. Cole if there is any danger in administering the serum to patients who give a history of attacks of asthma and whether it may be necessary for us to make careful inquiries as to this disease before administering the serum.

Dr. William Dewey Alsever, Syracuse: Unfortunately I missed hearing one of the papers on the program. I listened with great pleasure to the paper by Dr. Cole, and I have nothing to say regarding it except that it is a splendid résumé of serum therapy. Dr. Coleman's paper interested me very much and especially what he said regarding the difficulty of getting the pharmacologists and the physicians together. One is at a loss to know just what to believe; those at the bedside make an observation and those in the laboratory make a contradictory one, which, of course, leads to much confusion.

With regard to strychnine many clinicians for years believed it to be a cardio-vascular stimulant and yet Dr. Coleman stated that this was not the case except in toxic doses. Pharmacologists have demonstrated that strychnine in medicinal doses is a powerful stimulant to the central nervous system, particularly the spinal cord, but not to the heart. I should like to ask Dr. Coleman if he thinks it possible to get the pharmacologists and the physicians together in the study of the effects of this drug.

Dr. John M. Swan, Rochester: One of the circumstances that led us to suggest this symposium was the frequency of conflicting statements in regard to the efficiency of various forms of treatment of disease, particularly chronic organic and functional diseases. I remember visiting a patient two or three years ago who was taking twelve different kinds of medicine for a certain ailment. It seemed to us that it would be a good thing to try to correlate the various claims made for these various methods of treating sick people and place them before the profession through the medium of the New York State Journal of Medicine.

I am going to be impolite enough to disagree with the statement that we should not treat the leucorrhea, but the woman with the leucorrhea. The tendency of the medical practitioner today is to prescribe only after a careful study of the case and then to prescribe only those things which in his judgment seem to be the most reliable and to give the most promise of producing good. Our judgments are not always equal. Some believe in the efficiency of one thing and some in that of another method or substance. The conscientious physician will prescribe only such remedies as he knows from his experience that he can depend upon. In my experience good results will follow the administration of drugs, mechanical methods, sera and vaccines when indicated. We must be cautious, however, not to make up our minds that a certain line of treatment is the source of benefit, without taking into consideration the efforts of nature to compensate its own defects.

Dr. J. Orley Stranahan, of Rome: I should like to ask if definite vaccines from definite common germs will not give as good results as the autogenous vaccines. I have now a case in mind. The patient had a streptococcos infection of the throat and three days later she developed a pelvic inflammation which ultimately resulted in an abscess of the cul-de-sac of Douglas. This rup-

tured into the bladder and produced a vesical fistula. She had a high temperature. After taking three definite cultures we found a clear case of streptococcus infection. We were advised to use an active strain vaccine which was tried with beautiful results. All the secretion and the induration was cleared up. The case ran along for some time but after the use of the vaccine the symptoms all disappeared.

Dr. Rufus Ivory Cole, New York City: The physician who employs serum therapy should be familiar with various forms of serum reactions, and the methods for guarding against them. The serum therapy of lobar pneumonia Type I is very promising, but it should be carried out with care.

With regard to the use of vaccines, I feel that they have in the past not been employed with sufficient care and with sufficient knowledge of the principles of active immunization. It is possible that if the same care and intelligence were used in immunizing patients as is used in immunizing animals in the laboratory, more favorable results might be obtained.

Dr. Warren Coleman, New York City: I do not know how the question that Dr. Alsever propounded can be answered; there is at present a dispute among pharmacologists regarding the same. I think that the question must be answered by them rather than by the physician.

In regard to the actions of drugs, I spoke from the standpoint of the clinician.

Dr. Thomas W. Jenkins, Albany: Bacteria produce among many other things, two toxins, an endo- and an exo-toxin. Bacteria growing locally and producing systemic effections such as diphtheria, tetanus and the meningitis organisms which when grown upon artificial media produce the toxins in the media, serum is the remedial agent. Bacteria which forms the endotoxins like the colon pyogenetic and typhoid organisms and which do not necessarily have a local growth, but grow all through the body, produce the conditions best treated by vaccines. Then some organisms produce both endo- and exotoxins and require sera and vaccines for the treatment and prophylaxis of the diseases they produce, such as the organisms of dysentery and hog-cholera. It is absolutely essential to get the right organism from which to make a vaccine. One example is sufficient, as the fact is well known. While treating a case of erysipelas, which is generally considered to be due to a streptococcus I got no beneficial results from a stock vaccine; so I made a culture and found a pure growth of diplococcus a vaccine from which produced very marked improvement in one day—in fact the case was practically cured at that time. At no time or culture did this organism change its morphology. Three unusual complications were observed; one, the lighting up of a chronic appendicitis on the day following the administration of a staphylococcus vaccine for pustular acne; second, with the same organism and disease, after several injections, the patient, a woman, had symptoms of peritonitis, and when operated upon an abscess in a constricted portion of the omentum was observed. Third, in the treatment of a case of typhoid, after one injection of the typhoid vaccine the patient had an internal hemorrhage the next day.

The effect of drugs on man and animals, or even on different animals, are not always alike. Morphine administered to a cat produces delirium and to a dog it produces stupor. Strychnine acts by stimulating synapses around ganglion cells. If the cells are degenerated by a long continued fever or by such drugs as nicotine, the beneficial effects of strychnine may not be obtained. As regards physiological remedies, the knowledge and uses are growing rapidly, but do not forget one, namely, hydrochloric acid, which is a secretion of the stomach, of course. It is of great value in continued fevers, in dermatitis herpetiformis, in some forms of aphonia and hoarseness; frequently it will eliminate the glycosuria in some forms of diabetes, is not without value in rheumatism, a good intestinal antiseptic when acting as a hormone and in hypo and achlorhydria it is a necessity.

Dr. Warren B. Stone, Schenectady: I have very little to say in concluding my remarks. As to stock vaccines, they certainly may have the same curative action as has the autogenous. It is my belief, however, that, when they are used, beneficial action is much less frequently noted than when cultures are taken and an autogenous vaccine is prepared. Perhaps the care and pains taken in making an exact diagnosis may have a bearing upon the improvement of the patient, beside the specific action of the vaccine.

I have seen so many obstinate infections yield to vaccines, after other means had failed, that I am forced to believe that vaccines have a limited but important place in therapy.

Dr. Jacob J. Levy, Syracuse: The Compensation Act has given a great impetus to physiological therapy. In Germany and England, where the Compensation Act has been in force some time, there has been a great increase in the number of cases referable to the spine. It is very difficult to tell whether they are real or whether they are malingering. Every time they receive a check it leaves an impression on their brain, and may help to prolong the illness, for we are dealing now not only with the original conditions, but with an exaggerated illness which has become intensified as a result of that suggestion every time they are given a check by the insurance company.

THE EARLY DIAGNOSIS OF POLIOMYELITIS.*

By WARDNER D. AYER, M.D.,
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POLIOMYELITIS is an acute infectious disease which may or may not be accompanied by paralyses. It is characterized by a quite definite seasonable prevalence, occurring in epidemic form during the months of July, August and September, and a less definite age incidence. The average age as observed by us being seven and a quarter years. With our present knowledge it is best considered as a contact disease, infection following exposure to the actual case or the healthy carrier. Many people, even some doctors, greatly question the infectiousness of a case of this disease and have severely criticized the public health regulations. It may seem that vigorous quarantine measures had little effect on limiting the disease and consequently were thought ineffective, but any quarantine to be absolutely effective, should necessarily be established before the disease manifests itself in the individual quarantined. This is of course impossible and there is present in all infectious diseases, a period of varying length before diagnosis, when the individual is a menace to the community. The shorter this period, the less wide is the spread of the infection. Unfortunately, many cases of poliomyelitis were not diagnosed or suspected until paralyses had appeared, and consequently quarantine was not established till the acute and undoubtedly the most infectious period of the disease was passed, while many of the non-paralytic cases were not quarantined at all.

It was found during the past summer that many physicians would not make a positive diagnosis until paralysis set in and many non-paralytic cases, clearing up without peripheral involvement, were considered to be some peculiar form of intestinal toxemia and were not by any means the "Dread infantile paralysis!" This, it is evident to all, could well be a great factor in the spread of the disease. It is especially evident when we realize that the great majority of contacts were traced to this early or febrile period. In general terms we may say that the diagnosis of the disease is the diagnosis of the early period. This is not only true from the standpoint of the health authorities, but it is more especially true for the purposes of treatment, because certainly the lumbar puncture and the injection of immune serum, if not the early enforcement of complete rest are of value in this stage and this stage only, and it is the diagnosis of this stage which is to be discussed in this paper.

Clinically, the disease is characterized by a multiplicity of types and great variations in severity. Many classifications are given but generally speaking the cases fall best into four types, namely, the "non-paralytic" or "abortive"; the "encephalitic"; the "bulbar," and the "spinal." This classification depends upon the development or non-development of invasion of the central gray matter and upon the extent and location of such invasion. This cannot be determined until the end of the first stage of the disease, so strictly speaking there can be no such classification in the early period. The early symptomatology, excepting, perhaps, the encephalitic type is identical for all types and it is impossible to say definitely whether a case seen in this period, will on the one hand clear up without paralyses, and become a so-called "abortive" case or on the other hand develop extensive paralyses.

In the epidemic of the last summer, I was appointed diagnostician by the State Health Department and was assigned to the state sanitary district which includes the counties of Oswego, Onondaga, Cortland, Seneca and Cayuga. In the City of Syracuse 228 cases were reported, while in the outlying districts there were 270. Of these 498 cases I saw 102 in the early or acute stage. In eighty-eight of these the diagnosis was confirmed by lumbar puncture, in forty-two it was proven by the subsequent development of paralyses; fifty-eight cleared up without apparent paralyses and are considered abortive cases. It should, however, be borne in mind that twenty of these non-paralytic cases received one or more injections of serum, which in several cases I am sure influence the course of the disease. Seventeen cases died. In this series of 102 cases we then have paralyzed cases in the proportion of 43.1 per cent, with a mortality of 16.1 per cent. When this is compared to the 70 per cent paralyzed cases with 26 per cent mortality in the whole series, I think it must be evident to all that there were very many missed non-paralytic cases.

The three cardinal symptoms are fever, headache, and rigidity of the neck. Accompanying these but less constantly observed are tremor, drowsiness, constipation, retention of urine, sweating, and various hyperesthesiae. The symptoms can be explained best after a brief consideration of the probable pathologic mechanics of the infection.

It has been repeatedly shown that in monkeys inoculated intraspinously or intracereb-

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rally with an emulsion of the spinal cord of a child dead of the disease, the subsequent development of symptoms in the animal is always accompanied by positive findings of the virus in washings from the nares of that animal. The reverse is also true, inoculation of such emulsions on the nasal mucous membrance being followed by the appearance of the virus in the spinal fluid and the onset of poliomyelitis. This is conclusive evidence that there must be a quite definite channel of communication between the upper respiratory tract and the subarachnoid space. It would seem then, that the virus having gained access to the nares, may pass upwards along the filaments of the olfactory nerve, through the cribiform plate of the ethmoid bone and gaining access to the sub-arachnoid space, establishes the first stage of the disease in which we are in reality dealing with a form of meningitis. There is an immediate reaction with a cellular infiltration in the meninges, and the spinal fluid, normally crystal-clear and cell-free, may be opalescent or turbid and is characterized by the presence of a cell content of varying degree and character. In the abortive forms the inflammatory reaction is limited to the meninges; it subsides there without further extension and consequently no paralyses result. But in the more severe forms there is a subsequent involvement of the substance of the cord with intramedullary changes. In the spinal cord there are no lymph vessels, but there are present definite perivascular lymph channels, serving as paths of communication between the spinal fluid and the intracellular spaces and it is along these that we have the extension of the infection to the nerve cells, thus giving rise to the perivascular infiltration which is so constantly seen in microscopical sections. I do not believe it probable that this infiltration can be an evidence of a hæmatogenous mode of infection, which is so strongly championed by many observers. According to their views this reaction about the vessels is sufficient to definitely establish the fact that the brain and cord receive the infectious agent through the blood stream and in no other way, and they further believe that the meningeal reaction is a passive or secondary process following the initial and more severe involvement of the cerebro-spinal gray matter. This, I feel, is entirely inconsistent with the fluid findings and the clinical aspects of the disease. If this were true there would be no early period with distinct clinical signs of meningeal irritation and no pleocytosis in the fluids, which is present three to five days before evidences of cortical involvement. It seems to me that in poliomyelitis we are in many respects dealing with a local disease, one in which we first have a meningitis, where the disease may often subside, giving us the abortive or non-paralytic type, but by further direct extensions, along the perivascular lymph spaces, it may give rise to the medullary lesions with resultant paralyses, which vary according to the extent and location affected. Coincident with the production of these central lesions, there is a rapid subsidence of the primary meningeal reaction, which accounts for the lower cell content of the spinal fluid in the paralytic stage. It should be remembered that the cases which come to autopsy and are studied microscopically are the ones in which the medullary lesions must be of necessity severe and certainly more marked than the meningeal involvement which was at its height at an earlier period. The involvement of the gray matter may range from a slight œdema and hemorrhage about the nerve cells with temporary loss of function to marked cellular infiltration and their actual destruction with permanent paralysis.

When the case is first seen by a physician, the parents as a rule state there was sudden onset of feverishness, with drowsiness, headache, general weakness, loss of appetite, perhaps vomiting; twitchings of limbs sometimes simulating convulsions may be noticed. Frequently such a condition persists for two or three days before it is fully realized that something more than a mild digestive disturbance is present. The rigidity of neck is seldom noted by the parents.

Wickman in his monograph on poliomyelitis, divides the preparalytic stages into four types, according to their clinical manifestations, first those with meningeal irritation, second those resembling influenza, third those with gastro-intestinal disturbances and fourth an anginal type in which there was a marked sore throat.

In this series only the meningeal type of the febrile period was observed, the irritation being mainly evidenced by the headache or rigidity of neck and without such clinical manifestations, no positive fluid findings were ever observed.

Following is a brief analysis of 102 cases seen by the writer in the acute stage. These cases were distributed over a wide territory and often only a single observation could be made. Consequently, it was difficult to obtain complete and satisfactory data on the individual case, and it makes a consistent analysis difficult.

Temperature.—100 per cent. Fever was present in every case. The average duration was eighty hours. The onset was usually abrupt. The average temperature observed was 102.2, the highest range being 104.8.

Headache.—99 per cent. This was noted in

all but one of the cases. It was described as being of a general character and very resistant to treatment.

Rigidity of the Neck.—97 per cent. This was found in ninety-eight cases and was quite characteristic. It is rarely similar to the rigidity of meningitis which is most often a retraction. Retraction was only seen in two cases. The rigidity is an anterior-posterior one and may easily escape detection. On attempting to flex the head forward there is a sense of great resistance with evidence of considerable pain. The child cannot approximate the chin to the chest. There is, however, free movement laterally and posteriorly.

Drowsiness.—87.4 per cent. Ninety cases. The patients are distinctly apathetic. They don't want to move and evidence considerable irritability when disturbed. The mentality is always clear. A quite typical expressionless facies is observed, the so-called "Wilted flower appearance."

Tremor and Muscular Twitching.—60.7 per cent. This was noted in forty-two cases and described by the parents in twenty others.

Vomiting.—40.1 per cent. Vomiting was described as an early symptom, often ushering in the attack, in forty-one cases. In no instance was it constant.

Constipation.—36 per cent. Thirty-nine cases. The constipation was obstinate, resisting all medication.

Difficulty in Urination.—56.8 per cent. Sixty cases. This was a quite common finding—the child going sometimes twenty-four hours without urinating and the evidencing difficulty in starting the flow.

Sweating.—21.5 per cent. Twenty-two cases. This accompanied the severer types, and was noted in ten of the cases going on to bulbar involvement.

Reflexes.—No distinctive disturbances of the reflexes were observed. In twelve early cases they were exaggerated, in twenty-nine the patella, abdominal or cremasterics were absent. The pupillary reflex was retained in all cases. Diplopia was present in eight cases.

Kerning.—This also was not constant—a definite kerning was observed only in eighteen instances.

Pain.—This was a finding of indefinite character, pain in the back and limbs being mostly complained of. A persistently severe pain in one or more extremities often preceded the appearance of paralysis in that location. Redness of the throat and heavily-coated tongue were common findings.

Spinal Fluids from Three Cases of Poliomyelitis. Fluid 1 had cell count of 840; No. 2, showing fibrin clot, 520, and No. 3, which is clear, 210 cells.

In most instances in the presence of an epidemic the diagnosis could be made from clinical signs but in some the symptoms were much more indefinite than the foregoing might indicate, and the diagnosis could only be made by lumbar puncture. The procedure is without doubt our most reliable and valuable aid in the recognition of poliomyelitis. The spinal fluid in this stage of the disease is quite definitely characteristic. There are, however, no pathognomonic and distinctive findings as are the organisms of a suppurative meningitis.

There is no doubt that poliomyelitis is caused by a specific organism, but at the present time we can only say that we are dealing with a bacterium so small that it will pass through the finest filter, filters which are impervious to all other known bacteria, an organism so minute that it cannot be seen individually with any known means of magnification. Nogouchi by careful anaerobic methods obtained turbidity in fluid culture. Microscopical examination of this showed the presence of small globoid bodies which were apparently clumps of the minute bacteria; animal in-

oculations with these cultures reproduce true typical poliomyelitis. I do not feel that the recent startling findings of Dr. Roseneau are at all remarkable. I have no doubt whatever that Dr. Roseneau produced paralysis by the intravenous injection of his organism into monkeys and rabbits, but did he produce poliomyelitis? Paralysis and poliomyelitis are not synonymous. Now it is possible to produce paralysis in many laboratory animals by the injection of various organisms and if you consider paralysis to be synonymous with poliomyelitis, then it is very easy to say that the particular organism you have introduced is the cause of poliomyelitis. This disease is a perfectly specific, definite and highly differentiated type of infection, and it seems more reasonable to believe that it is caused by a more specific and more highly differentiated type of organism than the common every day, or garden variety streptococcus which causes so many other human ills.

The spinal fluid is often clear, and increased in amount, more often there is a slight opalescence and in few instances a distinct turbidity. In these fluids which are cloudy, a fibrin web formation or clot was seen on standing. There is a distinct increase in cellular elements. Normal spinal fluid is practically free from cells, not over five to the cubic m.m. being present. The character and number of the cellular elements in "poleo" fluids depends a great deal upon the time the puncture is performed. The polymorphonuclear leucocyte (or pus cell) often predominates in the first twenty-four hours, and the cells are found usually in greatest numbers at that time. These are rapidly replaced by lymphocytes, so that this cell is the one more commonly observed later. There is also present, in small numbers, a large mononuclear cell sometimes showing phagocytic activities, which is either of endothelial or ependymal origin. Of the eighty-eight fluids examined in the early stage, forty-four were apparently clear, thirty-seven presented slight degrees of cloudiness or opalescence, and seven distinctly cloudy and turbid, closely simulating the fluid of a suppurative meningitis.

Examinations of the fluids were made immediately at the bedside and the number of cells was estimated by means of the ordinary blood counting chamber. The importance of this bedside examination is great; we are enabled to immediately correlate the fluid and the clinical findings—an immediate positive diagnosis can be made, and immune serum can be given without additional puncture.

The fluids that appeared clear to the naked eye never showed more than 300 cells to the cubic millimeter. The opalescent fluids showed 300 to 900 and the turbid or cloudy fluids all showed counts above a thousand. The average count observed in all cases was 420 cells to a cubic millimeter. The lowest being 65 while the highest was 1,230. No cell count was observed in any case, without some accompanying clinical evidence of meningeal irritation: After several negative findings in suspected cases without such clinical signs, we advised against lumbar puncture until more definitely indicated by the presence of headache, rigidity of the neck or muscular twitchings.

Increased pressure of varying degree was observed in seventy of these cases. In the remaining cases it was not increased. This bedside examination of the fluid was ordinarily considered sufficient but fluids showing a high cell count were always further examined by smear and culture for organisms. In all the cases of poliomyelitis the fluids were sterile. Without such examination an early suppurative meningitis could not at the time be ruled out. Appropriately stained smears from the centrifugalized sediment were also examined for tubercle bacilli. The absence of tubercle bacilli would not exclude a tuberculous meningitis, the cell picture of which so closely simulates that of poliomyelitis. This can usually be done by clinical signs. The chemical examinations of the fluids are not of great importance, except as confirmatory evidence. Specimens are characterized by the presence of an increased globulin content as shown by the butyric acid test and by an increase of albumen which is estimated relatively by nitric acid stratification. These findings must of necessity be present in any fluid with an increased cell count and in consequence the chemical examination is most often superfluous. The cells rapidly disappear from the fluid with the subsidence of the temperature, so that a few days after the acute febrile period is passed, the fluid is practically free from cells and although there may be a persistence of the globulin content, with a positive butyric acid test, the examination of the fluid in the later stages is of little value. It is due almost entirely to the fact that many fluid examinations have been made in this later stage and found negative, that there is a well-founded belief among many that the spinal fluid in poliomyelitis is of no diagnostic value. It is to be emphasized that the examination of the fluid alone is not sufficient to establish a positive diagnosis and it is only by the correlation of the clinical data with the laboratory findings that we can arrive at a proper diagnosis.

Although the results of the examination of the spinal fluid were not always an indication of the severity of the disease, it usually followed that the cases with the higher cell counts were of the severer type, and more often went on to involvement of the gray matter. The

twelve cases subsequently developing bulbar paralyses, all had cell counts of above 500.

It may be interesting to state that among the conditions simulating poliomyelitis and coming up for differential diagnosis, the following were observed:

Abscess of the brain (two cases).
Suppurative meningitis (two cases).
Influenzal meningitis.
Tetanus.
Typhoid fever with meningismus.
Chorea.
Bell's palsy or facial paralysis.
Acute articular rheumatism.
Hysteria (two cases).

Mistakes naturally were made, diagnosis of poliomyelitis were made in a case of early suppurative meningitis in which smears and cultures of the fluid were reported sterile, in an early case of tuberculous meningitis in which the lesions were most marked about the cervical cord, and in a case of hysteria, in which latter, permission for puncture was refused.

A case of "polio" of sixteen hours duration with a very cloudy fluid was seen early in the epidemic. Although no organisms were found after careful examination, yet because of the very cloudy fluid, it was thought that we must be dealing with a meningitis and anti-meningoccic serum was administered. The true nature of the case was revealed by the subsequent development of paralysis and subsidence of acute symptoms. Many mistakes of omission in all probability were also made.

The encephalitic type is an interesting although a rare form of this disease. It is without doubt a true encephalitis and is characterized by convulsions, unconsciousness and the development of spastic paralysis showing involvement of the upper neuroes. In its clinical aspects it could not be differentiated from various forms of meningitis. Three cases were observed in this epidemic—two cases died and the third case, although a fatal prognosis was given, cleared up entirely after the administration of three doses of immune serum.

Of the forty-two cases developing paralysis, eleven were of the true bulbar type, ten of whom died from respiratory paralysis. Of the thirty remaining cases fourteen showed paralysis of an entire extremity or more, with five deaths. Six cases developed facial paralysis and ten show partial and slight involvement of an upper or lower extremity.

In conclusion, I firmly believe that the early stage of poliomyelitis is characterized by a distinct clinical picture and that, in the presence of an epidemic, any case presenting with headache, fever and rigidity of the neck should be considered a case of poliomyelitis until proven otherwise.

Discussion.

Dr. Harry L. Abramson, New York: Dr. Ayer is to be congratulated on the completeness and care with which he has presented a difficult subject. That it is difficult to make an early diagnosis in poliomyelitis is attested by the fact that there are many excellent physicians who still refuse to accept diagnoses arrived at by the aid of the spinal fluid examination, in the preparalytic stage or in cases in which paralysis does not appear.

Of course the difficulty of diagnosing paralytic cases exists only in the preparalytic stage. After paralysis appears, the parents themselves are usually able to diagnose the condition. It is in this type of case that the diagnosis must be made, as Dr. Ayer puts it, early. However there is another type of case in which the physician is up against it both early and late and, even with the aid of a spinal fluid examination, makes only a tentative diagnosis of poliomyelitis. I refer particularly to a type which resembles tuberculous meningitis in the length of the course and the general clinical features of the disease. These cases sometimes exhibit general clonic convulsions, exaggerated knee jerks and other symptoms of cortical irritation in the motor areas. I saw one such case that had almost uninterrupted clonic spasms for 48 hours. Another case presented prolonged stupor, exaggerated knee jerks and an occasional convulsion. At autopsy, the brain in one such case was very much shrunken and softened, the convolutions flatter and the sulci shallower than normal. The spinal fluids in these cases were such as one would find in tuberculous meningitis, but the Fehling's solution was well reduced. However, in some stages of the tuberculous meningitis the fluid may exhibit a prompt reduction of Fehling's solution.

Another cerebral type which was encountered in New York, though undoubtedly a rare type, is that which presents all the clinical features of a hemiplegia. I saw one such case at the Willard Parker Hospital. Clinically it presented complete left hemiplegia and hemianesthesia. At autopsy the right motor area and parietal region were reduced to a mushy consistency. There was no sign of gross hemorrhage. The spinal fluid findings were such as are found in poliomyelitis and may also be found in lues. However, the Wassermann was negative and no history of lues was obtainable.

Another type of case which may present difficulty is that which exhibits the classical symptoms of an acute purulent meningitis, especially when the fluid withdrawn is only slightly cloudy. These cases present marked retraction of the neck, double Kernig, exaggerated or absent knee jerks, delirium, history of sudden onset and high fever; in other words a picture typical of acute meningitis, which in fact it is, but one caused by

the virus of poliomyelitis and not by the meningococcus or any other coccus. The first case of the epidemic in Brooklyn which I happened to see was one of this kind. The attending physician made a clinical diagnosis of meningitis, but when the spinal fluid came out we changed the diagnosis quickly to poliomyelitis. The fluid was slightly hazy, but experience with acute meningitis had taught me that fluid in the latter cases are, as a rule, much more turbid. There are some cases of epidemic meningitis in which the meningococcus is never found; especially if the fluid is not very turbid, one may be up against it for a differential diagnosis between acute meningitis and the meningitic variety of poliomyelitis. I simply mention these cases as types in which the diagnosis may be in doubt not only in the first few days but later in the disease; in fact sometimes until the case reaches the autopsy table.

That the spinal fluid examination is of the greatest help in the diagnosis of the atypical and non-paralytic poliomyelitis is our opinion at the Department of Health of New York City. We have been using it as such for the last six years, so it is not new to us, and we are gratified to observe that it is being taken up so generally by the medical profession at large. However, I want to warn you that you should not make a diagnosis of poliomyelitis on the examination of the spinal fluid alone. There are other conditions which may yield a spinal fluid identical with that of poliomyelitis. Typhus fever, luetic meningitis, whooping cough when complicated by convulsions, epidemic cerebrospinal meningitis in the early and recovering stages, and tuberculous meningitis. Therefore one must add the laboratory findings to the clinical picture in arriving at a proper diagnosis. There is no such thing as a typical poliomyelitis spinal fluid, and there never shall be until we shall be able to demonstrate the specific organism of the disease in the fluid, or by some other means of specific diagnosis, such as a complement fixation test. However, the spinal fluid examination offers a ready means of excluding meningism accompanying the acute infections, such as pneumonia, scarlet fever, typhoid fever, gastroenteritis. While many of the clinical features of a meningism are like those of the preparalytic stage and of abortive poliomyelitis, the examination of the spinal fluid shows the absence of cells, albumin and globulin.

Dr. Ayer mentions the finding of polynuclears quite frequently in the early stages. Our findings in a great number of cases in which the fluids were withdrawn very early in the disease do not yield us such results. Only a very small percentage of fluids presented a preponderance of polynuclears. We do not believe that every spinal fluid passes through a polynuclear stage before the mononuclears appear. We are inclined to believe that the type of cell found indicates a type of reaction rather than a stage of the disease.

The presence of the fibrin web has no differential diagnostic significance. Many pathological spinal fluids from other sources present the web. It is simply an indication of the presence of fibrin-forming elements.

I regret to note that Dr. Ayer has neglected the chemical examination of the spinal fluid. The chemical examinations are quite as important as the cell count. There are some fluids from poliomyelitis which still show the presence of albumen and globulin and no cells. Undoubtedly Dr. Ayer would have missed such cases. The reaction from Fehlings is of some help in a differential way, as practically all poliomyelitis fluids reduce Fehling's solution. It seems to be the tendency of many physicians to over-emphasize the importance of cell-counting in the examination of spinal fluids and to neglect the chemistry. Much valuable information can be gained from proper routine performance of the chemical tests.

The diagnosis of poliomyelitis has received a tremendous boost during the last summer. The old idea prevalent among the general profession, that a case is not poliomyelitis unless it presents some signs of paralysis or muscular weakness, received a rather severe jolt. This, without a doubt, is largely due to the more widespread use of the lumbar puncture needle and the examination of the spinal fluid.

Dr. Henry L. K. Shaw, Albany: Dr. Ayer has done a wonderful piece of research work with the material at his disposal, and it forms a very valuable addition to the literature on infantile paralysis.

Last October a family came to Albany with two children, immediately after burying their youngest child, who had died of infantile paralysis after two days' illness. This family was at once placed under quarantine. In a few days one of these children had an attack of vomiting, with some fever, and the second child vomited once. Four days later the child who had the fever developed paralysis, while the other child showed no symptoms of paralysis or muscular weakness. A lumbar puncture was made in both cases, and there was a marked increase in the number of cells and in the globulin.

We have here in the same family three different types of the disease—one a rapidly fatal case, one with slight disturbance followed by paralysis, and the third one only slightly indisposed and with no other symptoms. At an ordinary time and without the lumbar puncture the third case would never have been diagnosed.

There has been a large number of cases re-

ported to the State Department of Health in which several members of the family were affected. A study was made as to the length of time the disease was communicable, and in a series of thirty-six cases the Department was able to obtain definite knowledge as to the duration of the disease when an exposed child came in contact with a case. This period of infectivity averaged two to three days, and the longest case was eight days. It would seem, therefore, that these cases are communicable for only a short length of time. The period of incubation shown by a study of a number of cases proves that it is also of short duration, averaging eight to ten days, hence these children should be quarantined for a period which could safely be placed at three weeks instead of six weeks as at present.

Dr. Thomas N. Gray, East Orange, N. J.: I have been very much interested in this paper, and I want to congratulate Dr. Ayer. I was diagnostician for Essex County, N. J., and for the greater part of the State, and saw over 1,420 cases of infantile paralysis. Early in the epidemic I was impressed by the autopsies. Of the first ten cases, eight died, and we performed autopsies, and as Dr. Ayer was impressed, so was I impressed by the proliferation of the cells about the vessels, and in addition I observed an œdematous condition of the cells. This suggested that it was more than possible that pressure on the cord produced by this proliferation and œdema of cells could interfere with the conductivity of the cord.

Dr. Ayer has properly observed that it is the unrecognized cases that spread the disease. No doubt there were many children in the streets with mild cases of poliomyelitis during the epidemic. We had a group of cases in the lower part of the city which could only be accounted for by some kind of a carrier method, and undoubtedly such carriers were the unrecognized cases. I rode miles and spent much time going to see cases that were paralyzed, and in which anybody could have made the diagnosis, and gave much thought to the pathological conditions mentioned and its possible interference with the conductivity of the cord early in the disease, and in cases with no paralysis; and finally decided to study the response to a plantar shock in the well child of all types, and to compare the response in suspected polio with this. I termed this test the "whip-lash," as expressing the impression conveyed to my mind by the plantar reflex. If you have ever practiced snapping a whip with a long lash, and have succeeded in getting the perfect "come back" of the lash instantly with the snap you will understand my meaning.

Take a normal child stripped, with attention drawn away from yourself; make a quick, sharp impression on the sole of the foot at the great arch or in the center of the palm of the hand and watch the instantaneous, vigorous "come back" of the leg or arm. A long-legged, loose-limbed child will hit the abdomen with the knee.

Now, if we recall the pathology of poliomyelitis, the cell proliferation about the vessels, the edema of cells, causing pressure on the cord; the hyperemia of the meninges, causing still greater pressure; the inflammation of the meninges and greater cell proliferation and still greater pressure on the cord; then still greater pathological change with destruction of a part, or the whole of one or both horns, we can easily conceive that the response to sensory irritation would vary from a sluggish, a delayed, to an abolishment of the reflex. Short of destruction in the motor tracts there will be many degrees of pressure, and the interference with the "whip-lash" come back of the leg or arm will register the degree of pressure. This lessened conductivity of the cord for motor impulse will be evident in the so-called abortive case, which has fever only, and this of short duration. In making this test I use a blunt pointed safety pin (large). The sensory impression must be concentrated and quick. If one finds a slowing of the "whip lash" he may be very suspicious that he is dealing with a case of poliomyelitis, even though the lumbar puncture made at the bedside is negative. If there is a decided loss of the "whip-lash" motion, we put the case down as one of poliomyelitis, and have had this diagnosis verified in every case which went on to a slight impairment of motion, or into a partial, group or total paralysis.

Dr. Frederic W. Sears, Syracuse: I was associated with Dr. Ayer and as he says he saw only 102 of the 491 cases in our vicinity. That these 491 cases were all cases of infantile paralysis there is no doubt.

Dr. Gray's discussion impressed me very much, especially where he told of the parents trying to prove an alibi for the children. I thoroughly understand this, for I, too, have been through it.

One point Dr. Shaw brought up and that is he says eight days was the most frequent period of incubation. I think the incubation period is longer than eight days in some instances. I had one case, the first near Syracuse, in which I am sure the incubation period was longer than eight days. This child left Brooklyn on July 5th, and was absolutely isolated until July 22d; there was no possible way in which he could have been exposed between these dates. He came down with the disease on July 22d and that made the incubation period at least sixteen days in this instance. I think that so far as the period of isolation is concerned we should not reduce it. However, my impression is that the infectious period is early in the course of the disease. I further believe the

infection is conveyed by very close contact. The number of cases of secondary infection were far greater than we had supposed. We had some instances in which simultaneously there were several cases in the same family. Where this occurred we found that there was some reason back of it. Either the primary case was virulent or the family was particularly susceptible. That seemed to happen more constantly in the earlier cases than in the later ones in the epidemic.

The spinal fluid findings should only be taken in conjunction with other symptoms, particularly rigidity of the neck. In poliomyelitis the pain in the neck was usually not as acute as in true meningitis.

The possibility of rabies being confused with poliomyelitis was brought up. I do not think that anyone who has ever seen a case of rabies could possibly confuse the two diseases. Rabies shows absolutely characteristic symptoms.

Many have said that we did not learn much from this epidemic, but I am sure we have learned one thing and that is to be alert and on the lookout for this disease, and that is of vital importance. I find physicians very alert since the epidemic. There is not a week now that I am not called out to see a case that some physician suspects is one of poliomyelitis. If we go on the theory that we cannot tell whether a child has the disease or not until he gets paralysis we would be likely to have a widespread epidemic again. Cases can certainly be recognized in the early stage.

Dr. Henry L. K. Shaw, Albany: I did not say that eight days was a sufficient period of quarantine or that eight days was the incubation period, but that eight days was the average period of incubation; in some cases the incubation period was only three or four days, and in some it was longer than eight days, but eight days was about the average.

Dr. Ayer, Syracuse: In Syracuse it may be that I saw only the more severe type of the early period, as apparently I found a much higher cell count and a higher proportion of polymorphonuclears, than the gentleman from New York observed in his experience. I also found a much higher proportion of cloudy fluids. The chemical examination may have a certain value, but I feel that it is only confirmatory to the more important microscopical examination and is, in the main, superfluous.

DEFECTIVE NUTRITION IN EARLY LIFE.*

By ELIAS H. BARTLEY, M.D.,
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IT has been estimated that approximately 10 per cent of the children in the schools of our large cities suffer with malnutrition. There can be no doubt that a proper bodily nutrition is essential to bodily health and efficiency. It cannot be doubted that there are many persons in every community whose efficiency is impaired by malnutrition. This affects the efficiency of the community just in proportion to the number of such cases. It is then a matter of great importance to inquire into the causes and measures for the relief of these cases of malnutrition. Many, if not most cases, of undernutrition, except those developed by disease in later life, originate in early life, i. e., before the sixth year. It is the cases of malnutrition which we meet during the first six to ten years of life that I shall have in mind in this discussion. The first question that presents itself is, to what extent is this condition hereditary or inborn and to what extent is it developed. Some cases are certainly hereditary, while others are as certainly developed by unfortunate surroundings, disease or accident. Among the diatheses so much discussed a few years ago, the asthenic diatheses was one.

By a diathesis was meant a condition of body or constitutional anomaly which predisposes to other pathological conditions. *Asthenia universalis* is a term applied by B. Stiller, of Budapest, in connection with certain individuals who have physically degenerated and show marked atonic condition with dyspepsia and neurasthenia. He believes that some persons are born into this condition and remain in it with little chance of being lifted out of it. Acquired asthenia is the result of faulty hygiene and faulty metabolism, due to either faulty methods of feeding or the result of disease, and often dates back to infancy or early childhood and by reason of inertia or neglect remain uncorrected as the years go by. It is evident that any reconstructive efforts to be successful must be begun in early life. When practicable such children should be transferred from city to country life, as a city life is too strenuous for them, and an outdoor life will do much to increase their general tonicity. Much more can be done for the acquired cases than for the hereditary cases, although, by careful management these latter may be greatly benefited, especially if they can be put under the care of a judicial nurse or

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governness. A great many neurotic mothers are not fit to raise their own children because they are too unstable to maintain a fixed policy and to manage a sensitive child.

Many of these underfed, mostly neurotic or neurasthenic children are injured during infancy or early childhood by faulty feeding, by acute infections such as the exanthemata, tonsilar infection or acute gastro-enteric infections.

These children are naturally regarded as delicate, therefore they are brought up in the idea that they are to be nursed, pampered and indulged.

Not rarely they come to us with a card from the school, as suffering with malnutrition, or, possibly from general tuberculosis. Much can be done for these cases of under nutrition and lowered vitality by careful management if efforts are begun early, or during the preschool age, or before the effects of vicious habits are too firmly fixed. It is at this time that the remedial defects in children are often neglected or overlooked. During these years, when the general health and bodily characteristics are being formed, the responsibility for the future citizen rests upon the parents and the family physician. It is the up-to-date family physician, not the specialist, who can make good citizens of many of the cases we are discussing. He is in a position to follow up the supervision with the family, which is essential to obtain results.

By the time the child reaches the age of six or seven years, the chance of changing the general bodily health and constitution grows rapidly less.

The first necessity is to obtain a complete history of both child and parents; the home life, disposition, characteristics and habits. This takes time and patience, and will often inspire confidence and perhaps the co-operation of the parents without which we can do nothing. Much will depend also upon the practicablity and the definiteness of directions and the ability and willingness of the parents to carry out the measures recommended.

These directions should include the regulations of the daily habits of exercise, rest, play, sleep, entertainment, diet, the care of the mouth, nose and throat. Since we cannot take time here to take up all these matters in detail, I want to say a few words about some of them.

These children are usually treated as if they were half invalids, and are often pampered too much. This is a mistake. While we cannot always practice the so-called hardening process by exposure to extreme changes of temperature and weather, we can allow them as much liberty of action as their health will permit, and much more than parents are inclined to do. Fresh air at night is now easily obtained, thanks to the influence of the fresh air propaganda. All children should be made to walk as soon as they can do so readily, instead of being wheeled about in a go-cart. They should not be hemmed about with too many don'ts. Give them range enough to let them develop, with just enough oversight to protect them from bodily harm. It is sometimes surprising to see the improvement in an apparent weakling who has been restrained at every turn from this kind of liberty.

It goes without saying that long hours of sleep, a proper amount of rest after the tire of play or walking must be enjoined. This should be systematic and not haphazard. Entertainment—so-called—is often carried to the ridiculous. To allow a child of five or six years to attend the theatre or picture show, especially those of the type of children we are considering, is a great mistake. It excites and exhausts the nervous system to an alarming degree.

As the mouth is the port of entry of all that nourishes the body, so also is it the port of entry of infections that determine the health or ill health of the body. It is only in recent years that we have come to realize the great influence of oral, nasal and tonsilar infections on *general* health. Dental malocclusion, dental caries, pyorrhoea, adenoid growths, sinus disease, mouth deformities, tonsilar infections, all have a very important effect on the development of children, as well as their general health. It is now well known that many of our diseases originate in these infections; as for example, rheumatism, so-called, either acute or chronic deforming, endocarditis, gastric disorders, including gastric and duodenal ulcers, appendicitis and gall bladder infections, middle ear infections, deafness, mastoiditis, some cases of pneumonia, and possibly others.

It has been observed by some authors that tubercular children usually have bad teeth. Dr. Knepf says, "I defy the most skilled physician to either cure or help a tubercular patient who has decayed teeth in his mouth. The restoration of the teeth increases greatly the chances of recovery."

In the management of these physically defective children, we should carefully inspect and treat, or have corrected, any source of infection in the mouth, nose or throat.

In recent years, especially in large cities and suburbs, infections have grown more frequent and in some cases more virulent, and hence the secondary diseases such as cardiac diseases, renal diseases, pneumonia, mastoiditis, gastric and duodenal ulcers, are apparently on the increase. As the people in the country living near

large cities more frequently visit the city now than before the advent of the automobile, these remarks apply to the country as much as to the city. The question of nutritional disorders in childhood is a common one and a difficult one to handle.

The chief difficulties we have to contend with are:

1. The prejudices and preconceived notions of the mother or nurse.
2. The previous habits and prejudices of the child.
3. The lack of appetite or digestion of the child.
4. The unwillingness of the child to assist.

The Notions of the Mother or Nurse.—Frequently the most difficult mother to manage is the one who reads a popular book, or some other authority, on foods. I was recently called to treat a child of twelve months for malnutrition. It was very anemic, had no teeth, could not walk, and had been losing weight for four months. I found that the mother had read that green vegetables contained iron. She was giving him spinach, celery and lettuce every day and still he lost weight. By a sensible change in diet, omitting these "greens," he gained color and five pounds in three weeks and began to walk.

Another preconceived notion of mothers is, that a child should be made to eat the things she thinks are good for him, or go without; the result being that the child expects a contest every time he comes to the table. This method of trying to force a child to eat seldom succeeds in securing the object desired. This notion of mothers must be corrected to one of coaxing the child's appetite rather than driving it. This can usually be done by catering to the child's likes and dislikes so far as substantials go. Find out by numerous trials, what appeals to the child, by ever changing variety, avoiding nick-knacks which benumb the appetite.

Most mothers think that a child of two years must eat soft boiled eggs and meat juice to live. They do not dare to allow a fried egg, or an omelet, or fried potatoes or fried mush. He must have a chop or roast meat, never salt meat. If a child of two to four years takes milk he does not need egg or meat of any kind. He gets all the protein he needs in the form of casein and albumin and in a better form than as meat. It is a very common observation that the child who drinks milk freely is stronger, grows to a larger stature than other children of the same family who do not drink milk. I regard it a misfortune when a child does not take milk. Rarely we meet with cases of milk anaphalaxis, but more often we find that the mother is to blame for the distaste for milk. At the weaning period she allows other foods to displace milk, or, because she does not like milk she causes her child to dislike it because of suggestion. This I have often observed. Efforts should be made in such cases to induce the child to return to milk in some form, as junket, custards, malted milk, etc. When possible a lacto-farinaceous diet will generally be found to give the best results. Vegetables will be a useful addition to these, letting the child at first select the vegetables it is willing to eat. Among the farinaceous foods, allow the greatest possible liberty of choice and method of cooking. Cast theory to the dogs, when necessary, in methods of cooking or selection of cereal. The main object with these children is to promote appetite and nutrition. When milk cannot be used, for any of the above reasons, the difficulty is greater. Meat, cheese, legumes or eggs will be needed. If fresh meats are distasteful, it is usually because of monotony in the selections. It must be known that salt meats are often more palatable and quite as digestible as fresh meats. Cold corned beef, tongue, bologna, dried beef (smoked beef), ham and bacon are usually well borne in reasonable amount by children three or four years old. Those meats which have been soaked in brine as a part of the curing process, are especially desirable because the connective tissue has been disintegrated so that in mastication the tendency is to crumble and expose a greater surface to the digestive juices than is the case with fresh meats. It is a law of chemical action that the rapidity of reaction is proportionate to the surface exposed. It is for this reason that bread is raised, and that bread that is old enough to be brittle is more easily and rapidly digested than new bread which is doughy or plastic. For the same reason hot biscuits, griddle cakes, dumplings, sweet potatoes and bananas are less easily digested than some other foods. The modern steamed oats, for the same reason, is less easily managed than the old-fashioned cracked oats, and the latter should be selected. However, some of these foods may be allowed if on trial they appeal to the appetite and are well borne. I would except the bananas for other reasons.

Fats.—Most of these children discard fats as far as possible, and no efforts are usually made to correct this vice. The cells of the body all contain from 15 to 25 per cent of fat as an essential part of their composition, and hence it is essential to the growth and maintenance of the life of these cells. To be sure when fats are not supplied carbohydrates, proteins and the tissues themselves can be and are made to furnish fats. But this entails considerable loss of energy, and the body prefers to receive the fat as such. This is shown by the fact that when it is supplied freely the body stores it up without change. Thus if a dog is fed goose fat freely, analysis shows that the fat stored up is not all dog fat

but goose fat. If the dog is starved the goose fat is used up just as readily as the dog fat. Fat is essential to the well being of all growing children. It can most readily be supplied by milk, butter, bacon and gravies, all readily taken by most children and easily digested. Even when milk is not well borne, butter is usually well tolerated during the second year and later, and I have come to regard it as a great assistance in the treatment of all cases of malnutrition. For many years I have made it a practice to ask consumptives if they like fats. In the vast majority of cases a look of disgust is the answer. Sometimes the abstinence from fats is an early symptom of tuberculosis of the lungs, and I have thought at times this contributes largely to the progress of the disease. At any rate the free use of fat may retard its progress to a marked degree. For this reason I regard bacon and butter in liberal allowance as highly beneficial in all cases of malnutrition whether due to tuberculosis or not. The use of cod liver oil in tuberculosis is too well known to need discussion. The storage of fat in the tissues adds to the nutrition of the cells, gives added strength, protects the body from loss of heat by radiation, gives rotundity to the figure and serves as fuel for use during temporary cessation of food in illnesses to which all of us are liable.

Sugar.—Sugar is the most easily metabolized of the food constituents, especially malt sugar. The only drawback is that when used too freely it has certain disturbing effects on the digestion of other necessary foods. It benumbs the appetite especially when taken between meals or on an empty stomach. Therefore, it should be eaten with the meals unless it is found to produce acid fermentation. These under-nourished children are apt to be very fond of everything sweet, and many of them will not eat anything else if allowed to indulge this tendency. The tolerance of sugar must be studied in each case. When well tolerated and when taken with meals it acts to protect the proteins and fats to a large degree and it promotes the retention of water which is desirable. The too free use of sugar tends to increase acidemia, which is a frequent tendency in such children.

This brings me to speak of another matter of considerable importance, and one frequently overlooked. This is the balance in acid-forming and alkali-forming foods. A dietary should be such that there is a slight excess of alkaline residue left after complete combustion, to maintain the proper degree of alkalinity of the blood and lymph. Otherwise the child suffers with acidemia or a sub-alkalinity of these tissues, and may develop scurvy.

In general the meats, eggs, cereals, including rice, are acid-forming foods.

The fruits, green vegetables, milk, potatoes, legumes and milk are alkali forming foods. Meat soups, meat juice and cereals without milk or vegetables, then, must be regarded as an improper continuous diet. When they are used their acid residue must be neutralized by potatoes, vegetables, fruits or milk. The so-called anti-scorbutic foods, it will be observed, are all alkali-forming foods, and there are good reasons to believe that scurvy may be induced by this form of acidemia independent of the absence of the so-called vitamines. This is one very important element in the failure to grow and develop in some of these cases of malnutrition.

The reason why orange or other fruit juices act so promptly in the cure of scorbutis is that they supply inorganic bases to alkalize the tissues. Children are more likely to suffer from acidemia than adults, because of their more restricted diet.

Experiments on mice show that they die in eleven to fifteen days, when fed on an ash free diet of pure casein, fat and sugar, and do not better when sodium chloride is added to this diet. They live twice as long when sodium carbonate is added. Taylor developed marked symptoms of acidosis or acidemia in nine days in living on practically an ash free diet. Goode and Joslin tried the same experiment but did not develop these symptoms. Wright, who studied the epidemic of scurvy during the siege of Ladysmith, says the disease followed a diminished alkalinity of the blood due to food which furnished too little of the bases. Gautier states that the outbreak of scurvy during the siege of Paris was not connected with the use of salt meat, but with the exhaustion of the supply of vegetables. The diet of children then should be so chosen as to furnish the body with enough base-forming elements to neutralize the acids produced from the metabolism of the sulphur and phosphorus of the food eaten. This is a strong argument against the too free use of soups in the diet of young children.

Discussion.

Dr. A. Clifford Mercer, Syracuse: Every physician present would agree, I think, with Dr. Bartley when he says: "The question of nutritional disorders in childhood is a common one and a difficult one to handle."

I believe, farther, that no two physicians would handle this common and difficult problem in a given case in the same way, and that no one physician would attempt to solve the problem in just the same way in two different cases. The factors used in the solution of the problem are at least more numerous than the letters of the alphabet from which are formed all the words and sentences of the English and numerous other languages. So, therefore, the number of possible combinations of these factors is greater than the

number of words in an unabridged Webster, and the actual combinations are probably as numerous as the patients of all the physicians who seriously deal with the nutritional disorders of the first six years of life, which period Dr. Bartley says he has in mind in his discussion.

Even during the first year of this period, when conditions may be pretty well controlled, no hard and fast rules can be laid down, while with the passing years conditions become more complex and less subject to control and, therefore, less subject to hard and fast rules.

Dr. Bartley's paper is full of suggestive details, too numerous for one in the allotted time to discuss in turn even briefly.

Speaking from my own point of view I am led to believe that the most universal fault in the majority of cases in question is neglect of correct habits in relation to the passage of food stuffs or their derivatives through the beginning and end of the alimentary canal. In infancy it is the irregular hours of feeding, following the whims of the baby or convenience of the mother, with food perhaps right in quality and quantity, but more commonly wrong in these respects. In older children it is the eating between meals, spoiling the appetite for meals, and the neglect of a regular stool habit. Even with good food, the results may be disastrous, but with food wrong in character and amount the results are is obvious, although it may be secured with corresponding worse. The treatment indicated difficulty.

In regard to the character of the food given to older children my usual practice is to advise mothers to use as a guide the food lists found in Dr. Holt's little book, "The Care and Feeding of Children." I tell them when a neighbor or relative suggests a food the child has not had before to consult the book and give the food only if it is in the approved list, and certainly not if it is in the forbidden list. If in doubt about any point I ask the mother to talk the matter over with me. Mothers who are capable soon learn to make good use of this guide, and to some the little book becomes almost a second Bible. Its teachings become in a very satisfactory way general fundamental subjects for discussion which are supplemented by modifying or additional advice to meet particular conditions.

Finally, I would add that when we take credit unto ourselves for a successful result it is at least wise to take into account the elasticity and adaptability of the digestive function. Depending upon this adaptability I feel reasonably sure that many of us consciously or unconsciously often really train a baby to thrive on the food which we for theoretical and clinical reasons see fit to prescribe. Perhaps, for instance, following the teaching of an enthusiast, one trains the infant to take a proportionately excessive percentage of fat, and successfully up to a certain point, but only more intelligently than the Italian tenement mother in a negative way trains her baby to take during its first year substantial adult food with remarkable impunity.

THE HOSPITAL SURGEON:—HIS ECONOMICS AND THE STANDARDIZATION OF HIS WORK.*

By WARREN L. DUFFIELD, M.D., F.A.C.S.,
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THE object of this paper is to call to the attention of the hospital surgeon in particular and perhaps others, certain economic conditions created or about to be created by the laws of the state and to ask your help and interest in their solution.

It is not purposed to deal with the matter of fees and fee bills, except as they may be germane and then only in an incidental manner, but rather to consider the subject as a matter of principle—a principle which affects us all at the present and which promises to have a far greater effect in the future.

It is more than a tradition, it is an established fact that the medical profession has always freely given its services gratuitously to the sick poor, and there are certainly none among us who would wish it otherwise; however, when the state extends its paternal influence to certain classes of workers, as under the Compensation Law, and orders that the physician shall receive a reasonable compensation for their care it is quite another matter.

On July 1, 1914, the "Workmen's Compensation Law" became effective and was enacted following the examples of other states and countries. It objects are to protect the financial interests of certain classes or groups of workers whose work is hazardous, to guarantee to them certain income, to give to them hospital and other care while disabled, to adequately compensate them if permanently disabled and to protect their families in the event of their death.

In order that this protection might be absolute the law compels the employers to guarantee this protection to their employees by insurance either in the State Fund, in stock companies or by depositing with the State Insurance Department bonds to cover such liabilities.

The surgeon's interest in the workings of the Compensation Law is the treatment of the injured employee who may be under his care and in anticipation of this the law provides that he shall be compensated for his services in a fair and reasonable way, specifying that

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his charges shall be such as are usually made in the same community for similar treatment of injured persons of a like standard of living.

If such be the law of the state it is as binding upon the insurance carrier, who represents the employer who is responsible for the care of his injured employees, as it is upon the surgeon, yet when the surgeon presents a bill based upon the above provisions many of the companies will arbitrarily cut it and not content with this will evade and delay payment in every possible way.

But you say, surely there must be some redress. There is, but it is perfectly harmless. In the event of a disagreement about the reasonableness of a physician's bill either party may bring the matter to the attention of the medical director of the State Industrial Commission who will pass upon it. If either party objects to his decision they may then appear before the commission, which means practically a day in court, and if the commission approves they can order the bill paid but cannot force its payment. The next step then is to bring action in a Municipal Court, for most of these bills are for small amounts of $40 or $50, against the employee who in the event of a problematic judgment probably has nothing to satisfy it. He, however, may bring action against his employer, and he in turn is of course not denied the right to sue the insurance carrier. Surely "the mills of the gods grind slowly but they grind exceeding fine."

That is the remedy but it will probably not effect a cure, as we have been informed by one of the commissioners that one or two suits have been brought to force the payment of bills previously approved by the commission and the Municipal Courts have found for the defendants—the insurance companies.

This same commissioner stated that he wished that some organization, which could stand the expense, would carry a suit on an approved claim to the Supreme Court where he felt sure a favorable verdict would be rendered and thus establish a principle for all time.

A far greater injustice is also being perpetrated by the insurance carriers in ordering practically all injured employees to stop treatment with their family physicians and to place themselves under the care of physicians in the employ of the insurance companies. These orders are usually accomplished by the threat of withholding compensation unless the orders are obeyed. The law certainly did not comprehend any such condition of affairs and yet we are helpless to combat this evil.

The following results of the workings of the "Compensation Law" may not be of state wide interest, but they are or should be of the greatest interest, on principle if nothing else, to the surgeons of Greater New York.

A ruling of the Commissioner of Charities who controls the Municipal Hospitals prohibits the surgeons of these institutions from accepting any compensation or gratuity from patients. Some or all of these institutions accept and charge for the care of "Compensation" cases and we are assured that they even go so far as to charge a special fee for the use of the operating room, for anaesthesia and for radiographic examinations and yet the surgeon is probihited from charging for his services. This situation is apparently taken advantage of by a certain transportation company and possibly by other corporations by sending its injured employees to the Municipal Hospitals whenever possible.

Let us stop and consider the full import of the above. The Compensation Law provides for the care of the injured employee, surgeons' services, a certain proportion of his wages while disabled, indemnities for permanent disability and death. Because of a ruling made by the Commissioner of Charities the surgeon is deprived of his just fee and thus the commissioner's orders become superior to the laws of the state. The other provisions of the law are carried out because of penalities for failure to do so, but who cares about the surgeon or his fee.

We have been informed by one of the surgeons connected with one of the Municipal Hospitals that during the past year two hundred and five "Compensation" cases were treated in that institution. If we assume a very reasonable fee of $25 for each case, it means that the surgeons of that particular hospital have been deprived of $5,125, and the insurance companies enriched to that extent.

An opinion has been rendered by the corporation counsel to the effect that the Municipal Hospitals exist only for the care of the indigent poor and that since the enactment of the Workmen's Compensation Law the injured employee can no longer be considered as belonging to the class of indigent poor, therefore the Municipal Hospitals have no right to receive such cases or receiving them should transfer them to other institutions as soon as the emergency is past. In spite of the above quoted opinion of the corporation counsel, the Municipal Hospitals continue to receive such cases and continue to prohibit the surgeons from charging for their services though the law distinctly specifies that the surgeon shall be paid. The administration of the Compensation Law in this respect not only does a grave injustice to the surgeons of the Municipal Hospitals but to the surgeons of other institutions, for if the Municipal Hospitals

were to refuse all but indigent poor these cases would go to other institutions where the surgeon might collect his fee as prescribed by law.

We have said quite a bit about the collection of fees and that there may be no misapprehension about our attitude and to make it very plain that we are not trying to force the payment of bills by the injured employee, let me again call your attention to the fact that the only one who profits by the failure of the surgeon to collect his bill is the insurance carrier—the carrier who has been paid to guarantee, among other things, the payment of the surgeons' bill. How many of you are willing to do charity for the insurance companies who have been paid to pay you, and how many of you are willing to continue paying premiums for life, fire, accident, health and various forms of automobile insurance, perchance to the very companies who are ordering your patients away from you or who are refusing to pay your bills?

Gentlemen—are these matters basic principles of law and equity or are they not; are we going to meet them or are we going to let them pass by? It is for you to answer.

So much for the past with our unpreparedness and usual attitude of being too proud to fight, but what of the future with still further aggressions in sight—we refer to the Compulsory Health Insurance legislation now under consideration. Are we again going to be unprepared and if our just rights are as flagrantly disregarded as they have been in the past what is going to be the effect upon the great majority of us?

Stop and consider for a moment that the proposed Health Insurance legislation comprehends compulsory insurance for all workers whose monthly wage is $100 or less and also covers their dependents. That is to say that practically all families in the state whose bread-winner is earning $100 or less a month will be covered by this new law and as a corollary so will the doctor. If he is covered as he has been covered by the Compensation Law he had better be covered by nice green turf, for there are quite a few people in the community who cannot boast of an income greater than $1,200 a year.

What of the cases of pneumonia, or appendicitis, or of diseased tonsils, or of otitis media, or of conjunctivitis or of pregnancy occurring in such a family? Do not most of us work for at least some families of similar income? Were we not assured before the advent of the Compensation Law that under it we would be compensated for many cases that previously had paid us nothing ? Has it not been our experience that previously we were paid something and that now having to fight powerful insurance companies we are paid practically nothing? Have we any reason to expect better or different treatment in the future?

The Compensation Law affected but a limited number of workers; the Health Insurance Law will affect a large majority of all peoples of all communities and it is bound to have a most profound effect on the income of all physicians unless they take steps to conserve their own interests.

Let us now turn our thoughts in another direction. This is an age of efficiency and standardization and our bigger brothers thriving lustily on the fertile soil of the West, threaten—or possibly we should say—promise —to standardize our hospitals. Our medical colleges have been standardized radically and well, and we know that the profession is the better for it. So it will be with the hospitals, for if we are honest with ourselves we realize that practically all can be raised to a higher degree of efficiency, serve the public better, educate the recent graduate more thoroughly and increase the skill of the physician and surgeon.

Now it is one thing to be righteous voluntarily and quite another to be righteous because of compulsion and as a consequence one can make their own choice of the particular kind of righteousness they prefer if they go in to it willingly and not under duress. Would it not be better then for the surgeons of this state to get together and bring about a standardization of their own hospitals rather than to wait until it is forced upon them.

The American College of Surgeons comprehends the entire country, meeting a very wide diversity of conditions and problems, probably some of which are both practical and essential in one place and impractical and valueless in another. In this state there are generally speaking but two or three general classes of hospitals: the public and private hospitals of the larger cities and the hospitals of the smaller communities, and it would seem that by a concerted and careful effort we could bring our institutions to a higher degree of efficiency than could any organization, not so familiar with our local problems and trying to fit, perchance, a nation-wide cure to a local ill.

There are still other problems awaiting solution. During the past few years with the increase in the size and number of hospitals and with a corresponding decrease in the number of medical graduates the hospital interne problem has become more and more acute. What the effect of the fifth or clinical year in the colleges will be I doubt if many of us know.

More or less standard forms of hospital records and reports including a universal method of notifying the previous operator in cases coming to second operation are desirable.

We suggest therefore that an organization be perfected which will devote its entire time and energy to the solution of the above problems, and to anticipate the objections of those who may say that they can all be met by committees now existing in the State Society, our answer is that they never will be satisfactorily solved except by an organization of those who are vitally interested—the surgeons of the state.

And now in conclusion, the economics of medicine are receiving more and more attention and sometimes from those whose breadth of vision and ethical standards leave much to be desired. Might it then not be well for us to concern ourselves about our own problems and try to solve them in a right and proper way, in a manner above reproach, and further, if some organized effort results from this meeting, let it be big and broad in its principles, striving for the uplift and advancement of the entire profession and not exist simply for the pecuniary gain of its members.

COMPLETE AVULSION OF THE SCALP.*

By FREDERICK H. FLAHERTY, M.D.,
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IN 1913 I presented to the Syracuse Academy of Medicine a case of complete avulsion of the scalp. This case and a second one of the same nature, which came under my care in September, 1916, I desire to present to you for your consideration.

Complete scalping of an individual is a comparatively rare accident. Herodotus recorded that scalping was common in 1500 B. C. among the Scythians. It is familiar to all of us how the early missionaries and explorers who first came to America found scalping a common practice among certain tribes of Indians. It is even recorded in the early history of our country that it was occasionally practiced among the white settlers. Scalping did not disappear until the early eighties. It remained for the present development of modern industry, especially with the employment of women as workers around machinery, to make scalping a modern industrial accident.

It is noteworthy that this accident is confined almost entirely to women, their hair being caught in the exposed shafting, the revolving shaft winding up the hair and tearing the scalp from the head in a rather definite line of cleavage. The only exception to this being a Chinaman who caught his queue. An occasional case is reported in the literature until 1910, when Davis of Baltimore made a critical study of this subject, reporting two cases from the service in Johns Hopkins Hospital, one in Dr. Bloodgood's service, the other in his own. In order to show how rare this accident has been he quotes Dr. Halsted as not having seen a case in 26,000 house cases in his service. Davis was able to collect and analyze ninety-one cases of complete scalping, and in only one case was the hair entirely pulled out without tearing the scalp.

Since 1910 I am able to add to this study the observations on five other cases, three reported in the literature and the two cases I am reporting today. The first case occurred September 9, 1912; while working in a private laundry she caught her hair in a revolving shaft. The scalp was completely torn from the skull from a line below each eyebrow in front, including the upper half of the right ear and the upper portion of the left ear, back to the hair border posteriorly. This made a denuded area thirteen inches by sixteen inches. There was an area of denuded bone over the left side of the frontal and left parietal bone, which measured about seven inches in length and two inches in width.

I saw her soon after she entered St. Joseph's Hospital. She was perfectly conscious, and not suffering much from shock. There was very little bleeding. The interne had tied one small artery on the top of the back of her head. There was avulsion of the right thumb and laceration of the ring finger. To me it was the most frightful appearing trauma I had ever seen in my experience at the hospital.

She stated that she was fixing the washing machine which was in motion; while making an adjustment she suddenly raised her head. Her hair was immediately caught on a rapidly revolving shaft, winding the hear tightly about the shafting, completely removing the scalp. She put her right hand up to her head in an attempt to free her hair, the hand was caught, the thumb and ring finger were badly lacerated. The patient was alone in the laundry at the time of the accident. As soon as her hair caught she called loudly for help. There was no one at hand, so she was obliged to extricate herself from the machine and walked a distance of twelve feet, where, unassisted, she stopped the moter. Her hair and scalp were found tightly wound around the shafting. After stopping the motor she sat down in a chair and wrapped a towel around her head. She remained perfectly conscious and was able to give an accurate account of how the accident occurred.

We did not make any effort to cleanse the surface other than to apply hot boric acid compresses. Four days later, under ether anæsthesia, we covered as much of the right side of

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 24, 1917.

the head as was feasible, using Thiersch grafts from the right thigh. Practically every graft we applied at this time grew and became good, firm skin. One week later we covered the left side of the head, using the same method and taking the skin from the left thigh. At the second operation we bored a series of rings, using a trephine, through the outer plate of the skull in the area of bare bone, for the purpose of allowing the granulations to grow up and afford a granulating surface on which later we could graft.

On October 28th, five weeks later, we found the denuded area covered with healthy granulations. Again with ether anæsthesia we covered this area with Thiersch grafts. This idea occurred to me from a note in an article by Mellish in the *Annals of Surgery,* in 1904, where he quoted a man by the name of Vance, who in 1777 advocated the boring of small holes in the outer plates of denuded bone following scalping by Indians, for the purpose of favoring the healing of the surface by granulation. This proved to be a very valuable means of covering the bare bone. However, before this area entirely healed, a number of small spicules of bone were thrown off, which were the centers of the rings made by the trephine.

The second case I wish to report is nearly an exact counterpart of the one just reported. She entered the hospital September 12, 1916. She was employed at a local shoe factory. While on her hands and knees to pick up something from the floor, her hair caught in a revolving shaft and her scalp was torn from her head on a line running through the right eyebrow, across the root of the nose, just below the left eyebrow, across the left zygoma, above the left ear, following the hair border in the back of the neck up to the right ear. The ear was torn loose, hanging by a pedicle. She was immediately taken to St. Joseph's Hospital, where I first saw her. She was perfectly conscious. The hemorrhage was easily controlled by hot compress. The shock was very slight. We ordered her sent to the operating room and under ether anæsthesia sewed the right ear back to its normal position, and then proceeded to cover as much as we could of the denuded area with large Thiersch grafts removed from the right thigh. A little to the left of the middle line of the skull was an area of bone denuded of periosteum; this ran upward and backward about four inches and was from one-half to one inch in width. We covered the bared bone with our grafts. We covered in all two-thirds of the denuded skull. Every graft placed at this time grew and developed into firm healthy skin, excepting those which we had placed over the bare bone, these came away at our first dressing. It did not seem wise to keep our patient under anæsthesia longer at this time. On September 26th, two weeks after the first operation, we covered the remaining portion of the denuded area with Thiersch grafts from her left thigh and made a series of rings with a trephine, through the outer plate of the bare bone. On November 1st we covered this area of bare bone with grafts. On November 20th, ten weeks from the date of the accident, the head was completely covered with new skin. Subsequent to that time small areas, especially over the region where there had been a periosteal defect, ulcerated and broke down. She left the hospital January 7th, her head entirely covered with new skin, but since leaving the hospital there still continues a slight tendency to ulterate over the area of the periosteal defect.

In reviewing the recorded cases in the literature it is quite obvious that in all cases in which the complete scalp is lost the line of cleavage is fairly definite, passing, as in each of the cases just reported, in a line which includes both eyebrows, just above each ear, or involving one or both ears, including all the scalp to the hair line posteriorly. For such a severe injury the shock is comparatively slight.

The first thought of the individual or their friends is of replacing the scalp in the vain attempt of having it grow back in place. Many attempts have been made by the attending physician to sew the scalp in its place, but in each case with complete failure and, as a rule, conditions have been made worse by allowing a severe sepsis to develop underneath the replaced scalp. Davis' experiments on animals rather tend to prove the uselessness of this procedure unless attached by a fairly large pedicle. Even where asepsis has been maintained the scalp dries down, contracts into a parchment-like covering and in each instance has been removed. Left to itself the denuded area soon becomes covered with flabby granulations, sepsis is likely to occur, the individual dying of erysipelas, meningitis or some other form of infection. The problem of treatment is purely one of skin grafting.

In a case of complete avulsion, reported by Abbe, it was estimated that over 12,000 grafts were placed before a satisfactory result was obtained. In the two cases reported by Davis, the one in Dr. Bloodgood's clinic was admitted August 24, 1906, was discharged March 8, 1907, but three years later there still existed five small ulcers, the largest being as large as a ten cent piece. The case had been treated by Thiersch grafts, after first allowing granulations to form. The first graft being taken from another person with total failure, later autodermic grafts were successful.

The second case was injured July 29, 1907; six weeks later a Thiersch grafting was attempted with unsatisfactory results. The following year Thiersch grafts from a lamb were unsuccessfully tried. In May, 1909, nearly two years after the

accident, Dr. Davis, after thorough preparation and treatment of the granulating surface, grafted whole thickness grafts successfully in about eight different operations. He believed that he obtained much better results than occurred in the cases in which the Thiersch method had been employed.

I do not agree with Davis that it is necessary to wait for granulations to form before placing grafts, neither do I see any reason why grafts cannot be placed upon the denuded area as soon as bleeding ceases. If a fresh Thiersch graft is kept dry and immediately placed upon a recently denuded area the serum is sufficient to hold it in place. Clinical evidence bears out the fact that in those instances where grafts are placed immediately, so long as they are autodermic, the new skin developed is better and more permanent. I think that it has been fairly well established that autodermic grafts, no matter what method is used, are the only satisfactory grafts to use in skin grafting. Grafts taken from other individuals, although more spectacular, do not develop into a satisfactory skin. In fact, in most of the cases of avulsion of the scalp which I have reviewed I am impressed with the universal failure and long delay resulting from the attempt at using iso-dermic or zoodermic grafts. Lexer in 1911, at the German Surgical Congress, made the statement that iso-dermic grafts never are successful. It appears that iso-dermic grafts grow nicely at first, but especially in large areas like a denuded skull they soon break down and ulcerate. A material advantage of the Thiersch method over the whole thickness method where large areas of autodermic grafts are necessary is the fact that the same area of the body can be used for obtaining grafts the second or third time if necessary. I have found it possible to obtain very satisfactory Thiersch grafts within six weeks from the same area.

If later ulceration occurs in small areas the use of the small Reverden graft appears to be the most satisfactory at our command to bring about healing. I think that it is quite evident that no application to these small areas have any specific properties in favoring the healing process other than the antiseptic or protective properties with which we are familiar. The use of the various ointments and especially the clay poultice sold under various trade names are to be condemned. If a protective is needed, simple sterile vaseline serves the purpose. Some prefer silver foil. If an antiseptic is desired, I have found alcohol diluted 50 per cent to serve me as well as any.

In conclusion I would like to emphasize that only auto-dermic grafts should be used in skin grafting to obtain the best results, that grafts should be placed on freshly denuded surfaces immediately, if possible. That the same area of the body can be used to obtain Thiersch grafts in from four to six weeks if necessary, and that it has been found absolutely useless to attempt to replace the scalp in complete avulsion.

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THE PRESENT FOOD PROBLEM.*

By EDDY S. HASWELL, M.D.,
ALBANY, N. Y.

NO more serious problem confronts the world today than that of its food supply. America, which heretofore has had more than enough, faces a grave shortage; if not a famine in the limited sense. Because of their surplus, Americans have never learned the art of food conservation, nor do they understand its fuel value in relation to retail cost. It has been said that a French family can live on the waste from the average American table; and it has been stated that the food waste in the United States amounts annually to something like $700,000,000. Absolute government control of food is not an impossibility, yet families may learn much of food value and how to estimate approximately the amount of food needed per capita per day.

Foods are divided into four classes:

(A) Proteins; *i. e.,* meats, eggs, caseins, and gelatins.

(B) Carbohydrates; *i. e.,* sugars and starches, which are almost exclusively of vegetable origin.

(C) Fats are derived from both animal and vegetable kingdoms.

(D) Minerals; *i. e.,* certain inorganic substances, which, while not energy producers, are very important to the chemistry of the body.

The fuel value of food is based on its heat producing power or energy; *i. e.,* the number of calories, or heat units which it produces per given weight.

The calory; *i. e.,* a large calory—is the amount of heat required to raise 1,000 grams (1 kilo.) of water from 0 degrees to 1 degree Centigrade, or in commoner terminology—approximately 2

* Read before the Medical Society of the County of Albany, May 24, 1917.

lbs. of water from 32 to 33 8/10 degrees Fahrenheit.

For the proper understanding of this subject, a brief consideration of fuel value of food is necessary. It is lamentable that owing to the chaotic state of our present systems of weights and measures, that both the metric and non-metric systems are in vogue, therefore both systems must be considered in the discussion.

The avoirdupois is the commercial system of weights, while the metric is the scientific. There is less excuse today for the use of the avoirdupois, apothecaries' and Troy systems of weights and measures than there is of going to war with a flint-lock musket. If the metric system were universal, it would not only eliminate much of the arithmetical difficulty of the grammar school pupil, but it would also simplify much of our daily work.

In the mathematical calculations which follow, the equivalents between the metric and non-metric systems and other computations are in many places only *approximate;* for these equivalents often lead into long and involved decimals. Here it is the object to present the subject in a manner which will serve all practical purposes, therefore the mathematical problems have been simplified as much as possible.

The food requirement per day is estimated by the body weight in kilograms, not pounds, therefore it is necessary to convert avoirdupois pounds to kilograms, which may be done by the following rule, which gives an answer that is about .8 per cent less than the correct one:

Rule.—Divide the number of pounds by 2, then subtract 10 per cent of the result from itself; or, to put it in formula:

Formula.— $\left(\frac{\text{lbs.}}{2}\right) - 10\% = \text{Kilograms.}$

Example.—A man weighs 154 pounds. Divide by 2 and we get 77, substract 10 per cent of 77 from itself, answer is 70 kilograms (or exactly 69.3 kilograms).

Conversely, to convert kilograms to pounds.

Rule.—Multiply the number of kilograms by 2 and add 10 per cent of the answer to itself; or, to put in formula:

Formula.—(Kilograms $\times$ 2) + 10 per cent = pounds.

Example.—A man weighs 70 kilograms. Multiply by 2, the product is 140, add 10 per cent of 140 to itself, equals 154 pounds.

We usually refer to Rubner's figures for caloric estimation, which are:

Proteins, Gram 1, equals 4.1 calories.

Carbohydrates, Gram 1, equals 4.1 calories.

Fats, Gram 1, equals 9.3 calories.

According to Von Noorden, the average man at moderate work needs from 40 to 45 calories per kilogram per day; or approximately a total of 3,000 calories per day (1,000 calories per meal), which should be divided according to Voit's Standard, as follows: ⅔ of which should be carbohydrates and approximately 1/6 each of protein and fat, or (exactly 16 per cent protein and 18 per cent fat); *i. e.:*

Carbohydrate	666	calories	per meal
Fat	167	"	" "
Protein	167	"	" "

Carbohydrate, 666 calories per meal, and as each gram of carbohydrate represents 4.1 calories, divide 666 by 4.1 which equals approximately 162 grams or 5¼ ounces.

Fat, 167 calories per meal, and as each gram of fat represents 9.3 calories, divide 167 by 9.3, which equals approximately 18 grams or 5/7 ounces.

Protein, 167 calories per meal and as each gram of protein represents 4.1 calories, divide 167 by 4.1, equals approximately 40.75 grams, or 1½ ounces.

Unfortunately the different food stuffs vary greatly in caloric value per gram; but Atwater and Bryant, U. S. Dept. Agriculture, Bulletin No. 28 (revised edition) have most admirably classified and arranged a table of food stuffs, giving their fuel values per pound, and the number of grams which constitute a hundred calory portion.

Now, let us prepare for the purpose of demonstration a short table based on Von Noorden's estimation for caloric need per kilogram. I will endeavor to simplify it so that it is applicable to our avoirdupois system.

The first column is a person's weight per pound, and the second its equivalent in kilograms. Von Noorden states that a person out of bed without work needs from 34 to 40 calories per kilogram per day; let us use 37 calories. For moderate work from 40 to 45 calories; let us use 45 calories. At hard work from 45 to 60 calories; let us use 52.5 calories.

	Calories Needed per Day		
	No Work	Mod. Work	Hard Work
	37	45	52.5
Person's	C. per Kilo.	C. per Kilo.	C. per Kilo.
Weight	16.65	20.25	23.625
Lbs. or Kilos.	C. per Lb.	C. per Lb.	C. per Lb.
100 " 45	1665.00	2025.00	2362.50
110 " 49.5	1831.50	2227.50	2598.75
120 " 54	1998.00	2430.00	2835.00
130 " 58.5	2164.50	2632.50	3071.25
140 " 63	2331.00	2835.00	3307.50
150 " 67.5	2497.50	3037.50	3543.75
160 " 72	2664.00	3240.00	3780.00
170 " 76.5	2830.50	3442.50	4016.25
180 " 81	2997.00	3645.00	4252.50
190 " 85.5	3163.50	3847.50	4488.75
200 " 90	3330.00	4050.00	4725.00

A study of this table reveals some interesting facts:

(a) That each additional 10 pounds is an increase of 4.5 kilograms.

(b) That without work each 10 pounds requires an increase of 166.5 calories; and at moderate work 202.5; and, at hard work 236.25.

(c) That a person without work weighing 100 pounds needs 1,665 calories per day or 16.65 calories per pound; at moderate work, 2,025 calories per day or 20.25 per pound; and for a person at hard work, 2,362.50 calories per day or 23.625 per pound.

(d) From this, a table may be prepared based entirely on avoirdupois pounds, which will give the caloric need of any person from the smallest infant to the heaviest known person. *Rule.*—Multiply the weight in pounds by caloric need per pound in given classes of work.

The question now arises, how may we plot our rations on a caloric basis? Of course, practically "there ain't no such animal" as the average man; but, for the purpose of demonstration we must assume that there is.

Let us take our man of 150 pounds or 67.5 kilograms at moderate work, who, according to Von Noorden's table requires 40 to 45 calories per kilogram per day; or, approximately 3,000 calories (table gives 3,037.50 calories), which for demonstration purposes, we may arbitrarily divide into three meals of 1,000 calories each. Now divide, according to Voit as stated in a preceding paragraph, ⅔ carbohydrate, 1/6 each of fat and protein, and compute the day's ration.

Let us refer to the U. S. Agriculture Bulletin No. 28:

Quantity	*Type*	*Calories*	
½ Lb.	Rump (lean)	500	Approximately.
2¼ Ozs.	Butter	500	"
3 Ozs.	Sugar	350	"
¾ Lb.	Bread	900	"
½ Lb.	Rice	815	"
	Total.....	3165	Calories.

Also from the following table let us compute the daily ration of A's family:

Mr. A.,	weighs 170 lbs.	at Hard work	Needs 4016.25 calories
Mrs. A.,	weighs 140 lbs.	at Mod. work	Needs 2835.00 calories
Johnny,	weighs 100 lbs.	at No work	Needs 1665.00 calories
		Total	..... 8516.25 calories

Class	*Amount Required*	*Quantity*	*Type*	*Calories*
Protein	⅙ equals 1415 cal. use	1 lb.	Rump	1820 (405 Excess)
Fat	⅙ equals 1419 cal. use	1⅓ lbs.	Butter	1200
Carbohydrate	⅔ equals 4060 cal. use	2 lbs.	Bread	2430
		1⅓ lbs.	Rice	2170
		½ lb.	Sugar	930
		Total.....		8550 calories

If necessity should compel us to resort to the ration system of feeding, the method already outlined might be applied as follows:

In cities take the wards and districts as a basis for distributing units. Two methods are possible.

(A) That for each such district there should be one grocery store and one meat market designated as the distributing station at which all families in the district must trade. This is open to the objecton that it would interfere with other merchants in the same district and monopolize trade.

The more logical system is as follows:

(B) Let each family choose and trade exclusively with one grocery store and meat market for the period of the war. The family must furnish the following information: (a) Number of members, weight and type of work (none, moderate or heavy). The merchant should be supplied with a table of the type of the one herein presented; then by reference to a simplified form of Bulletin No. 28 which would classify foods into proteins, fats and carbohydrates, giving the caloric value of each per pound, the merchant could quickly and readily estimate the amount of food needed by any given family, and furnish it, but no more.

Place our wholesale grocers and meat merchants under government supervision, to whom the retailer must furnish an approximate estimate of the amount of food which his store will need per week. Then the wholesaler would become in fact a Federal Distributing Station, supplying only the rations needed.

This would eliminate much of the careless, indiscriminate buying and the purchasing of fancy delicatessens. While this would require considerable clerical work at the beginning, as all new systems do, it would be a big economic saving and a very practical way of conserving our food resources and energy.

To recapitulate, the steps and process would be as follows:

I. Family.

(a) Number, weight and type of work of each member.

II. Merchants.

(a) Refer to table and estimate.

(b) Refer to simplified form of Bulletin No. 28 and estimate at a glance the quantity of each food ordered to furnish the necessary number of calories, that is, the total ration required.

(c) Render report to central federal distributing station.

III. Central Federal Distributing Stations.

(a) Federal Distributing Station receives report from retail merchants, and grants them the requisite amount of food according to their needs.

Or an alternate plan: The family estimates its weight and type of work as in number one. Provide the intelligent families with two types of bulletin with instructions as to their method of using. Let them compute their own total caloric need and proceed as in the first plan.

Each State Commission of Agriculture should regulate its own system and in turn be governed by the U. S. Department of Agriculture.

The plan herein presented is merely tentative and in some respects may border on the hypothetical; and, as previously stated, some of the values and equivalents are approximate for the purpose of simplification. However, it is founded on known facts relative to food values and possesses a basis in sound reason. Many changes, modifications or expansion of the idea may be necessary, yet I have no doubt that it can be developed into a practical working plan for ration reading, should necessity require.

COPY.

Department of Agriculture, Washington.
May 18, 1917.

Dr. E. S. Haswell, Albany, N. Y.

I am in receipt of the draft, entitled "Tentative Plan for Food Conservation," prepared by you for the Auxiliary Medical Defense Committee of Albany County, New York. The scheme advanced by you practically corresponds to the German scheme of ration, with control of wholesale and retail trade. Such a ration system has been found extremely irksome in Germany and would be found still more irksome in a country of democratic consciousness. Apart from this, it must be clear to every student of the subject that the ration system is the last resort, and particularly in a country possessing a large agricultural population, as there is in ours, the possibility of carrying through a rationing system becomes so difficult as to be practically out of the question. In a country like England, where two-thirds of the foods are imported and thus in the control of the government from the beginning, a rationing system is much more feasible.

While we, together with our allies, do face a certain shortage of food, the exact extent of which will not be known until crop estimates are more definitely available, and while it is particularly incumbent upon us to increase production, to make distribution equitable, and to eliminate waste, this Department has no data tending to suggest that with reasonable care upon our part a system of rationing, such as you suggest, will become necessary.

(Signed) D. F. HOUSTON, *Secretary.*

Correspondence

NATIONAL BOARD OF MEDICAL EXAMINERS

DR. JOHN COWELL MACEVITT, *Editor,*
NEW YORK STATE JOURNAL OF MEDICINE.

MY DEAR DR. MACEVITT:

The National Board of Medical Examiners held its second examination in Washington, D. C., June 13th to 21st. Out of twenty-four qualified candidates, twelve appeared for examination. the others having been ordered into active duty between the time of their application and the date of the examination. Of the twelve, nine passed.

The next examination will be held in Chicago, October 10th to 18th. The regular Corps of the Army and Navy may be entered by successful candidates, without further professional examination, providing they meet the adaptability and physical requirements.

There will also be an examination in New York City in the early part of December.

Very truly yours,
J. S. RODMAN, *Secretary.*

DEPARTMENT OF COMMERCE
Bureau of the Census, Washington

DR. JOHN COWELL MACEVITT, *Editor,*
NEW YORK STATE JOURNAL OF MEDICINE.

DEAR DR. MACEVITT:

The Bureau of the Census is planning to prepare and publish a monograph on the Mortality from Tuberculosis covering the calendar year 1918. To make this work of greater value an endeavor is being made to obtain the co-operation of all physicians to the extent of carefully recording or supervising the statements of occupations upon the death certificates during that year.

In order to do this more accurate and definite statements of the occupations of decedents should be written upon death certificates as until this is done mortality statistics by occupations will continue to be unsatisfactory.

Very truly yours,
SAM L. ROGERS, *Director.*

Albany, N. Y., July 31, 1917.

DR. JOHN COWELL MACEVITT, *Editor,*
NEW YORK STATE JOURNAL OF MEDICINE.

DEAR DR. MACEVITT:

With a view of mobilizing all resources which will assist the counties of the state in carrying out the provisions of the recently enacted law requiring the construction of tuberculosis hospitals in counties of 35,000 population or more, Dr. Hermann M. Biggs, State Commissioner of Health, has appointed two committees to take entire charge of the tuberculosis situation in the state. The first committee which is headed by Dr. John A. Smith, Secretary of the Department, will have general supervision of sites, plans, construction and equipment of tuberculosis hospitals, and will carry on the anti-tuberculosis campaign in the state. The second committee, which is composed of some of the foremost authorities on the subject in the state, will act as an advisory board.

With Dr. John A. Smith will be Dr. O. R. Eichel, George J. Nelbach, State Charities Aid; C. A. Holmquist, Engineering Expert; Frederick Sprenger, Construction Expert; J. D. Burt, Architect, Dr. Matthias Nicoll, Jr., Deputy Commission of Health, ex-officio.

The advisory committee consists of Dr. Albert H. Garvin, Superintendent N. Y. State Hospital, Raybrook; Dr. John S. Billings, Medical Director New York Telephone Co.; Dr. Charles Stover, President Board of Managers Montgomery Co. Tuberculosis Hospital; Dr. Horace J. Howk, Physician-in-Charge Hospital at Mt. McGregor, and Dr. Lawrason Brown, Saranac Lake.

Medical Society of the State of New York

NOTES BY THE SECRETARY.

A Message to the Members and County Society Officers.

The large size of the membership of the State Medical Society, distributed through fifty-nine County Societies and scattered over an area of 47,000 square miles, renders a representative form of government imperative. This is secured through delegates, elected by each constituent Society, to form a body known as the House of Delegates. This is the supreme law-making body of the Society, as Congress is the law-making body in the civil government of the nation.

The character of the delegates, therefore, is of great importance, for upon them rests in large measure the welfare of the Society. The office of Delegate is an important and dignified one and should be filled by the best element in each constituent Society. An efficient Delegate must possess at least three cardinal qualifications.

He should be a person of judicial and judicious temperament and should not be subject to hobbies which he rides rough-shod over his fellow men. He should not be one who permits personal prejudice to sway his action upon questions under consideration.

The Delegate should be a person willing to work. The position is not an honorary one to be conferred simply as a compliment. It is one of labor and the Delegate should be willing to work and to sacrifice time and income for the profession and the Society. He should be a man willing to sit through long sessions, even when they are prolonged by the parliamentary crank who obstructs business by the continual raising of technicalities.

He should be a person of experience and knowledge. He should have had experience in professional and medical society matters and should thoroughly know the needs of his locality and of the profession of the State. He should have knowledge of the economic questions which are dominating the profession and should have a sympathetic interest in them.

Having found such a Delegate he should not be sent by the constituent bodies for one term only, but should be continued in his office. This point is illustrated by the Congress of the United States in which some small states like Rhode Island and Vermont have frequently carried more influence in the national councils than great states like New York. They have found men of character and knowledge and have continued them in office until their weight has become a potent national asset.

The same is true of our House of Delegates. "The temper of the House of Delegates" is an expression frequently heard. The conditions, while somewhat vague and not capable of definition, becomes very tangible upon experience. Experienced members of the House of Delegates rarely make the errors which are not infrequently made by new members. A few years ago Dr. MacEvitt wrote a very clever editorial entitled, "Nominators and Eliminators" in which he pointed out the well known fact that the nominator often eliminates his candidate by prolonged or injudicious speech or failure to grasp the temper of his audience. This applies not to nominations alone. Many a man, conscientiously desiring to enforce a given proposition upon a body, has utterly failed of his object through ignorance of the temper of the audience he was addressing. The House of Delegates is a poor place for "oratory." It commonly bolts at "oratory" and the orator takes a cropper. The House of Delegates of New York and of the American Medical Association are places in which character is assayed with great accuracy. The mere speaker of words carries but little influence. The schemer and the untrue man is quickly recognized and his efforts are unavailing.

I have spoken these words because fifteen years of service in the New York House of Delegates has led me to feel that the County Societies should be more cautious than they sometimes are in the selection of their Delegates and should be more awake to the importance of retaining experienced men as their representatives.

The House of Delegates is made up, in large measure, of men of character and knowledge. At its last meeting there were seven former presidents sitting in the delegation and fifty or more presidents or former presidents of County Societies. These are men of experience. They are keen readers of character and are not easily misled by mere eloquence or insincere speakers.

I would urge upon the constituent societies one very important point. The House of Delegates is the controlling body of our great Society. A full delegation ought to be present at every meeting. It is due, not only to the counties but to the Society as a whole. In counties entitled to but one Delegate it is not wise to elect but one alternate. It may easily happen that neither can be present at the annual meeting, held months after their election. The Society is thus completely disfranchised. There is nothing to prevent a county from electing two or more alternates and it may thus more certainly be represented in this important body.

It is unwise for the counties having several delegates and alternates to designate a special alternate for each delegate. If a county has, for example, five delegates it is better to elect five alternates and select from these one who is to take the position of any Delegate necessarily absent. This is the method adopted by the State Society for its Delegates and Alternates to the American Medical Association. Eleven Delegates and eleven Alternates are elected. Shortly before the meeting of the House of Delegates the Secretary communicates with each Delegate, asking whether he will be able to attend. He also communicates with each Alternate, asking whether he will be able to fill a vacancy in case of need. In case of vacancy, created by the enforced absence of a Delegate, the Secretary then selects from the Alternates in the order of priority, someone to fill the vacancy. As a result of this policy the New York State Society has had for years 100 per cent representation in the House of Delegates of the American Medical Association, a record attained by but few other states.

Another method is possible under the constitution and has been adopted by at least one Society whose delegation is large. Any vacancies which may exist at the last meeting of the County Society before the Annual meeting of the State Society must be filled by election. When the Delegates reach the place of meeting, vacancies may be filled from members in good standing who are then present, by vote of the Delegates present. This vote is usually taken a half hour before the meeting of the House of Delegates. This is constitutional and entirely proper, for it recognizes the fundamental principle that every constituent society is entitled to full representation in the House of Delegates and each may adopt its own method of attaining that result.

This principle I cannot too strongly impress upon the constituent Societies. It is a duty which every County Society owes to itself and to the central organization to see that its delegation is filled, and that its representatives are present and voting upon every question.

F. M. C.

District Branch Meetings

ANNUAL MEETINGS FOR 1917.

First District Branch—Saturday, October 20th, in New York City.

Second District Branch—Monday, October 29th, in Brooklyn.

Third District Branch—Thursday, October 4th, in Troy.

Fourth District Branch—Thursday, August 30th, in Amsterdam.

Fifth District Branch—Wednesday, October 3d, in Oswego.

Sixth District Branch—Tuesday, October 9th, in Watkins.

Seventh District Branch—Thursday, September 27th, in Canandaigua.

Eight District Branch—Thursday and Friday, September 13th and 14th, in Buffalo.

FOURTH DISTRICT BRANCH.

ELEVENTH ANNUAL MEETING, AMSTERDAM, N. Y.
Thursday, August 30, 1916.
PROVISIONAL PROGRAM.

"Skin Lesions During Childhood," Arthur C. Hagedorn, M.D., Gloversville.

Discussion to be opened by Frank vander Bogart, M.D., Schenectady.

"Clinic Radium," Douglas Moriarta, M.D., Saratoga Springs.

"The Surgical Prognosis of Gall Stone Diseases."

Discussion opened by Grant C. Madill, M.D., Ogdensburg.

"Tumors of the Lung," Horace J. Howk, M.D., Mt. Gregor.

EIGHT DISTRICT BRANCH.

TWELFTH ANNUAL MEETING, BUFFALO, N. Y.
Thursday and Friday, September 13-14, 1917.
PROVISIONAL PROGRAM.

Afternoon Session, Thursday, 2 P. M.:

Alumni Hall, Medical Department, University of Buffalo.

"Pessaries—Good and Bad," illustrated, by James E. King, M.D., Buffalo.

Discussion by Herman E. Hayd, M.D., Buffalo; Lawrence G. Hanley, M.D., Buffalo, and Earl P. Lothrop, M.D., Buffalo.

"Immobility of the Diaphragm," illustrated, by John H. Pryor, M.D., Buffalo.

Discussion by DeLancey Rochester, M.D., Buffalo, and Albert E. Woehnert, M.D., Buffalo.

"Focal Infection," by Thomas H. McKee, M.D., Buffalo.

Discussion by Henry R. Hopkins, M.D., Buffalo; Elisha P. Hussey, M.D., Buffalo; Joseph Burke, M.D., Buffalo, and Julius Ullman, M.D., Buffalo.

"Late Skin Manifestations of Syphilis Often Overlooked," illustrated, by Grover W. Wende, M.D., Buffalo.

Discussion by Alfred E. Diehl, M.D., Buffalo.

Evening Session, Thursday, 8.30 P. M.:

Alumni Hall, Medical Department, University of Buffalo.

Business meeting.

President's Address: "Compulsory Health Insurance."

War pictures.

Collation by Medical Society County of Erie.

Morning Session, Friday, 9.30 A. M.:

Buffalo General Hospital.

Medical Clinics by Charles G. Stockton, M.D., Buffalo; Allen A. Jones, M.D., Buffalo, and Nelson G. Russell, M.D., Buffalo.

Surgical Clinics by Edward R. McGuire, M.D., Buffalo; Marshall Clinton, M.D., Buffalo, and Thew Wright, M.D., Buffalo.

Medical and Surgical Clinics in the Municipal Hospital, Friday morning at 9.30, arranged by Walter S. Goodale, M.D., Superintendent.

Demonstrations and Clinics in the State Institute for the Study of Malignant Diseass, Friday morning at 9.30, arranged by Harvey R. Gaylord, M.D., Superintendent.

During the meeting following cases will be presented:

Surgery, by Herbert A. Smith, M.D., Buffalo; William H. Mansperger, M.D., Buffalo; Herriott C. Rooth, M.D., Buffalo; John V. Woodruff, M.D., Buffalo, and Julius Richter, M.D., Buffalo.

Urology, by Frederick J. Parmenter, M.D., Buffalo.

Ophthalmology, by Arthur G. Bennett, M.D., Buffalo; Alfred F. Luhr, M.D., Buffalo, and John J. Finerty, M.D., Buffalo.

Laryngology, by Chester C. Cott, M.D., Buffalo, and James J. Mooney, M.D., Buffalo.

Neurology, by Edward A. Sharp, M.D., Buffalo, and Lesser Kauffman, M.D., Buffalo.

Proctology, by Descum C. McKenney, M.D., Buffalo.

Pediatrics, by Franklin W. Barrows, M.D., Buffalo, and DeWitt H. Sherman, M.D., Buffalo.

Orthopedics, by William W. Plummer, M.D., Buffalo, and Prescott LeBreton, M.D., Buffalo.

Roentgenology, by John M. Garratt, M.D., Buffalo.

Cardiography, by Clayton W. Greene, M.D., Buffalo.

County Societies

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

COMMITTEE ON LEGISLATION.
Brooklyn, New York, July 11, 1917.

ALBERT M. JUDD, M.D.,
President Medical Society of the County of Kings,

We, the undersigned, members of the Committee on Legislation of the Medical Society of the County of Kings, desire to call the attention of that Society to the following facts:

(1) On the 15th day of June, 1917, Dr. James F. Kirk, a physician duly licensed to practice in the State of New York, and in the County of Kings, who has practiced here for a period of twenty-three years, and who is a member in good standing of the Medical Society of the County of Kings, was arrested, charged with violating Section 248 of the Health Laws of the State of New York, and upon appearance on June 21, 1917, in the City Magistrate's Court of the 6th District, 2nd Division, was held in $500 bail, and is now awaiting trial at Special Sessions.

(2) The specific complaint against the defendant, as set forth in the affidavit of the policeman making the arrest, is, in effect, that Dr. Kirk failed to keep a record of a quantity of morphine which he is said to have disposed of from July 15, 1915, to June 5, 1917, a period of nearly two years. The quantity in question would average about one-fifth of a grain a day. Dr. Kirk is a busy general practitioner, working among people of moderate circumstances. He probably prescribes five thousand times in the course of a year. The average of one-fifth of a grain, divided among a daily average of 22 patients, would seem to discredit any suggestion of immoral traffic in morphine.

(3) The clause of section 248 of the Health Laws, under which Dr. Kirk was arrested, reads as follows:

"Par. 248. Physicians, et cetra, to keep records. All persons authorized by law to sell, administer, prescribe, dispense or dispose of any of the drugs enumerated in section two hundred and forty-five of this chapter, shall forthwith keep on record the name and address of each person to whom such drug is dispensed, given or in any

manner delivered, and the quantity so dispensed, given or delivered, and all such persons shall likewise keep a record of (any) the disposition made of any quantity of such drugs referred to, whether such disposition be in the preparation of compounds or otherwise, and if used in the preparation of compounds the quantity so used in each compound and where placed. Such record shall be preserved for two years and shall always be open for inspection by the (proper) authorities charged with the enforcement of the provisions of this article."

(4) This clause, if construed as read, can be made to apply to most physicians in the State.

(5) But if so construed, it is in direct conflict with section 834 of the code of Civil Procedure which says:

"A person duly authorized to practice physic or surgery, or a professional or registered nurse, shall not be allowed to disclose any information which he acquired in attending a patient in a professional capacity, and which was necessary to enable him to act in that capacity."

It will be seen that by this statute physicians are forbidden to disclose information acquired in a professional capacity, and that therefore they may be liable in suit at law for money damage for such disclosure.

(6) It is evident that when an act can be so construed as to imperil the law of privileged communication and to make criminal the conscientious act of the physician, a serious mistake has been made by our legislators, no matter how laudable their intentions; and it is equally evident that the only remedy remaining between the passage of such an act and its repeal, lies in its proper interpretation by the courts.

(7) For obtaining such an interpretation, the case at bar offers a peculiarly favorable opportunity, by reason of the fact that the defendant is a reputable physician who has at all times acted in good faith, and who, when arrested, was conscientiously complying with the federal laws governing the prescribing and dispensing narcotics.

In view of these facts, we earnestly urge upon the Medical Society of the County of Kings that it assume the defense of Dr. Kirk. We respectfully submit that this is not only an opportunity but a duty which the Society owes to its members and to the public at large since the conviction of Dr. Kirk on the charge preferred against him, would establish a precedent for other prosecutions of like character and would greatly impair the inviolability of the sacred right of privileged communication. Moreover, it may be hoped in the adjudication of this matter, a proper construction of the amended narcotic Health Laws, which have just gone into effect, will be obtained. We respectfully suggest that the services of the counsel to the State Society, Mr. James Taylor Lewis, be secured in the defense of Dr. Kirk and that, if necessary, a special meeting of the Medical Society of the County of Kings be called to provide for this.

We further recommend that the Medical Society of the County of Kings urge upon the State Medical Society the necessity of obtaining immediate repeal of those sections of the Health Laws which are inconsistent with public policy and justice.

We would further suggest, as a step toward Statewide action, that a copy of this report be sent forthwith to the Medical Society of the State of New York with the request that it be published in the State Journal of Medicine.

William J. Cruikshank, *Chairman.*

D. C. Mangan.	H. S. Baketel.
J. B. Meury.	M. L. Bodkin.
Charles Wuest.	R. E. Coughlin.
J. J. Sheehey.	J. M. Downey.
J. S. Read.	S. R. Blatteis.
C. F. Pabst.	A. E. Gilmartin.
Joseph A. Kene.	George H. Reichers.
Calvin F. Barber.	H. W. Lincoln.

BROOME COUNTY MEDICAL SOCIETY.

Regular Quarterly Meeting.

Binghamton, Tuesday, July 3, 1917.

Business Session.

The meeting was called to order at 3.30 P. M., and the following nominations were made to be acted upon at the annual meeting: President, Mable Martin, Binghamton; Vice-President, Eloise Walker, Binghamton; Secretary, Henry De W. Watson, Binghamton; Treasurer, William H. Hobbs, Binghamton; Delegate to State Society, William H. Hobbs; Alternate, Arthur S. Chittenden, Binghamton; Censors, John G. Orton, Daniel S. Burr, John H. Martin, William S. Overton, C. S. Butler.

The following resolutions were adopted on the death of Dr. John M. Farrington and Dr. Henry O. Ely:

John M. Farrington.

Whereas; The mystery of Death has enshrouded Dr. John M. Farrington, one of the older members of this Society, and

Whereas; We had known him as an upright, patriotic citizen, an earnest Christian worker and an honorable member of the Medical Profession, who, though advanced in years, always kept up an interest in medical progress and was a regular attendant at our meetings, therefore be it

Resolved; That our sympathy be extended to his family in this hour of their bereavement and that a copy of this resolution be entered on the minutes of the society.

Henry Oliver Ely.

Whereas; Dr. Henry Oliver Ely, a member of this society is no more, and

Whereas; His refined personality had made him many friends in this city of his birth, therefore be it

Resolved; That our sympathy be extended to his life partner in this hour of her bereavement and that a copy of this resolution be entered on the minutes of the society.

D. S. Burr,
Jack Killen,
C. E. Green,
Committee.

Scientific Session.

"The New Physician Chemistry as Applied to Medicine," Arthur S. Chittenden, M.D., Binghamton.

Discussion opened by Mr. Burt E. Nelson, City Bacteriologist and Chemist, Binghamton.

DUTCHESS-PUTNAM MEDICAL SOCIETY.

Regular Meeting, Millbrook, July 11, 1917.

The meeting was called to order in the Millbrook Inn by the President, Dr. Parsons, at 4:30 P. M. The minutes of the previous meeting were read and accepted. The Comitia Minora had no report to make.

The following candidates were presented for election: Drs. Philip W. DeGarmo, Rhinebeck; William J. Delaney, Poughkeepsie; Walter G. Ryon, Poughkeepsie.

Moved by Dr. Peckham that they be elected. Seconded by Dr. Card and carried.

Dr. Cotter as chairman of the Milk Commission reported that there had been two meetings of the committee with examinations of equipment and methods.

Dr. Sadlier moved that the Dutchess-Putnam Medical Society tender a complimentary dinner to the physicians in Dutchess County who enlisted in the Medical Reserve Corps and that a committee be appointed to make arrangements. Seconded by Dr. Giles and carried. The following committee was then appointed: Drs. Card, Giles and Sadlier.

Dr. Wilson moved that the physicians of Dutchess County who had enlisted in the Medical Reserve Corps

have proper recognition from this Society and that their names be inscribed on the minutes. Seconded by Dr. Sadlier and carried.

The following list have offered their services in the Officers Reserve Corps:

Drs. R. W. Andrews, Poughkeepsie; J. Newton Boyce, Stanfordville; G. S. Clinkscales, Poughkeepsie; B. McC. Cookingham, Poughkeepsie; J. T. Harrington, Poughkeepsie; D. B. Chandler, Poughkeepsie; C. D. Cromwell, Poughkeepsie; P. L. Dodge, Poughkeepsie; V. V. McCabe, Millbrook; F. W. Parsons, Poughkeepsie; J. W. Poucher, Poughkeepsie; M. W. Raynor, Poughkeepsie; A. W. Thomson, Poughkeepsie; L. R. Tighe, Poughkeepsie.

Dr. Sadlier moved that the Dutchess-Putnam Medical Society request the Congressman from this District to use his vote and influence to abrogate the patent on Salvarsan as now produced under the German patent. Seconded by Dr. Borst and carried.

The following scientific program then occupied the remainder of the afternoon.

Major H. L. K. Shaw, M.D., Albany, "The Milk Question."

Walter Lester Carr, M.D., New York City, "What to Remember in Preparing Cow's Milk for Infant Feeding."

LeRoy W. Hubbard, M.D., New York City, "Discussion of Milk Question."

The meeting adjourned at 6 P. M. for dinner.

There were twenty-eight members present and four guests.

QUEENS-NASSAU MEDICAL SOCIETY.

Semi-Annual Meeting, Astoria, May 29, 1917.

The meeting which was held by invitation at the River Crest Sanitarium, was called to order by the President, Dr. Kindred.

The minutes of the Annual Meeting, held last November, and of the two special scientific meetings, held in January and March of the present year, were read by the secretary.

The following named physicians were elected to membership; Drs. Thomas F. Davies, Floral Park; James W. McChesney, Baldwin; Frederick MacCurdy, Richmond Hill; Arthur C. Martin, Lynbrook; Solon W. Merrill, Long Island City; Frank D. Scudder, Locust Valley; Abram S. Tepper, Far Rockaway.

The Secretary reported the sudden death of Dr. R. P. Williams, of Farmingdale, in March last.

Dr. Walter B. Chase, of Brooklyn, extended a cordial invitation for the Committee on Special Scientific Meetings to arrange to hold one of these meetings at his Brooklyn home, during the fall or winter.

Scientific Session.

The following papers were read:

"Reciprocity in the Treatment of Cancer," Walter B. Chase, M.D., Brooklyn.

"Relations between the Uterine Mucosa and the Corpus Luteum," Lawrence W. Strong, M.D., Director Pathological Dept., Woman's Hospital, N. Y. City.

"The Organization of the Medical Profession for the War," John L. Macumber, M.D., Major, Medical Corps N. G., N. Y. Reserve.

These papers were of unusual interest and were followed by a general discussion.

An interesting case of Spontaneous Rupture of an Ovarian Cyst was reported by Hermann Grad, M.D., of New York, the report being illustrated by charts.

The meeting was one of the best in the history of the Society. About fifty physicians were in attendance.

At the close of the meeting the Society was entertained at luncheon by the President.

ONTARIO COUNTY MEDICAL SOCIETY.

Quarterly Meeting, Geneva, Tuesday, July 10, 1917.

The meeting was held in the City Hall, Geneva, N. Y. Twenty-four members were present.

Dr. Malcolm S. Woodbury, the Vice-President, presided in the absence of the President, Dr. C. W. Selover, who is at Fort Benj. Harrison, Indianapolis, in the service of the U. S.

The regular order of business was transacted.

Three applications for membership were presented, acted upon and the candidates elected, viz., Drs. Anne A. Hintze, of Clifton Springs, Frank H. Snyder, of Geneva, and Lloyd F. Allen, of Gorham.

Dr. John Parmenter, of Geneva, was appointed chairman of the Legislative Committee in place of Dr. W. A. Howe, who now resides in Albany.

It was voted that the Society pay the County and State dues of all members who enter the military service of the U. S. Four members are now in active service and three more have commissions and are waiting assignments to duty.

The Secretary was directed to send greetings and an expression of the good will of the Society to its members now in the service of the U. S.

The scientific part of the program consisted of three papers, the subjects and readers being as follows:

"Grippe," Harry C. Buell, M.D., Canandaigua.

"Diagnosis of Early Pulmonary Tuberculosis," Floyd R. Wright, M.D., Clifton Springs.

"Localized Tetanus, with Report of Case," Harlan J. Q. Howe, M.D., Phelps.

The Society dined at the Kirkwood.

TOMPKINS COUNTY MEDICAL SOCIETY.

Regular Meeting, Ithaca, June 30, 1917.

Business Meeting.

After calling the meeting to order action was taken adopting the recommendations of the State Society to protect the practice of the physicians who enlist for the war, and to turn over to him a percentage of the fees collected from his patients during the war. The idea is embodied in the following agreement adopted by the State Medical Society:

I Agree to abide by resolution adopted in relation to fees for attendance on patients of doctors ordered into active service for the Government, and to keep such books as will readily show collection of such fees. I further agree to ask every patient whom I have not previously treated, the name of his usual or last medical attendant and if such doctor is in the active service of his Government, to turn over monthly or quarterly to such physician, or his family if he so directs, one-third of the fees collected by me from this patient.

I Further Agree that when patients are referred to me by a physician or person who has not heretofor referred patients to me, to find out from such physician or person to whom, in the immediate past, they have usually referred their patients requiring the special services I can render and if such physician is in the active service of his country, to turn over to him one-third of the fee collected from such patient. This paragraph shall likewise apply to consultants.

I Further Agree not to attend any patients referred to above, for a period of one year following the resumption of active practice by the physician who has been in active service.

In the remote chance of misunderstandings or disagreements arising under this resolution, I agree to submit the facts to the Board of Censors of the County Society and abide by their decisions.

Books Received.

1916 COLLECTED PAPERS OF THE MAYO CLINIC, Rochester, Minn. Octavo of 1014 pages, 411 illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, $6.50 net; Half Morocco, $8.50 net.

A MONOGRAPH ON THE EPIDEMIC OF POLIOMYELITIS (INFANTILE PARALYSIS) IN THE CITY OF NEW YORK IN 1916, Based on the Official Reports of the Bureaus of the Department of Health. Published under the direction of the Department of Health, New York City, 1917. Price, $1.50.

MORTALITY STATISTICS, 1915. Sixteenth Annual Report. Department of Commerce, Bureau of the Census, Sam L. Rogers, Director. Washington Government Printing Office, 1917.

INTERNATIONAL CLINICS, VOLUME II, TWENTY-SEVENTH SERIES, 1917. J. B. Lippincott Co., Philadelphia, Pa. Price, $2.00.

MANUAL OF THE DISEASES OF THE EYE, for Students and General Practitioners, by CHARLES H. MAY, M.D., Dir. and Vis. Surg. Eye Service Bellevue Hosp.; Att'd Ophth. Surg. Mt. Sinai Hosp.; Cons. Ophth. French & Italian Hosps.; N. Y. and the Monmouth Memorial Hosp. Ninth edition revised. With 377 original illustrations, including 22 plates, with colored figures. William Wood & Co., N. Y., 1917. Price, $2.50 net.

THE MEDICAL CLINICS OF NORTH AMERICA. Volume I, Number 1 (The Johns Hopkins Hospital Number, July, 1917). Octavo of 193 pages, 14 illustrations. Philadelphia and London: W. B. Saunders Company. 1917. Published Bi-monthly. Price per year: Paper, $10.00; Cloth, $14.00.

THE ELEMENTS OF THE SCIENCE OF NUTRITION, by GRAHAM LUSK, Ph.D., Sc.D., F.R.S. (Edin.), Professor of Physiology at Cornell Medical School, New York. Third edition, reset. Octavo of 641 pages, illustrated. Philadelphia and London: W. B. Saunders Company. 1917. Cloth, $4.50 net.

Book Reviews

ELEMENTARY BACTERIOLOGY AND PROTOZOOLOGY. For the Use of Nurses. By HERBERT FOX, M.D., Director of the William Pepper Laboratory of Clinical Medicine in the University of Pennsylvania. Second Edition, Revised and Enlarged. 12mo, 251 pages, with 68 engravings and 5 colored plates. Cloth, $1.75, net. Lea & Febiger, Philadelphia and New York, 1916.

This little volume is one of a series of textbooks for nurses and it may be said to fulfill its object quite satisfactorily inasmuch as the author has succeeded in presenting quite as much material on the subject as the average nurse requires and this has been accomplished without the use of too many technical terms which might prove hard reading for beginners.

The general principles of bacteriological study are gone into, then sterilization and disinfection are taken up, followed by a description of the preparations for, and the obtaining of specimens from the patient for examination.

Bacteria are then taken up under three heads; those causing acute self-limited infections, those causing the more chronic infectious diseases and those not associated with any specific clinical disease. Yeasts and moulds; bacteria in air, soil, water and milk are next considered; and the work concludes with a chapter on protozoa and one on diseases of unknown etiology.

Commendable features of the book are the special attention given to the methods of transmission of the infectious diseases, the absence of unnecessary technical material and the provision of a glossary of terms which might present difficulty when encountered in the text.

W. H. D.

THE ART OF ANAESTHESIA. By PAUL J. FLAGG, M.D., Lecturer in Anaesthesia, Fordham University Medical School, Anaesthetist to Roosevelt Hospital; Instructor in Anaesthesia Bellevue and Allied Hospitals, Fordham Division. 136 illustrations. Price, $3.50. J. B. Lippincott, Philadelphia and London, 1916.

Two good points about Dr. Flaggs's book: he has well confined himself to the art of anesthetizing, and has successfully shown a new scheme of the phases of the state of the patient being anesthetized. It would have been better if he had included more detailed page references to authors treating the more purely scientific aspect of the subject, for the benefit of those who wish fuller information on certain matters the knowledge of which he assumes. Instead of the conventional three stages of induction, tolerance and anesthesia, the author uses the terms Induction, Maintenance and Recovery. These are further subdivided into (Induction) excitement, rigidity, relaxation; (Maintenance) constant, variable; (Recovery) by crisis, by lysis. A well-wrought chart with many details of evidences, causes and control makes reference to his various ideas easy. There is a good working statement of the physiological factors which must be recognized, and a pertinent reference to the necessary part which the psyche of both the patient and the anesthetist have in any anesthetization. The illustrations are too large, so that with large type and heavy paper the real value is not as great as it might appear. The book is decidedly readable because written by a worker as well as a mere author.

A. F. E.

ALVEOLODENTAL PYORRHEA. By CHARLES C. BASS, M.D., Professor Experimental Medicine, and FOSTER M. JOHNS, M.D., Instructor in Laboratories of Clinical Medicine Tulane University Medical College, New Orleans, La. Octavo volume of 167 pages, with 42 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $2.50 net.

A well written little book dealing with a topic of interest to everyone possessing teeth, because pyorrhea is such an extremely common disorder, is so contagious and produces such disastrous results if neglected. The chapters on prophylaxis and treatment are of especial interest, and while the authors express many revolutionary ideas which will never become popular with the manufacturers of tooth preparations, their arguments sound reasonable and their methods of treatment appear to be well worth thorough trial. The little work is printed in large, clear type, is profusely illustrated and altogether is well worth the reading.

F. C. E.

Deaths

EDWARD BARNWELL BANGASSER, M.D., Buffalo, died July 18, 1917.

FITCH BREWER, M.D., Buffalo, died June 8, 1917.

WILLIAM H. BULLIS, M.D., Rochester, died June 28, 1917.

EDWARD J. COOK, M.D., Buffalo, died June 7, 1917.

HERBERT GORDON JONES, M.D., Utica, died July 5, 1917.

JAMES ALLEN NICHOLS, M.D., New York City, died July 28, 1917.

EDWARD GEORGE RAVE, M.D., Hicksville, died July 23, 1917.

HENRY EDWARD WAITE, M.D., New York City, died July 26, 1917.

NEW YORK STATE JOURNAL OF MEDICINE

A Journal Devoted to the Interests of the Medical Society of the State of New York

JOHN COWELL MAC EVITT, M.D., Editor

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EDITORIAL DEPARTMENT

THE LEGAL REGULATION OF MEDICAL PRACTICE.

"WHEREAS, many ignorant and unskilled persons in physic and surgery, in order to gain a subsistence, do take upon themselves to administer physic and practice surgery in the City of New York to the endangering of the lives and limbs of their patients, and many poor and ignorant persons inhabiting said city, who have been persuaded to become their patients, have been great sufferers thereby. For preventing such abuses for the future, be it enacted that no person whatever shall practice as physician or surgeon before he shall first have been examined and after due examination of his learning and skill, shall be approved and admitted to practice."

These words introduced the first medical practice law of New York, that of June 10, 1760, and constitute an admirable statement of a principle which has animated every law regulating the practice of medicine in New York during the 157 years since it was enunciated. In other words, the people of New York for more than a century and a half have recognized the fact that uneducated doctors are a menace to the community. It is, moreover, a demonstration of the old saying that there is no new thing under the sun. Our modern medical examining board had its prototype in Colonial New York one hundred and fifty years ago, for under the law of 1760 a medical examining board was appointed by the high officials of the city, including "the Mayor, the Kings' Counselor, and the Judges of the High Court."

This law applied only to the City of New York, which then occupied but a small portion of Manhattan Island. In 1792, a law was enacted by the State Legislature renewing the Colonial law and applying it to New York County. By its provisions two years of medical study were required of college graduates and three years of others. In 1797 the law was extended to cover the state.

It is an interesting fact that restrictive medical laws have always advanced in this state from the densely to the sparsely populated regions, from city to county, from county to state. On April 4, 1806, the law was enacted which looms up as a landmark in the medical history of this state. Under its provisions the state and county societies were organized and clothed with great powers and

were specially commissioned to "regulate the practice of physic and surgery in this state." So radical were its provisions that every legally qualified physician was declared by the courts to be "*ipso facto* a member of the medical corporation." This law has often been misunderstood in recent years. It meant precisely what it said. It placed in the hands of the "medical corporation" absolutely the power of granting the license to practice medicine and thus of regulating the practice of physic and surgery.

Upon the enactment of this law a contest for the control of the power to license medical practitioners was begun which lasted one hundred and one years, and is of great interest.

During this period three forces contended for this control: first, the medical profession acting through its county and state societies; second, the medical colleges; third, the State of New York, acting through the Regents of the University.

Under the law of 1806, the power to license practitioners was vested wholly in the county societies, the Board of Censors in each county being the examining board. This power was held without interruption by the county societies from 1806 until 1880, a fact not now generally known. Exclusive control, however, was held for only three years, for under the law of 1809 graduates of the state medical schools, on a degree granted by the Regents, were entitled to practice without examination by the censors. During the earlier part of the nineteenth century, therefore, there were two sources from which a license to practice medicine emanated: (1) The diploma of the Regents of the University; (2) the license granted by medical societies to those who had studied with a licensed practitioner. As time passed the power of the societies diminished and that of the colleges increased. During this period the homeopathic and eclectic schools of practice developed and finally obtained the same rights for their state and county societies as that held by regular practitioners.

Toward the latter part of the century there came to be, in fact, a triple control in the licensing power; that of the societies, the Regents, and the colleges. In 1872 a law was enacted by which the principle was first established that licenses might be granted by a state department, and not by those engaged in teaching and practising medicine. This principle was limited, however, and the other methods were continued in force. This was the first step toward absolute state control and completed an epoch which has now passed into history.

The second step toward state control was taken in 1880. By the law then enacted, the power was taken from the societies and the provisions of the act of 1872 were broadened and strengthened, thereby giving the Regents additional power. The character of the medical diploma as a license was still sustained, however. There was thus again established a dual control, but this time it was divided between the Regents and the colleges, instead of the Regents and the societies as in the first half of the century.

The third step toward state control was taken in 1890 when a law was enacted vesting the power to grant licenses to practice wholly in the Board of Regents and giving that board the authority to determine the qualifications to be required of medical practitioners as regards preliminary and professional education. The medical degree was then deprived of all power as a license to practice. This was done with the willing consent of the colleges and the action was approved by all the schools of medicine. In 1893 radical changes were made in the medical practice art, particularly those portions defining preliminary and professional standards of education, but the principle of licensure was unchanged.

The fourth and final step toward state control was taken by the enactment of the law of 1907, by which the state, through its Education Department, was placed in full control of all matters relating to the practice of medicine, without regard to medical sects, societies, or colleges. The three boards of medical examiners, representing the medical profession and two sectarian schools of medicine, were abolished and *one* board was established.

Thus, after continuous agitation for more

than a century, the various forces seeking to control the licensing power were set aside and one of the most potent incentives to medical politics and intrigue was swept away.

The rational principle was established that it is the duty of the state to assume complete control of the safeguarding of the health of its citizens. The principle was formulated by Commissioner Draper that the state may properly establish and uphold a single scientific basis for the practice of medicine in all schools. "Establish a fundamental standard for all medical practice," he said, "which will protect the people against ignorance and let those who can come up to that standard practice." He was one of the first to formulate the principle that the state, which recognizes no sect in religion, should recognize no sect in medicine.

This principle is now universally accepted. Time moves swiftly. On November 27, 1905, the President of the New York County Medical Society, in his inaugural address, proposed the same principle and formulated the then new doctrine that requirements to enter medical practice should be *educational* only, not professional or sectarian. He advocated the principle that every man or woman exhibiting proper educational qualifications should be admitted to practice. Nine years later (August 27, 1914) this address was reprinted by the *Journal of the American Medical Association* as the first official acceptance of these principles.

The law of 1880 contained another feature of the greatest importance, that of requiring all persons engaged in medical practice to register their licenses in the office of the County Clerk. The significance of such a requirement is obvious, for an authentic license must be presented for registration.

Any practitioner whose name does not thus appear is an illegal practitioner and is at any moment liable to arrest and prosecution. These county lists are published annually in the Directory issued by the State Medical Society. Unregistered practitioners know that those lists are in the hands of physicians in every county, and they are a perpetual protection to honest physicians.

This registration law, upon its enactment, uncovered a surprising number of illegal practitioners. Many of them were not graduated from any medical school. No one has ever questioned the wisdom of that law in requiring the registration of every physician before entering upon practice. The necessity for *annual* registration will be acknowledged by most men of great experience in medico-legal work only when it has been demonstrated.

When the state assumed control over licensure in 1890, three examining boards were appointed, representing the regular profession, the homeopaths, and the eclectics. Those boards began their work in 1891. It was not possible at that time to ignore sects in medicine.

In process of time, however, systems of pseudo-medicine arose, and alleging that they were "schools" of medicine, demanded recognition. Without exception they asked for the privilege of practising upon educational requirements inferior to those imposed upon physicians. Contest before the Legislature was renewed year after year, for medical men necessarily combatted such demands. The profession chafed under the false position in which it was placed by these contestants and the Legislature and the State Education Department became wearied of them.

Two courses and only two were open. The one was to recognize every medical sect as it arose and obtained a following and to give it a state examining board. The alternative was that the state should refuse longer to recognize "schools" of practice. It was impossible to longer maintain the three examining boards without adding to their number. The State Educational Department, therefore, took the matter in hand, upon the ground that medical laws are a part of the educational laws of the state and laid down the principle that the State of New York, which does not recognize sects in religion, ought not to take cognizance of disputed dogmas in medicine; that it should establish definite educational requirements; that any person fulfilling these requirements should be recognized as a physician and should be licensed to practice medicine, using his own educated judgment in the selection of treatment. It was recognized that diagnosis is the foundation stone of medicine.

F. M. C.

Original Articles

THE TREATMENT OF HEART DISEASE BY DRUGS.*

By WILLIAM DEWEY ALSEVER, M.D.
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BEFORE beginning the consideration of the drug treatment of diseased hearts the writer wishes to express clearly his belief that the administration of drugs is only a minor factor in the rational treatment of heart disease. In the majority of weak hearts drugs are inferior to regulation of the patient's life, particularly as regards physical rest, exercise, nervous burdens, sleep, diet, etc.

The opportunities for specific drug treatment are few. Syphilitic heart lesions may be cured by mercury or salvarsan in the sense that all the spirochetæ can be killed. Unfortunately there are usually scars and contractures left after healing, which permanently impair the heart's efficiency. The intensive early treatment of all syphilis by salvarsan and mercury will forestall many heart lesions and will cure others before they have advanced sufficiently for clinical recognition. Well developed heart lesions may be checked by salvarsan and mercury but anatomical changes, resulting from syphilis, must be treated symptomatically like the great mass of heart defects. The iodides are not specific in syphilis and should not be used as substitutes for salvarsan and mercury. Their alterative action will aid in the removal of gummatous deposits in the heart as well as elsewhere in the body. Diphtheria is a disease in which acute cardiac failure occasionally develops. That the failure depends commonly on a lesion of the nervous system rather than of the myocardium does not lessen its importance. The fact that these lesions are due to the toxæmia, for which we have a specific antitoxin, impresses on us most forcibly the need of the early administration of large doses of antitoxin. In the event of cardiac failure more antitoxin is advisable. Acute rheumatism, which causes such a large proportion of heart disease, lacks a specific, but in the salicylates we have remedies which will relieve the fever, and the pains and swelling in the joints. They have more power than other drugs over rheumatic inflammations of the heart and, in the absence of something more efficient, 10 to 20 grains of salicylate every one to four hours should be used until the symptoms are improved or until ringing in the ears supervenes. No depressing effects need be feared.

The drugs which have been used in the symptomatic or palliative treatment of heart disease are legion, which proves their inefficiency. The majority are not worth naming, but a few of them have definite and even life-saving value.

1. The digitalis group, consisting of digitalis, strophanthus, squills, apocynum, etc. These drugs stimulate directly all forms of muscle tissues, notably the heart and the vasomotors, and also stimulate the medullary centers, notably the pneumogastric and vasoconstrictor centers. As a result of these actions the heart beats more powerfully and more slowly, the vasomotors contract and often diuresis ensues. These effects are of most importance clinically in auricular fibrillation and auricular flutter, and the results obtained in these disorders have been so marked and so valuable as to give digitalis its justly great reputation in heart disease. Other types of irregular hearts and hearts with normal mechanism also respond to digitalis but in less degree. There has been much disagreement regarding the efficiency of digitalis during fever. Concerning this question Sir James Mackenzie said: "The heart is already in possession of a poison far more powerful than the drugs at our command, and these in medicinal doses are without effect[1]." But recently Cohn and Jamieson, working in the Rockefeller Institute, have shown that digitalis in therapeutic doses produces the same changes in the electrocardiogram of pneumonia hearts as of afebrile hearts with similar mechanism, these changes being prolongation of the conduction time from auricle to ventricle and modification of the T wave[2]. Probably the fact is that the same effect should be expected from febrile hearts as from afebrile hearts, assuming that the other conditions are identical. Unfortunately the effect of digitalis on any weak heart, not the subject of auricular fibrillation or auricular flutter, is small, but nevertheless it is worth obtaining. So we come to the conclusion that almost any weak heart with rapid pulse may be benefited by digitalis. The old belief that digitalis is contra-indicated in aortic incompetency has few adherents now. Digitalis, by increasing the force of systole, causes better capillary flow, which means better nutrition for all tissues and notably for the heart itself, resulting in cardiac hypertrophy. Also by increasing the tone of the cardiac muscle in diastole digitalis antagonizes dilatation and limits the amount of blood which may regurgitate from the aorta into the left ventricle. For these reasons digitalis is indicated in failing compensation of aortic regurgitation. However its use is frequently disappointing for such hearts rarely lose their compensation until the heart muscle is so extensively diseased that there is little left upon which the digitalis can act. A heart rate below 60 per minute usually contra-indicates digitalis for a slower rate is mechanically inefficient, resulting in enfeebled capillary flow; also the possibility of producing dangerous Stokes-Adams fits or deadly ventricular fibrillation causes us to avoid too great slowing of the heart. When digitalis is indicated it should be given until the heart is slowed

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 25, 1917.

to the optimum rate or until toxic symptoms develop, that is headache, nausea, ringing in the ears and coupling of the beats. Nausea occurring during digitalis administration is usually a symptom of defective circulation in the stomach rather than digitalis irritation, and indicates the continuance of digitalis rather than its omission. Nausea due to too much digitalis results from the action of the drug on the vomiting center rather than on the stomach mucous membrane. Three days are commonly required for the development of digitalis effect, but if large doses are given in the beginning an earlier effect may be produced, and, indeed, if the glucoside strophanthin be given intravenously an effect may be produced in 15 minutes. The glucosides of digitalis itself are so uncertain in their physicological action and indefinite in their chemistry that they are of little practical value and they need not be considered here. The most dependable digitalis preparations and also happily the least expensive are those of the pharmacopœa—particularly the tincture, the infusion and the powdered leaves. Digitalis leaves vary in their potency and in addition the tincture and infusion vary in their strength according to the method of their manufacture. It is gratifying to know that digitalis leaves equal in toxicity to the imported English or German leaves are now being grown in Minnesota, Wisconsin and Washington. Inasmuch as there must be variability in the leaves and there almost certainly will be variability in pharmaceutical methods, it is quite desirable that there should be a method of standardizing digitalis preparations so that the probable effect of a certain dose may be known. Of course one might use any preparation and increase the dose until the desired effects developed but valuable time may be lost thereby. The best standard yet discovered is Hatcher and Brody's cat unit. It is the number of cubic centimeters of digitalis per kilogram required to kill a cat when injected slowly into the femoral vein of the etherized animal. This gives the clinician fairly definite information on which to base the dosage of any digitalis preparation. The tincture is the most uniformly useful of all digitalis preparations. It is absorbed more readily from the stomach[3] and it may be given intramuscularly if a region free from circulatory stasis is chosen. Recently R. E. Morris of the University of Minnesota[4] has given intravenous injections of the tincture (diluted 1-10) and also of the infusion with the immediate development of digitalis action and without harm. The dose he used for intravenous injection was half of what would have been given by mouth. The tincture is ordinarily given in divided doses amounting to one-half to two drams daily. Often too little is given to get demonstrable digitalis effect. Cohn and Jamieson, when studying digitalis action in pneumonia, found that 0.8 gm. of digitalis (which is equivalent to two drams of the tincture) was the minimum from which effects could be expected[2], and, when working on normal hearts, they found that changes in the electrocardiogram could be expected in from 36 to 48 hours after digitalis had been begun and that the changes would continue from 5 to 22 days after digitalis had been stopped[5]. In order that the ordinary clinician may get quicker results Morris has advocated the following scheme[4]: assume .10 cc. of tincture or .116 cc. of infusion per pound of the patient's body-weight to be the average therapeutic dose, then estimate the whole dose and give it according to the rapidity of effect desired; for intense action give ⅓ to ½ at once, ¼ to ⅓ in 4 to 6 hours, and two smaller doses in 4 to 6 hour intervals; by following this plan full therapeutic effects are obtained in 12 to 36 hours. This dosage is only double that reported by Cohn and Jamieson as being the minimum from which changes in the electrocardiogram were obtained in pneumonia. This rate of development of the physiological action would be satisfactory for most cases. Evidently the giving of large doses of digitalis, if carefully estimated, and especially if the preparation is standardized, will result in more certain and more prompt effects than will those doses to which we have been accustomed. Once sufficient digitalis action has been obtained the drug should be continued in whatever dose is found necessary to maintain the effect and until need for it has disappeared. High blood pressure is not a contra-indication to digitalis. Proprietary preparations of digitalis, of which digalin is perhaps the most used, should be condemned because they are not as good as the Galenical preparations, they are much more expensive, and usually they are marketed in an unethical manner.

Tincture of strophanthus has sometimes been substituted for digitalis with advantage, but in the average case it is less dependable. Its action is practically the same as digitalis. Strophanthin, the active glucoside of strophanthus, is of inestimable value, because by giving 1-100 of a grain intravenously one may develop digitalis effects in 15 minutes. It is safer, however, to give 1-250 of a grain and repeat every two hours for three doses, if needed. If a patient has been taking digitalis the administration of strophanthin intravenously is unsafe because the combined effect may be overwhelming.

Squills and apocynum are usually avoided because of their tendency to upset the digestive tract, but apocynum sometimes relieves cardiac dropsy when digitalis has failed.

Some samples of cactus grandiflorus have shown digitalis action, but the property is very uncertain. Cactus is mentioned to call attention to the uselessness of a preparation called "cactin" contained in Abbott's H-M-C tablets. It would be more becoming in the medical profession to refrain from using H-M-C tablets and to

use instead plain hyoscine and morphine without attempting to guard their action. There is no member of the digitalis group which can be given hypodermatically and which will produce its effect before the hyoscine and morphine have spent themselves.

2. Strychnine is the only member of the strychnine group which deserves mention, and, as far as stimulating the circulation is concerned, its action is of historic interest only. Practically its effect in therapeutic doses is limited to the spinal cord and medulla, and the increase in circulation which follows its use is a part of general bodily stimulation and is not due to any selective action on the heart. Strychnine should not be used in the belief or hope that it will stimulate the heart any more than other tissues.

3. The caffeine group is of considerable value in heart disease. Caffeine, theobromine and theophyllin are the members of interest. Sodio-salicylate of theobromine (trade-mark name, diuretin) is a powerful diuretic, and oftentimes of great value in cardiac dropsy. It increases the urine though direct stimulation of the kidneys rather than through action on the heart. In doses of from 10 to 15 grains, 3 or 4 times daily, it commonly produces marked diuresis in one or two days. When diuresis is established it is well to omit the drug, administering it again later in case of need. Theophyllin (trade-mark name, theocin) is more powerfully diuretic, but it is more nauseating and more expensive so that theobromine is usually to be preferred. Caffeine has been and still is used very largely as a heart stimulant or so-called tonic. Its effect is manifested almost entirely on the central nervous system, particularly on the brain itself. It has a little power to stimulate muscle fibers, but the heart responds no more than all the skeletal muscles. If one wishes to stimulate the brain of a patient with a weak heart he may do so with caffeine, but one cannot by it stimulate the heart to the exclusion of other organs for caffeine has no selective action on heart muscle.

4. Alcohol has long been considered a stimulant. It is a local stimulant, but after absorption its action is purely depressing, affecting especially the central nervous system and beginning with the highest functions of the mind. When strong solutions of alcohol are swallowed or injected hypodermatically the local irritation they cause acts reflexly to stimulate the circulation and respiration. Other volatile local irritants, as ammonia and camphor, act similarly through the nervous system, stimulating reflexly the general bodily functions. After absorption ammonia is decomposed very rapidly, so that it has no sustained action. The absorption of camphor is so uncertain that no clinical effect after absorption can be depended on. Ammonia and camphor are best given by inhalation, which is both prompt and efficacious. They may also be used in strong solution by mouth, or by hypodermatic injection. Their action is so transient that if anything like a sustained effect is desired they should be repeated at least every quarter of an hour. The dose is limited only by the amount of local irritation produced, which should not be sufficient to injure the tissues. Recent investigations indicate that the hypodermatic injection of camphor in oil which has been well thought of as a quick acting stimulant is really inefficient[6 7].

5. Epinephrin (trade name, adrenalin) is decomposed so quickly in the body that its effect must always be transient, and it is absorbed so slowly from hypodermatic injection that it is difficult to say just what action should be expected. Intravenous injections are followed by slower and stronger heart action and vasoconstriction, but when given by other methods these effects are very uncertain and fleeting.

6. The nitrites paralyze the vascoconstrictor mechanism and the vagus center, almost reversing the action of digitalis. Inhalations of amyl nitrite produce this effect in a few seconds and the effect terminates in two or three minutes. Nitroglycerin and sodium nitrite by mouth produce this effect in two or three minutes, and the effect ends in one-half to three hours. Erythrol tetranitrate produces the same effect in one hour, and the action may continue for five hours. The nitrites are of great value in relieving the pain of angina pectoris and in obtaining relief from dangerous high blood pressure. It is usually unwise to attempt to beat down high blood pressure, except in an emergency. If a sustained depression of blood pressure is desired it may be obtained by repeating nitroglycerin every two hours or by giving erythrol tetranitrate 4 to 6 times a day.

7. Aconite slows the heart by stimulating the vagus center but does not affect the vasomotors, consequently it lowers blood pressure. It may be useful in overacting hearts, as in fevers and in dangerous, sustained high pressure.

Surely there is no justification for the time-honored combination of digitalis, strychnine and nitroglycerin. If it is possible that any patient needs at the same time the slow strong heart action produced by digitalis and the antagonistic weak rapid heart action and lowered blood pressure of nitroglycerin, together with the general increase of all bodily functions caused by strychnine, one has still to explain why these drugs should be administered so as to get first the nitroglycerin effect for an hour or two, to be followed and possibly overlapped by the strychnine effect, which in turn will be succeeded by the digitalis effect two or three days later. This combination illustrates splendidly a tendency, which we are fast outgrowing, to combine thoughtlessly any drugs which are called "heart remedies," and to pay little attention to the time of beginning and duration of the expected effects.

The writer hopes to leave the impression that digitalis is the drug *par excellence* in the treatment of failing hearts, that important advances have been made in its administration, and that other heart remedies are useful for special indications only or are of little value.

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THE TREATMENT OF HEART DISEASE BY MORE AND LONGER SUPERVISION.*

By ROBERT H. HALSEY, M.D.,
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EVERY physician has advised and prescribed for cases of heart disease, and after a period varying from a few days to a few weeks, has dismissed the patient as "improved" or "cured." Not long afterward the same patient has returned to the physician for much needed help only to improve again; be discharged and again return; but each return finds a more severe condition to be relieved. Each break in compensation requires a longer period for recovery and means a gradually failing heart. So frequently is this picture terminated by death, after a few breaks of compensation, that it is expected by every hospital intern. All of you have seen this picture copied so frequently that you are disheartened from the first by each new case you see, whether in private or hospital practice.

The magnitude of this problem will be demonstrated by a few figures, which were very kindly supplied by the New York Department of Health.

In the public schools of New York City there are approximately 800,000 children. From examinations already made, it is certain there are at least 20,000 children with organic heart disease. If these figures be true, it is most probable that there are in the whole city, with its 6,000,000 inhabitants, at least 300,000 of them with organic heart disease.

Such is the magnitude of the problem, which, encouraged by the work of Dr. H. V. Guile and others, a number of men in New York undertook to solve by organizing the Association for the Prevention and Relief of Heart Disease, hereafter to be known by the briefer title of A. P. R. H. This association has been incorporated in the State of New York for the purpose of gathering information of all kinds bearing upon heart disease; to develop and apply measures which will prevent the incidence of heart disease, and to co-ordinate the agencies already available for relieving those who have heart disease.

As a result of this fostering of the study of heart disease, eighteen special clinics have been formed during the year. Each one of these clinics has a special social worker who devotes her time to the "follow" care of the cases. One great value of the meeting together of cardiac cases is the hopefulness which it engenders, thereby increasing the co-operation of the individual because of a better temperamental attitude.

For better co-operation, and for standardization of methods, these separate clinics have been organized into the Association of Cardiac Clinics. At the meeting for organization over fifty physicians were enrolled, thus showing the need of such work. Each clinic will have its own district, so that all the cardiacs who are to be cared for by one social worker will be in an easily accessible area, and this will also render the journey for visits of the patient to the clinic shorter and less fatiguing.

Within a day or so, the social worker visits the home of every new patient enrolled in the clinic. One of the greatest aids to rapid convalescence is the interest and courage shown by the

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				Deaths from	
			All Causes	Tbc.	Organic Heart Disease
Population of Greater City.....	1914	5,333,539	74,803	8,918	10,058
Population of Greater City.....	1915	5,468,190	76,193	8,825	10,383
Population of Greater City.....	1916	5,602,841	77,801	8,411	10,687
Estimated Population U. S. Registration Area	1914	65,989,295	.....	84,361	93,588
Estimated Population of U. S.....	1914	98,781,324	.....	126,440	139,281

social worker, who may tactfully accomplish a great deal by ingeniously solving the problems with the means at her disposal, or she may seek and receive additional aid from the proper charity organization. In other cases a visit to an employer, with an explanation of the situation, may obtain a less arduous position for the cardiac. If the employer is unable or, which is rare, unwilling to make a change, a new position is obtained by the social worker for the cardiac. In some cases the whole family may be moved from quarters four or five flights of stairs up, to quarters nearer the sidewalk.

The patient with severe decompensation may be required to remain some time in bed at home, or at the hospital, before recovering sufficiently to permit walking about. After convalescence has been well established, the patient may be aided to better living, and a more hopeful outlook on life, by spending some time at a convalescent home, where he may have constructive care.

Dr. Brush of the Burke Foundation at White Plains, N. Y., has very kindly placed at my disposal some figures which are most illuminating. He believes there is need of many more beds to be at the disposal of the cardiac in the early stages, and so make it possible for the cardiac who tires easily to rest up before actual severe decompensation occurs—preventive convalescence, he calls it.

In two years about 800 cardiacs have been cared for at the Burke Foundation. Of this 130 were boys between ten and sixteen years of age. In an analytical study of these cases he finds the records for the boys during and after convalescence to be better than those for adults. Seventy per cent of the boys and only 55 per cent of the men made a good convalescence. Since leaving the institution 85 per cent of the boys have been steadily at work, while only 34 per cent of the adults remain continuously at work, and only 21 per cent are partially occupied. Only 5 per cent of the boys and 10 per cent of the adults are not in school or at work. The average stay at the home has been 44 days.

Those cases sent to the home from the cardiac classes have nearly all made successful recoveries, a fact which justifies the existence of such organizations, and emphasizes the value of having a proper gauge of the recuperative ability of each case before sending them away to the convalescent home. The shock of changed environment is too much for some of them, and brings about a relapse. It is after leaving the convalescent home that the watchfulness of the class physician and resourcefulness of the visiting nurse play the important part of preventing further damage to the heart. A brief period of rest may from time to time put off a threatened break. The results which have been obtained in a year's work is shown by the following:

Résumé from the Cardiac Class of the New York Post-Graduate Medical School and Hospital.

18 cases before supervision lost 1,668 days, average 93.

18 cases since supervision lost 36 days, average 2.

18 cases before supervision cost (City, N. Y. P.-G. Hosp. Burke), $1,538, average 86.

18 cases before supervision lost in wages $2.414, average $140.

18 cases show a total economic loss of $4,052, average $226.

The outlay for expenses of the clinic for the same period was approximately $1,600.

The return of the cardiac to partial productiveness is certainly worth the investment, for the saving in actual cash outlay would be for every hundred such cardiacs $8,600, and an economic loss of $22,600.

In the cases of heart disease coming to the Post-Graduate Class, syphilis plays a minor part as an etiological factor, while rheumatism is preeminently the great destroyer. In a group of 82 children with heart disease examined recently, 57 had one or more decayed teeth and 69 had badly infected tonsils. In a group of 596 children examined by Dr. Dowd for the Bowling Green Association, to determine the state of nutrition, there were 23 cardiacs, or 4 per cent, and in the whole group only 62 had defective teeth, and there were only 42 with enlarged tonsils. In the cardiac group, therefore, decayed teeth are seven times, and infected tonsils twelve times more frequent.

The children in the cardiac class under supervision have improved promptly after proper care of the teeth and tonsils. As yet, the dental work and tonsillectomies are the only measures approaching prevention, but from the nature of the damage to the heart these measures cannot hope to restore the organ.

The greatest reduction of the incidence of heart disease will follow the prevention of the infection we call rheumatism. To make such an advance will require the examination of both children and adults, while they are yet in health, in order that proper precautions against infection may be taken. This step is also demanded to insure that adults with serious cardiac disease shall not be placed in responsible positions, which may require sudden physical exertion, or momentous decisions. Under the new workmen's compensation law, all workmen within its provisions will certainly be examined and under a compulsory insurance law it would be essential. It is not necessary for physicians to wait for a law compelling examination before advising the procedure, for enough evidence has been presented to provide that the economic loss from heart disease can be, in great measure, prevented by an annual physical examination, and knowing this every physician should be its advocate.

In conclusion, emphasis should be placed upon the following:

1. The problem of the cardiac is becoming of increasing importance to the community.
2. Constant supervision makes and keeps a cardiac productive.
3. Frequent rest periods or "preventive convalescence" pays the hospital and the State as well as the individual cardiac.
4. Attention to the condition of the teeth and tonsils of children is the most important preventive measure against rheumatism that in the present state of knowledge is known.
5. Prevention of the occurrence of heart disease demands annual physical examinations of every individual.

THE HYDROTHERAPY OF HEART DISEASE.*

By HUBERT SCHOONMAKER, M.D.,
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CONSIDER for a moment the skin. Its structural essentials are connective tissue, muscle fibers, blood vessels, nerves and sweat glands. The muscle fibers by virtue of their function are sufficient under stimulation to greatly modify the blood content of the skin. Innumerable capillaries with looplike endings make possible a very large blood content of the skin, The termini of the greater part of the sensory nerves are in the skin and are so numerous that a pin prick may not miss one. In direct communication with nerve termini is the sympathetic nervous system and through its vasomotor nerves the whole arterial tree.

Get the picture in sequence; Stimulation of sensory nerve ends, contraction of muscle fibers of skin and capillaries, secondary stimulation of vasomotor nerves with relaxation of muscle fibers of skin and capillaries, flushing of capillaries, modification of blood pressure. All these through the medium of nearly the whole surface structure of the body.

Consider next the physiological effect of a full emersion bath. For convenience the temperature at which water is applied to the skin is divided into three zones, namely,

Neutral, 93° to 98° F.
Hot, 98°to 110° F.
Cold, below 93°.

A tub bath in the neutral zone without modification by chemicals is sedative to nervous, vascular and muscular systems. If prolonged it is a cardiovascular depressant. It is therefore negative and possibly injurious in relation to heart disease except in palpitation or the tachycardia of Graves' disease. General sedation here being indicated, a 10 to 20 minute full emersion bath in the neutral zone is often good treatment.

A tub bath in the hot zone is actively stimulating to sensory and vasomotor nerves, induces quick flushing of the capillaries, a rise in temperature, increase in heart rate, perspiration and secondary cardiovascular depression. It is therefore contraindicated in the treatment of a weak heart.

A tub bath in the cold zone produces the physiological effects already noted, namely, stimulation of sensory nerve ends, contraction of muscle fibers of skin and capillaries, secondary stimulation of vasomotor nerves with relaxation of muscle fibers of skin and capillaries, flushing of capillaries, contraction of arterioles with elevation of blood pressure. Furthermore it excites inspiration and expiration, thus lessening the burden of the right heart and by flushing the capillaries lessens the burden of the left heart. Thus a cold zone bath provides a mild gymnastic treatment for the heart in a field relatively free from peripheral resistance because of capillary dilatation and from the embarrassments of voluntary muscles in action (the patient being fully relaxed during the period of treatment).

What possibilties in a remedy that may excite such a physiological complex. It is then obvious that in the hydrotherapy of heart disease the object being restoration of myocardial reserve and improvement in cardiovascular tone, baths should be given in the cold zone or in the neutral zone, approximating the cold. If the cardiovascular system responds to the cold bath, the clinical evidence is a slowing of the pulse, an increase in pulse volume, an increase in the volume of the first heart sound, a shortening of the diameters of the heart and a sense of well being on the part of the patient. Approximately this is the picture of a proper response to therapeutic doses of digitalis, a fact worthy of note in the observation of cases under this treatment.

Physiologically speaking, the degree of cardiovascular response is in direct ratio to the coldness of the bath, but there being in individuals a wide physiological difference in response to stimuli and a wider difference in pathological processes, it follows that each case is a law unto itself. There are, however, certain general rules that are worthy and most helpful. It is here that the Nauheim system is of value. The essentials of the Nauheim system are, a stimulating tub bath in water containing varying amounts of salts, the chief of which are sodium chloride and calcium chloride, and carbon dioxide. The salts act as skin irritants and thus encourage capillary dilatation as do all skin irritants. The gas is also a skin irritant and at the same time a conserver of body heat by virtue of the layer of globules which forms upon the skin. It is a non-conductor. This combination of flushed capillaries and slow heat radiation makes comfortable a cold bath providing there has been in relation to the individual a proper graduation of temperature and time. It is the rule to begin a

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 25, 1917.

course of baths, numbering 18 to 20, at about 94° F. seven minutes' duration, and to diminish the temperature 1 degree and increase time one minute every second or third bath until 86° and 16 minutes are reached. At the same time the saline and gas contents are gradually increased; the strength and duration of the bath thus keeping pace with the down curve of its temperature. During the bath the patient should be fully relaxed so that the heart be not embarrassed by contraction of voluntary muscles, and care should be taken not to rub the gas from the skin. The skin should redden perceptibly and there should be no chilliness except possibly upon entering or leaving the tub. The latter is combatted by quickly wrapping the patient in a hot sheet which is at hand, drying by patting and rubbing, and further by a second hot sheet. The patient is then comfortably covered on a couch or in bed and instructed to rest for at least one hour. Slow reaction may be anticipated by a hot drink before entering the tub. These are general rules secondary improvement in cardiovascular tone. one can scarcely conceive of a more flexible therapy.

Indications and Contraindications.

Any case of myocardial insufficiency (weak-heart) from any cause, may be benefited by hydrotherapy provided the skin capillaries react to stimuli and the reserve force of the heart be not lost. This is a sweeping statement but it is born of experience. Indications may be best defined by discussion of contraindications. In advanced valvular disease there may be lost myocardial reserve, lost compensation. The clinical evidence being dyspnœa, passive congestion in extremities, abdomen or chest and other signs of a failing heart. Hydrotherapy is here contraindicated until compensation is being restored. In other words, hydrotherapy may be prescribed once the cardiovascular forces are in the ascendency. In acute dilatation of the heart from physical overstrain the same is true. In advanced infectious myocarditis, advanced fatty heart and the terminal stage of cardiorenal disease, hydrotherapy is contraindicated. In another and smaller group failure of skin capillaries to respond to stimuli, fixes the contraindication. This applies to general arterio sclerosis with pronounced obliteration of capillaries and to mitral stenosis with typical secondary heart changes. You will recall that in typical mitral stenosis the left ventrical is small and weak. Consequently with each heart systole the amount of blood forced into the arterial tree is relatively small and the total fluid on the arterial side is always small. Therefore, flushing of the capillaries sufficient for the needs of a prolonged cold bath is quite impossible. It is then obvious that the Nauheim bath in the cold zone is contraindicated in advanced arterio sclerosis and in typical mitral stenosis.

If in the treatment of heart disease we had to deal with the heart only we might almost say that the graduated saline carbonated bath, cold zone, is indicated in all cases except those specifically noted, but such is not the case. A large group presents the symptom complex of cardiovascular renal disease. Relief is sought because of a failing myocardium. But in the treatment the underlying kidney insufficiency, the arterial hypertension and the toxæmia as well as the myocardial insufficiency must be considered. Now, failing kidneys and sclerotic arteries do not react well to cold. On the other hand a failing heart does not react well to heat, that is, to a hot bath sufficient in temperature and time to induce vicarious elimination which may be indicated because of kidney insufficiency. So it is that in myocarditis secondary to nephritis and arterio sclerosis, the prescription should be a compromise, namely, a saline or saline carbonated bath in the neutral zone 93 to 98°, 8 to 15 minutes in duration. If the saline content be heavy, skin response will be good, resulting in improved kidney function, reduction in toxæmia and secondary improvement in cardiovascular tone. Obviously the physiological response to cold will be lacking.

The hydrotherapy of angina pectoris is that of the underlying condition. If this be coronary or general arterio sclerosis the warm baths just described are indicated. If it be a dilated heart in the absence of sclerosis of the vessels or of kidney disease then the graduated cold baths are indicated. With rare exceptions the hydrotherapy of angina pectoris should be that of the underlying cause and while due regard must be had for acute symptoms and the possibility of exciting the same, we need not be apprehensive. If hydrotherapy leads to improvement in the underlying condition it follows that there should be improvement in the symptom complex. It is as safe a remedy in angina pectoris as any potent drug and more efficacious. We emphasize this point because it has been said, and is commonly believed, that hydrotherapy is contraindicated in angina pectoris.

Conclusions.

First, hydrotherapy in heart disease is based on physiological response to stimuli and is therefore scientific.

Second, in hydrotherapy there are more possibilities for good in the treatment of heart disease than in any other single agent except rest.

Third, the saline carbonated bath is especially helpful in the treatment of heart disease because it makes possible the giving of cold tub baths without undue shock and provides a wide limitation in temperature, time and strength of bath.

Fourth, as therapeutic agent hydrotherapy is not incompatible with any other.

THE TESTING OF THE HEART'S FUNCTIONAL CAPACITY AND ITS RELATION TO GRADUATED EXERCISES IN CARDIAC INSUFFICIENCY.*

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NO information about a diseased heart would be more valuable than a fairly accurate estimate of its reserve power, because of its very direct bearing upon the prevention of more damage and upon treatment.

The serious problem about the great majority of heart patients, particularly children and young adults, is the prevention of a super-infection. After diseased tonsils and adenoids have been attended to and dental defects remedied, we are confronted with the question of maintaining the patient's vitality or power of resistence. These latter terms are used to designate a condition, the existence of which is very real, but of whose essential nature we are ignorant.

It is a fact based upon common experience that people in good general condition are less liable to infections. To maintain this condition of unimpaired vitality in cardiacs is of greater importance than it is in normal individuals, because thereby we lessen the chance of infection and its frequent sequel, more damage to a diseased heart.

Exercise is probably the most important means we possess of improving a person's vitality. If we could prescribe intelligently and confidently the kind and amount of exercise a cardiac should take we would have made a great stride forward not only in improving that patient's present condition, but in preventing a future breakdown. This important end can be achieved only by means of a valid test to determine the heart's reserve power. Such a test must of necessity be based upon some procedure which calls into action that reserve power.

In the test we are about to describe the cardiac reserve power is called upon with steadily increasing demands to furnish blood to the muscles for the performance of work. The validity of this test, several important features of which were discovered years ago by Graupner, a German bath physician, rests upon some experimental evidence and upon a large amount of clinical evidence which we have accumulated during the past three years. Our test is based upon the circulatory reactions to graduated work and we will describe these briefly.

The Circulatory Reactions Following Work in Normal Persons.

Shortly after moderate amounts of work the systolic and diastolic blood pressure are raised and the pulse accelerated. They then rapidly fall to the levels noted before work or even below these levels. The highest figures are reached shortly after work. The rise is proportionate to the amount of work, the time in which it is performed, and the person's condition of training (i. e., amount of heart's reserve power). As soon as the work exceeds a certain amount, which varies for different individuals, we regularly find that the systolic blood-pressure does not reach its highest point immediately after work but from 50 to 90 seconds later at a time when the pulse rate has receded toward normal. We term this a *delayed systolic rise.**

The Circulatory Reactions Following Work In Persons with Cardiac Insufficiency.

The reactions here are exactly the same as in normal persons except that much smaller amounts of work are followed by a delayed rise of the systolic blood pressure. Occasionally the pressure immediately after work is the same as or lower than before, although the pulse is accelerated. This is to be regarded as a marked form of "delayed rise."

The invariability of the delayed rise of the systolic blood pressure is a most extraordinary and interesting phenomenon. The following chart represents the carrying out of the test on an adult with normal heart.

CHART I

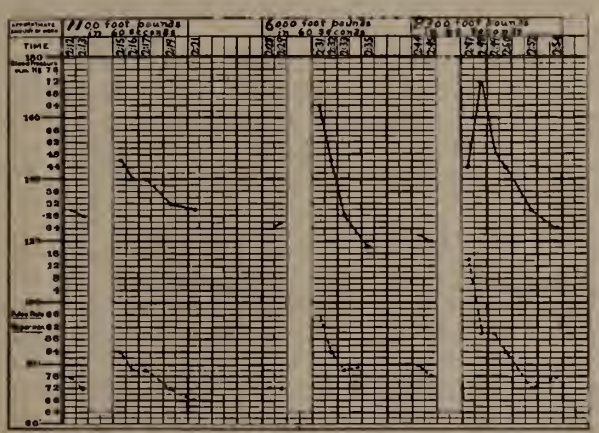

Chart I.—The upper continuous lines represent the systolic blood pressure, the lower dotted lines the pulse rate and the white perpendicular spaces the periods of work in each experiment.

The following chart which represents the testing of a patient's circulatory reactions on two successive days demonstrates clearly how completely independent of the height of the blood pressure the reactions are.

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 25, 1917.

* See The Circulatory Reaction to Graduated Work as a Test of the Heart's Functional Capacity. *Archives of Int. Medicine*, March, 1916, Vol. XVII, pp. 363-381.

CHART II

Dominick Cro . —

March 18-'17		March 19-'17.
Time - Pulse - Sys B.P.		Time - Pulse - Sys B.P.
2:35 - 60 - 166		1:30 - 64 - 104
Work 10 flex 20 =		Work 10 flex 20 =
250 foot-lbs		250 foot-lbs.
72 - 172		72 - 114
- 170		- 112
- 170		- 106
2:40 - 56 - 166		1:39 - 64 - 106
Work 10 flex 15 =		Work 10 flex 15 =
375 foot-lbs.		375 foot-lbs.
76 - 170		76 - 106
- 188	←Delay→	- 116
- 166		- 116
2:45 - 68 - 162		1:45 - 64 - 106
Work - repeat		Work 10 flex 20 =
80— 164		500 foot-lbs.
- 168		76 - 108
- 162		- 118
		- 116
		- 110

CHART II.—Tests of circulatory reactions on two successive days in a patient aged 47, who had been suffering for two years from a pyloric ulcer and partial stenosis. He was weak and much underweight. His systolic blood pressure had been high for some days and his circulatory reactions had been normal after 250 to 300 foot-pounds performed in 15 seconds on March 18th. On March 19th for no apparent reason his pressure dropped but his circulatory reactions were not at all influenced thereby.

This delayed rise in systolic pressure is a most interesting and extraordinary phenomenon. It has been the subject of many hundred experiments on both normal persons and patients with cardiac insufficiency and we shall summarize the facts we have discovered about this peculiar reaction.

1. The curve of the systolic blood pressure, determined at isochronous intervals after stated amounts of work shows always a certain type when the work has not exceeded the heart's reserve power.

2. The curve of the systolic blood pressure after work which has overtaxed the heart's reserve power shows a distinctly different type. This abnormal type is always elicited by the same amount of work, no matter what group of muscles is employed. It is the quantity of work which is important, not the size or group of muscles.

3. The curves we have obtained in many experiments on normal people and on patients suffering from cardiac insufficiency have always been in accord with what on a priori grounds might have been expected. Patients with obvious signs of insufficiency have always shown the abnormal type of curve. Patients with compensated lesions have shown normal curves after amounts of work approaching or equaling the performances of normal people. Normal people have always been able to do large quantities of work as compared to patients recovering from insufficiency before an abnormal type of curve ensued.

4. Improvement in the condition of a person, whether he has a normal or abnormal heart, and by whatever standard we judge of this improvement, is invariably accompanied by an increase in the amount of work he is able to do, which is followed by a normal blood pressure curve.

The present incomplete state of our knowledge of circulatory physiology does not permit of a complete explanation of this phenomenon. If its significance is to become apparent it can only do so at present through clinical experiments.

We believe that the facts enumerated above, many of which have been confirmed by other observers, demonstrate, as far as it is possible to demonstrate clinically, that the delayed rise in systolic pressure indicates that the preceding work has exceeded the limit of the heart's reserve power.

We conclude, therefore, that if the systolic blood pressure does not reach its greatest height during the first 30 seconds after the completion of work, but at the second or third reading (*i. e.*, 60 to 90 seconds after work), or if this first reading is lower than the original level, that work, whatever its amount, has overtaxed the heart's reserve power and may be taken as an approximate measure of the heart's efficiency.

METHOD OF PERFORMING OUR TEST OF THE HEART'S RESERVE POWER.

The apparatus used consists of pairs of 5, 10, 15 and 20 pound dumb-bells. Two types of movements* are done with the bells. In the first a bell is held in each hand, the arms hanging by the side of and close to the body, and then each forearm is alternately flexed, raising the bell to the shoulder. The patient stands or sits according to his condition. In the second movement the patient stands in an easy posture with his feet well apart and planted firmly on the floor. The left-hand rests on the left knee. The dumb-bell is grasped by the right hand and swung from between the legs up above the head, until the arm is vertical. The arm is perfectly straight while doing this, so that the bell describes an arc. Then with the arm, still being kept straight, the bell is permitted to drop of its own weight back between the legs and is then swung up again. There is no pause between the up and down motions nor between the swings.

* These movements were first described by Dr. Jacob Teschner, of New York.

Estimation of the Number of Foot-Pounds of Work Performed in These Movements

It is possible to calculate approximately the number of foot-pounds of work performed in each of these movements. There is a certain amount of work, however, which we cannot estimate in foot-pounds. When a patient stands holding a pair of dumb-bells without moving them, work is done as shown by his circulatory reactions, but we cannot estimate it. This unknown factor may be ignored, however, for our aim is comparative and not absolute estimations.

In the flexion movement, the distance through which the bell is carried from the side of the body to the shoulder averages in adults from two feet to two feet six inches. Now, if a five-pound bell is flexed through two feet, ten foot-pounds of work are done. If the total number of flexions are twenty, 200 foot-pounds are done. For the sake of comparison, the time it takes a patient to do any quantity of work should be noted.

In the swinging movement the work is estimated as follows: A man five foot, ten inches tall, would move the bell through an arc of eight feet. With a ten-pound bell, eighty foot-pounds would thus be performed. If the man weighed 200 pounds each time he raised his trunk from a stooping to an erect posture while doing a swing, he would perform a number of foot-pounds equal to one-half his weight, *e. g.*, 100 foot-pounds. So the total amount of work a man, five feet ten inches tall and weighing 200 pounds would perform in doing one single swing with a ten-pound bell, would be 180 foot-pounds. Obviously these values are all approximate.

It is impossible to do much more than 1,000 foot-pounds with flexion of dumb-bells, for the arm muscles get tired. After we reach 1,000 (or less) foot-pounds, we use the swing for further work.

If the patient whose heart is to be tested is recovering from an attack of cardiac insufficiency, it is well to start with a pair of five-pound bells, the patient sitting on a stool. The systolic pressure and pulse are taken (the pressure by anscultation). Two hundred foot-pounds of work are then given by flexing the bells. The pressure is read again between 20 and 30 seconds after completion of work. This was the time required with our technique to make the first reading and 95 per cent of them fell between 20 and 30 seconds. If it was not made until after 30 seconds had elapsed the experiment was discarded. A second reading is made between 50 and 60 seconds after work, the aim being to make it as close to 60 as possible, and the third reading 90 seconds after. Then readings were made every 60 seconds. (In our earlier experiments we made readings every 60 seconds after the first reading; later we made readings every 30 seconds.) After the pressure and pulse have returned to the original figures 300 or 400 foot-pounds are done in the same way. The work is increased with each experiment until we reach a delayed rise in blood pressure.

The experiment which has caused a delayed rise *should always be repeated* after a few minutes' rest, with a slightly increased amount of work, for the purpose of confirmation.

When once the amount of work which will produce a distinct delayed rise in blood pressure is ascertained, it is quite remarkable how little the results vary on a repetition of the experiment with the same or increased work. Yet if our test is valid this should be so.

Any suggestion of an acute process, any history of recent emboli or a persistently high blood pressure or angina pectoris are considered to be contraindications to the carrying out of this test and to treatment with graduated exercises.

The Relation Between the Test of the Heart's Reserve Power and Graduated Exercises.

The physical activities incident to an active life very frequently overtax the heart's reserve power and yet in the majority of instances no harm results. We have exceeded the limit of the heart's capacity many times as shown by the circulatory reactions both in normal and damaged hearts by varied exercises, dumb-bell work, running, rope-skipping, stair-climbing, etc., and no ill results have followed. The subject is generally unaware that his heart has been overtaxed. The way in which the heart muscle maintains its integrity even after repeated overstrains is very wonderful and affords a beautiful example of the marvelous adaptability of the body organs to their purposes.

Our experience leads us to believe, however, that whatever exercise is chosen to increase the heart's reserve power, the end will be achieved more rapidly if that exercise is always limited to the heart's capacity.

In the treatment by dumb-bell exercises of patients with a low reserve power, whether arising from valvular disease or myocarditis or from other causes, we have followed the plan of estimating each week the heart's efficiency and prescribing the exercises in accord therewith. Each series of movements is repeated from six to eight times daily, with five minutes rest between each group. As the reserve power increased the dose of exer-

cise was increased and the results have been gratifying.

The following chart illustrates the effect of graduated exercises with dumb-bells upon a patient with low reserve power, due probably to a combination of hard intellectual work, no exercise, insomnia, several attacks of bronchitis, and much tobacco and considerable alcohol.

CHART III

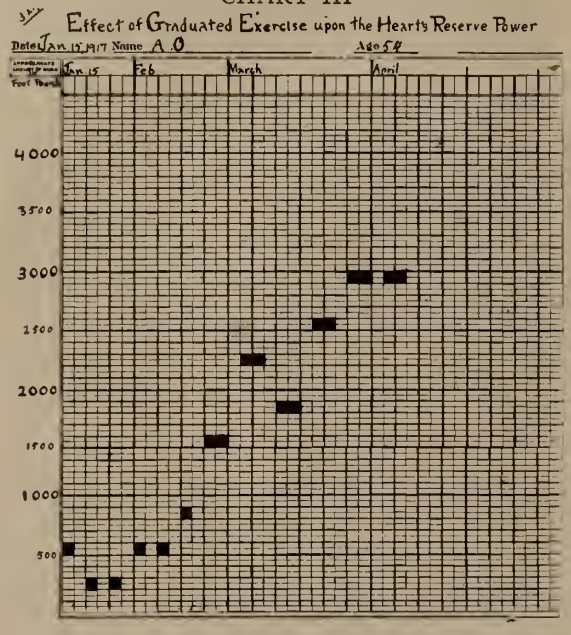

CHART III.—Course of the heart's reserve power in A. O. In this chart each space between two consecutive perpendicular lines represent 15 seconds. The black squares represent the reserve power. For illustration, on January 15th the heart, without being overtaxed was able to supply sufficient blood to the muscles to enable them to do 500 foot-pounds in 15 seconds. The performance of 600 foot-pounds in 15 seconds overtaxed the heart. So the capacity is represented by the black square lying between 500 and 600 foot-pounds.

The particular advantages of dumb-bell exercises are these: The apparatus is simple and the exercise can be carried out in the patient's bed-room. The foot-pounds performed in each series of movements can be easily calculated so we are certain of the amount of work that is being done and the test of the heart's reserve power enables us to prescribe the correct dose.

In closing I wish to emphasize the unusual significance this test of the heart's reserve power possesses not only for the treatment of patients suffering from cardiac insufficiency, but for the prevention of infection in these patients. Only by its help can we supplement our meager array of therapeutic measures with that important weapon of offense and defense, exercise.

Discussion.

Dr. Robert Abrahams, of New York: My first pleasant duty in opening the discussion is to compliment the Chairman and Secretary of the Section on the timely selection of the subject of the symposium. For notwithstanding the fact that heart disease and its treatment occupied the best medical minds from time out of date, yet heart disease still remains a subject for sober study. This is especially so since the pathology is being recast, the irregularities revised, renamed and reinterpreted, and the treatment of cardiac affections readapted in accordance with the new and newer investigations. In some parts of the old world, diagnosis is considered the supreme achievement in heart disease. In this new world, diagnosis is not a barren intellectual pleasure but a stepping stone to treatment. Therefore this symposium on the treatment of heart disease, considered from various but practical angles, is a theme to be welcomed with delight by all who come to listen to, and partake in the discussion.

Dr. Frederick Brush, the able Superintendent of the Burke Foundation for Convalescents, presented a vast amount of material to chew and to digest. I confess that my conception of prognosis of heart disease in the old and in the young received a decided jolt from Dr. Brush's facts and figures. According to them, the percentage of improvement in the young is much bigger than in their elders, which means that the child offers a better prognosis than the adult. My clinical conviction has always been the other way. This is particularly true in mitral stenosis and aortic insufficiency. These lesions are more destructive, their sequelæ more numerous and the functional disturbance of one, and the pernicious influence on the blood vessels of the other, are more far reaching.

The convalescent home for the young finds a beneficent parallel in the Home for the Aged. For nearly a score of years I have been watching the aged in a Home. I found all sorts of cardiac lesions among them, and yet compensation among most of them is so well balanced and so well preserved that their freedom from cardiac distress and discomfort is extraordinary. They live much longer than those affected with similar trouble but who have to toil for their daily bread. The secret of this is found in the regular, not regulated, diet, proper and prescribed exercises and last but not least, absolute freedom from care and worry. This is the key and secret of the Burke Foundation for Convalescents culminating in the brilliant statistics recorded by Dr. Brush, and the same key fits the lock that opens the door of successful treatment in the various "baths" and "springs" in this country and abroad.

I take exception to Dr. Brush's advocacy of "rigid selections." If we are to ever know the real value of a home for cardiac convalescents, let all but the very hopeless be admitted. In the matter of prevention of heart disease, I would say briefly, let us stop holding the useless tonsils in reverence; they shall be treated like the useless appendix. Once a tonsil shows an inclination toward inflammation it should be removed. This radical treatment of the tonsils will prevent thousands of children from acquiring rheumatic endocarditis, and since the child must sooner or later be the adult, the adult who formerly was the child will be free from heart disease.

The prevention of heart disease in adults is a difficult problem, yet if foci of infection were found and removed, like pyorrhea, fissure and fistula in ano, successful prevention could be attained in many instances. Prevention could be sought and accomplished in two other directions. All people who have mitral lesions should be advised to take at stated periods, say every two or three months, fifteen to twenty grains of sodium salicylate with an equal amount of sodium bicarbonate three times a day, for five days in succession. Similarily, all those who have aortic disease should take periodically mercury and iodides; in one case the lesion is rheumatic which yields to the salicylates, the other is mostly syphilitic which bows to mercury. This measure spells prevention with a capital P in cases where the lesions are established; prevention in the sense that the progress of the disease is kept in reasonable abeyance.

The second measure of prevention which I cannot too strongly emphasize in cases where the lesion or lesions have gained a permanent footing, is the continuous administration of digitalis after a tendency to decompensation has once been noted. Keep the patient *digitalized* most of the time of his life. This method and measure prevent and delay failure of compensation, but to follow this doctrine one must first emancipate himself from the doctrine of "the cumulative effects" of digitalis and the fictitious terrors that go with it.

Dr. Barringer's paper is illuminating as well as enlightening. The "reserve power" of the human heart is an unknown "X," and if the doctor's method will throw light on its measurement and determination, he will deserve the blessings of both physician and patient. So far no clinician has been able to tell in advance what amount of "reserve power" resides in a given heart. I recall a man twenty-two years old, who contracted syphilis. During the evolution of the secondary stage he developed aortitis and a double aortic lesion. In the course of a few years he suffered from pneumonia twice, one attack was associated with a large pleuritic effection. He was also a victim of two violent attacks of acute articular rheumatism resulting in a double mitral lesion. Yet this man lived eighteen or twenty years, worked all the time at an exacting trade and died a father of a big family. Many of us must have seen patients with comparatively mild affections of the heart who quickly succumbed to them. I congratulate Dr. Barringer upon his results.

The drug treatment of heart disease is of the utmost importance. No matter what other forms of treatment have been employed, ultimately cardiac drugs have to be resorted to. The ground has been covered fully and ably by Dr. Alsever. I may add, however, that digitalis, iron and morphine are the three great and indispensable drugs in the treatment of heart trouble. We have got to come to them sooner or later. I advocate large doses of digitalis *when indicated*. A dram of the tincture twice or even three times in twenty-four hours in the presence of complete failure of compensation is good practice. In giving digitalis, whether in small or large doses, one must never fail to give a grain of calomel twice a week. There is no greater abuse of digitalis than by giving it without an indication, even when the dose given is homeopathic in size. No one can state the fact too often that the murmur, be it loud or low, soft or harsh, is no indication for the administration of digitalis.

Dr. Alexander Lambert, of New York: There was one statement that interested me very much, that is, the statement about angina pectoris. In treating that symptom complex, one must treat the underlying conditions and we should make a differentiation between the pathological lesions that lead up to that set of symptoms. In some cases the coronary arteries are the vessels affected, while in others they are not. It seems to me clinically that the more one deals with these attacks of angina the more is one impressed with the fact that many patients, so far as can be tested or seen, present some peculiar features. Why is it that one patient has angina, the other does not? There is a large group of patients with breathlessness and dyspnœa. When patients show such breathlessness, look to the coronary arteries and you will find that the arterial degeneration is the disease which produces it. I doubt very much whether an attack of pain at the time of the anginoid attack will be noted without real coronary involvement. If there is a mitral degeneration, or fibroid or brown atrophy, or fatty degeneration, you will not get breathlessness if the coronary vessels are not

involved. If they are involved there is pain or breathlessness and pain. They frequently go together. It is well to look and consider the sharpness of the pain which seems to be in proportion to the degeneration of the heart muscle. These facts have been impressed upon me from a clinical standpoint more and more as the cases present themselves. I think that the doctor who said that he could get no effect from the administration of digitalis within two or three days had better get a better preparation of that drug. If you are to give digitalis, give enough to get its effect.

Dr. Leo Handel Neuman: Those who presented this subject for discussion are to be congratulated. The progress, particularly as regards the function of the heart, has been revolutionary. This afternoon many of the advances have been brought before you, and there are other subjects, too, that have been presented that show the great interest taken.

Seven years ago, before this Society, I listened to what knowledge of the subject we then had as presented in a paper by Walter James. It is surprising that we have gained so much in so short a time, and it is a credit to Americans that so many advances in this field in medicine have been made by them.

In the discussion this afternoon, what interested me from a practical point of view were the remarks of Dr. Halsey. There were many points brought out that were very interesting and valuable. One in particular was in regard to the use of salicin in cases suffering from rheumatic conditions of the heart. Here the salicylates at times are of great value. It is wise at this time to call attention to the fact that the salicylates do, at times, have some toxic effect on the heart. As we all know the salicylates are largely eliminated through the kidneys and we must bear in mind the possibility of their toxic effect when administering this agent. I am satisfied that the salicylates do produce toxic symptoms. I recollect that in some cases the stopping of the salicylates has been followed by a decided improvement of the cardiac action. This has been shown not only by ordinary clinical methods, but by the use of the electrocardiograph as well.

With regard to the question of nausea following the administration of digitalis, one doctor stated that often this was an indication for the further administration of digitalis and I would say that this is so. However, I feel that in some cases there is no idiosyncrasy and the digitalis does produce nausea, and where this recurs we should not persist in giving it.

With regard to the use of phenolphthalein in heart disease, I wish to utter a word of warning against its indiscriminate use because of its toxic action on the kidneys. As Dr. Abrahams has stated, the majority of these cases of heart disease are attended with constipation, but there are cases that are accompanied with cirrhosis of the liver and cases of mitral involvement of long standing and also cases of hepatic congestion which are not infrequently accompanied with diarrheal conditions.

In some cases disturbance in the circulation brings about marked disturbance of the kidneys and here phenolphthalein is liable to become a toxic agent. Six years ago I reported three cases of the toxic effect of phenolphthalein and these effects should be borne in mind because of the indiscriminate use of it by the laity, an agent which has been foisted on them by means of advertising.

Dr. Louis Faugères Bishop of New York: There have been so many good points brought out in the papers and the discussion that I will attempt only to emphasize a few of them. One of the great advances in the treatment of heart disease was taught me by reading an article by Groedel, of Nauheim, a paper read before an international congress on "The Use of Digitalis in Chronic Heart Disease." Dr. Abrahams has emphasized some of the points. This article by Groedel has been such a guide to me that I keep it locked up. The results of a broken compensation as treated by only attending to the attacks are awful to consider. A patient with valvular disease of the heart should never be discharged, but so managed as to prevent breakdowns; of course we cannot cure the valvular lesion.

The work of Dr. Barringer, Jr., has a marked value. It is another method of appraising heart conditions. I have had the pleasure this week of examining two men who were rejected from army service because the heart was irregular. After examining them carefully, backed up by X-ray electrocardiographs, etc., I have enabled those men to obtain their commissions in the army. The question of heart conditions is of broad importance at the present time. The army examiner often examines the recruits under conditions of excitement. Athletes as well as soldiers get heart symptoms when under the excitement of an examination or a contest.

Dr. Alsever's résumé is a masterful production and one on the whole complete, particularly after Dr. Schoonmaker's remarks about the Nauheim treatment. We must keep our therapeutic lamps burning in this country now that the resorts in Europe are down and out. I am a believer in the Nauheim method. The baths should be given without discomfort and without doing any damage to the patient. Dr. Schoonmaker brought this out very well.

Dr. Lambert spoke of anginoid pain. In adults the pains are more of muscular origin. Mackenzie in his work on the heart lays down

some general principles concerning pain having its origin in hollow muscular organs that are worth considering.

Dr. De Lancey Rochester, of Buffalo: This afternoon's program is exceedingly interesting and there is no time left for us to offer compliments. There are one or two subjects on which I should like to speak. In connection with Dr. Halsey's and Dr. Abrahams' statements, Dr. Halsey said that the younger the patient the better the chance of recovery. Dr. Abrahams rather doubted that. I personally think that under ordinary management of these cases Dr. Abrahams is right; the younger the patient with heart disease, the worse is the prognosis. Dr. Halsey probably was speaking of patients in convalescent homes where, if the cases are properly handled during convalescence, the prognosis is better. I have never seen a patient with mitral stenosis get so that he could get around to any great extent. Mitral stenosis is the most serious valvular lesion of the heart. There is another thing regarding the prognosis of cases which have syphilis at the bottom of the heart lesion. I firmly believe that patients with cardiac syphilis should be under a long antisyphilitic treatment. I will briefly relate the histories of two cases: One patient, an old gentleman of 65 years of age, had been under treatment in various institutions and treated for cardiac disease. When I saw him something occurred to me to make me think he had syphilis. I found the Wassermann 3-plus. He was placed at rest and given antisyphilitic treatment. When I first saw him he had edema, aortic insufficiency and the other evidences of cardiac decompensation. Under rest and the antisyphilitic treatment of intramuscular injection of mercury he recovered almost entirely. One and a half years later he had an acute pneumonia. He did well while he was under the mercurial treatment. Salicylate of mercury was given and no cardiac drugs at all.

The second man observed also had syphilitic disease of the aorta. Two years ago he had failing compensation, etc. I had him go to bed and placed him on antisyphilitic treatment. He comes back once in every three months for a course of mercurial injections. He omitted treatment one time and I found the Wassermann reaction 2-plus. By treatment I was able to keep the Wassermann away. He was able to work on his farm. He was in the meantime given digitalis for fifteen months.

I should like to ask Dr. Barringer, Jr., what he considered the best test for cardiac insufficiency. I have had but little experience in scientific measurement of this state. In the hospital when it came to a point where the patient could take exercise, he was allowed to walk the length of the ward, and was then wheeled back in a chair. The pulse rate and blood pressure were taken before, immediately after and one hour later. At the end of one hour if the blood pressure was where it was before the walk and the pulse not increased, he was allowed a little more exercise, but we were careful that he was not overworked.

With regard to the Nauheim baths, the original treatment was for those suffering from cardiac neuroses. Personally I have found no use for the Nauheim baths in organic disease of the heart. I believe that institutional treatment is more important than the giving of these baths. It is the moderate exercise that does much good and is of such great value.

Dr. Robert H. Halsey, of New York: The nausea accompanying the administration of digitalis has been rightly attributed to the effect of digitalis and this should be emphasized, that it is the digitalis and not the form or preparation. In that the nausea is of central origin it resembles the nausea of sea-sickness.

In conditions of auricular fibrillation, if the rate of the contractions of the ventricle are not promptly reduced, either the drug is inert or the dose is too small. The response of the heart in each case is a physiological test of the preparation used.

The routine use of digitalis in patients with pneumonia is accompanied in about 10 per cent of the cases by heart block, which may be present without slowing the ventricular rate, and, therefore, is overlooked. For this reason it seems to me to be bad therapy to use digitalis unless there are definite indications which pneumonia *per se* cannot be considered.

Some sign of circulatory failure being threatened should be observed before recourse to this drug.

In old people with arteriosclerosis, nausea without the slowing effect may occur and require the use of small doses over longer periods of time or discontinuance of the drug. These cases are in my experience of infrequent occurrence.

Dr. Theodore B. Barringer, Jr., of New York: As to the use of digitalis it might be interesting to tell you the method used at the New York Hospital in prescribing digitalis. For a patient weighing 150 pounds, the average maximum total dosage is considered to be five drams of the tincture. If a rapid effect is desired the initial dose may be one dram, followed by twenty minims three or four times daily until a total of five drams has been given.

In regard to the question of the treatment of angina pectoris, no mention has been made

of diuretin which was introduced to the medical world by Vienna in the '90's.

As to Dr. Lambert's statement of the differentiation between cases of angina and arterial sclerosis, the work of Oppenheimer at the Mount Sinai Hospital in New York has shown that cases with coronary sclerosis have in many instances a characteristic electrocardiogram.

With regard to our test of the cardiac reserve power the Chairman published a paper on this subject some years ago, and I have made some comparisons with my test and found that sometimes we were in accord and sometimes we were not.

If we wish to test the function of any organ the rational way would seem to be by calling that organ into action.

The time consumed in each exercise is from fifteen to forty-five seconds, with a rest of five minutes following. The blood pressure is taken with the patient in bed or sitting up. The first reading is made from twenty to thirty seconds after work, the second reading from fifty to sixty seconds after work, and the third reading ninety seconds after. All readings are made by auscultation.

Dr. W. Dewey Alsever, of Syracuse: Dr. Abrahams has differed with me in regard to the relative value of drugs in heart disease. I think that the difference is mostly in the choice of terms. For instance, if a patient with heart disease has pneumonia, the pneumonia must be treated. If the patient is constipated, the constipation must be treated. Every patient must be examined exhaustively. Do all you can in general for the patient before you plan the treatment of heart disease by drugs.

With regard to the dosage of digitalis in heart disease, Dr. Abrahams believes in large dosage and so do many of us. Dr. Lambert suggests that we should get an effect from the use of digitalis within twenty-four hours; if we accept that statement we must criticize the results of treatment, for many times we do not get results in twenty-four hours. Such results, however, can be obtained by the intensive use of the drug. In pneumonia cases the cardiogram will show the results of digitalis in thirty-six or forty-eight hours. Perhaps the patients Dr. Lambert had in mind were in some hospital and receiving usual hospital treatment in addition to digitalis. One cannot overlook treatment by rest, regular diet, sleep, etc., for with such measures alone improvement will often be as prompt as though digitalis had also been given.

As to the use of salicylate of sodium, it is true that the administration of this drug puts added work upon the kidneys. The question then is, whether the salicylates, producing such a burden upon the kidneys, are more harmful than the possible help the salicylates may be to the heart. We should keep in mind that there is reason to expect the salicylates to have a good effect upon the heart and consequently we should use them judiciously.

In reference to the use of the electrocardiograph during the administration of digitalis, I do not know of any change noted by its use. Seasickness is a nausea resulting from disorder of the central nervous system. Only two days ago a patient told me she was nauseated at once by the taking of digitalis; it was probably not true that it was the digitalis that nauseated her; the trouble was a psychosis. It was my duty to tell her that it was her mental attitude that caused the trouble. Sometimes it is better to stop the digitalis for a time in order to pay respect to the patient's feelings.

In giving digitalis I believe it would be better if we forgot valve lesions and thought more about how much reserve power remains in the heart.

In regard to the use of diuretin in angina, this drug does not act against the pain but does relieve the overburdened circulation through diuresis. The anginoid pains are the cries of an overworked heart and blood vessels.

In conclusion I should like to call attention to the situation we find ourselves in with regard to tuberculosis. We believe in the recognition and treatment of incipient cases. Transfer that belief to the consideration of cardiovascular cases, and again the all-important thing is the recognition and early treatment of incipient cases. If we wish to accomplish most we must get the incipient cases and then our efforts in the treatment of cardiac diseases as well as tuberculosis will be better rewarded.

Dr. Hubert Schoonmaker, Clifton Springs: One reason we do not agree concerning the treatment of angina is that cases with mild symptoms are not always so diagnosed. Chest pain originating in the heart, no matter what the degree, should be classified as angina. The misnomer, pseudo-angina, should not be used. Thus would be drawn a distinct line of cleavage between angina pectoris and other conditions associated with chest pain. While the classical attack is associated with coronary sclerosis, cardiac overstrain, either from physical causes alone or secondary to myocardial insufficiency following infection and independent of coronary sclerosis, is frequently accompanied by anginoid pain. In such cases pain does not return after the normal myocardial function is restored.

Lest it be understood that we consider hydro-

therapy the essential factor in the treatment of heart disease, I wish to say that such is not the case. Rest, exercise, either passive or active, diet, drugs, with saline carbonated baths insure best results.

Dr. John M. Swan, of Rochester: I wish Dr. Barringer would express his opinion concerning the method of testing myocardial efficiency which I have studied and which I reported to the Climatological Association in 1914. The pulse pressure is divided by the systolic pressure and the resulting factor is called the cardiac efficiency factor. Tigerstedt, who originally suggested the method, found that the normal myocardium gave a factor between 25 and 35. It has seemed to me that a factor above 40 indicates definite heart muscle disturbance; a factor between 60 and 70 indicates a serious disturbance; and a factor from 70 to 80 indicates the imminence of the fatal termination of the case.

WHOOPING COUGH IS PREVENTED BY VACCINATION.*

By GEORGE W. GOLER, M.D.,
Health Officer,
ROCHESTER, N. Y.

ALTHOUGH in 1916 whooping cough prevailed to such an extent in Rochester as to cause twenty-nine deaths, there were but 396 cases reported. Whooping cough is a curious example of the sole infectious children's disease which, with us, reaches its height in the summer. So, during the summer months while the thirteen infant welfare stations were open, we directed our energies toward trying to prevent whooping cough. In this work we do not believe that we shall succeed in materially diminishing the death rate from that disease, but we do believe that through preventive inoculation for whooping cough, as carried on here and elsewhere, the disease may be materially diminished in virulence and limited in the number of children which it attacks.

Following the observation of Hess in New York in one of the orphan asylums in that city, we were interested to note that of the children in our infectious disease wards at the Rochester Municipal Hospital, none came down with whooping cough who were exposed to it if they had previously been given three protective inoculations of pertussis vaccine of 500 million, one billion and two billions (in older children sometimes larger doses) four days apart.

Hess' observations and those of our own led us to believe that whooping cough might be prevented, and to that end we at first purchased whooping cough vaccine in bulk and put it up in ampules for distribution to physicians. Later we were able to secure whooping cough vaccine in quantities sufficient for our purpose from the State Department of Health.

We then published a booklet on whooping cough, advertised in the street cars in English and in the newspapers in English, Italian and German, and distributed the vaccine to physicians without cost. As a preliminary some 2,000 vaccinations were made by physicians in this way. Then, when our thirteen summer child welfare stations opened, we had physicians in attendance on stated days during the week, and the nurses let it be known through the district that free whooping cough vaccine would be furnished at the stations. At first but few children came, but the second and third week they began to come in crowds, and in the fourth and fifth week at two of the stations we had to get the police to help us keep the mothers with children in line, so that they might have protective inoculations against whooping cough. We advertised as follows:

WHOOPING COUGH
A Dangerous, Infectious or Catching Disease
BE VACCINATED AGAINST IT.
It Caused Nearly as Many Deaths in Rochester in 1915 as Measles, Scarlet Fever and Diphtheria.
HEALTH BUREAU,
ROCHESTER, N. Y.

WHOOPING COUGH
KILLED
10 Times as Many Babies in 1915
AS DID
INFANTILE PARALYSIS.
Is Your Baby Vaccinated Against
WHOOPING COUGH?
Ask Your Doctor or Go to the Welfare Stations
AT
Schools Nos. 4-5-9-10-17-18-26-27
Monday, Wednesday, Friday, at 11 A. M.
Have a Schick Test, and if Necessary, Be Vaccinated Against Diphtheria. The Doctor or Nurse Will Explain.

WHOOPING COUGH CAN BE PREVENTED
In 8 out of 10 Cases by Vaccinating Your Children with Whooping Cough Vaccine
ASK YOUR DOCTOR ABOUT IT.
Book on Whooping Cough FREE for the Asking
By Mail 5 Cents
HEALTH BUREAU.

When the stations closed in September, we went into the eight schools having school nurses and announced that children who desired it might be vaccinated against whooping cough. All told, physicians in practice and the Bureau, we suc-

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 25, 1917.

ceeded in vaccinating more than 10,000 children. Up to the time of writing this report, we have estimated from reply postals sent to all physicians that less than 5 per cent of the vaccinated children came down with the disease. We believe that this work is sufficiently encouraging to lead us to continue it, and next summer we shall try to get the young babies vaccinated, as it is in children under one year of age that the disease is most dangerous and the immediate mortality largest. Then in children we shall administer four doses four days apart, 500, 1,000 and 3,000 million, following the recommendation of Dr. Anna Williams of the New York City Department of Health.

An interesting side feature of whooping cough vaccination was the moving pictures we made of the work being done at the welfare stations; used later in talks in the schools to encourage other people to have their children vaccinated against whooping cough.

Of course, whooping cough is so badly reported that we have yet no means of knowing much about the effect of vaccination upon the rise or fall of cases of whooping cough, and until we can vaccinate large numbers of babies under one year of age, we cannot tell from the death rate whether whooping cough is diminishing or not.

Concerning the length of time for which pertussis vaccine offers immunity, our experience teaches us only a little. We have had two children exposed to whooping cough just after being vaccinated who did not contract whooping cough until a year afterward. One of these patients had whooping cough in such a mild form that it was somewhat difficult to make a diagnosis; the other had whooping cough severely. In thirty-five patients who came down with the disease after whooping cough vaccinations, about half of them seem to have had the disease in modified form, so far as can be determined.

The thing that we have done in this work is to popularize whooping cough vaccination among the people and physicians, and through the State Department of Health to make it possible to get pertussis vaccine for the asking. The work of physicians, the advertisements in the newspapers, the whooping cough booklets, have all helped to make some people realize that it is valuable to try to prevent whooping cough before the disease attacks the patient. I think, perhaps, the popularity of whooping cough vaccine in Rochester may best be explained by the story of a German who came into the office one day and said, with a very pronounced foreign accent—"My child got the whooping cough. I said to my wife, 'Mary, you should go down by de Healt Bureau und get the child vaccinated against whooping cough.' About two months afterward this child began to cough mit whooping cough, und den I said, 'Mary, you didn't do what I told you, the child got de whooping cough. Now you got to take care of her, you got to have de doctor. And, Mary, I want you should take de children and go down to the Healt Bureau und get all of dem waccinated against efery disease wat dey can get waccinated against."

Such is the beginning of a new era of preventive medicine, which is taking hold of the people; and one of these days we are going to vaccinate children against every disease "what they can be vaccinated against."

Discussion.

Dr. Henry L. K. Shaw, Albany: I read a paper on this subject in the Section on Pediatrics this morning. When I decided to write the paper I wrote a letter to Dr. Goler to inquire into his experience with the pertussis vaccines, and was told that Dr. Goler was writing a paper on the same subject, so I did not send the letter. As we all know, Dr. Goler was a pioneer in the crusade for pure milk and the reduction of infant mortality. The welfare work of this kind that he started was among the first in the State. He is again blazing the trail in his work of prophylactic vaccination against whooping cough. Two years ago he led me to try the prophylactic doses of vaccine in St. Margaret's Home, where previously whooping cough had been shown to be a most dangerous disease, 60 to 80 per cent of the children coming down with it in the course of each epidemic. After using the prophylactic doses in 136 cases only about 7 per cent of the children developed whooping cough.

In the treatment we did not have so much success with the vaccines; in 40 to 50 per cent, however, there seemed to be a definite improvement. The vaccine prepared by the State and New York City Health Departments is better than the commercial preparations, which are polyvalent. When we used the commercial preparation about 14 per cent of the children came down with whooping cough, but when the vaccines were made from pure cultures of the Bordet-Genou bacilli in our own laboratory only about seven or eight per cent contracted the disease.

This morning I also called attention to the fact that there were several strains of the Bordet-Genou bacillus and that the bacillus of influenza might also produce a cough quite similar to that of whooping cough and that these two facts might explain some of the failures of the whooping cough vaccines.

As to the length of time the immunity lasts, that is a thing we know very little about. We have had epidemics for the last three years started by cases of whooping cough not recognized at the time of admission to the home, and we have vaccinated the same babies two or three times.

In the treatment of some cases in private prac-

tice, I have seen a very decided improvement after two or three inoculations. I believe that when a case of whooping cough occurs in a family the other children should have the prophylactic vaccination. There are, however, some cases which the vaccination does not seem to give us any help.

Dr. Robert Selden, Catskill: There is in every individual a certain amount of immunity to all kinds of infection. I had an illustration of this in my family. Mrs. Selden said to me "Our children are preparing to have the whooping cough." A neighbor's children were having the whooping cough and our girls were holding their heads during their paroxysms of coughing and helping them out. To our surprise neither of our children were infected at that time, yet a year after that they both came down with whooping cough.

I think the whole country needs education along the lines of using prophylactic vaccination. Several times this Spring I have been called to one school and told that a child was coughing and probably had whooping cough and I have followed these children up and talked with the parents and they say "We want the children to get the whooping cough now, when the warm weather is coming on, for that will be better than having it next winter." "If they have it now they will not be so sick." That is a common experience, and if these people can be educated to think otherwise it will be a great step in advance. I mean to try the vaccines.

Dr. Charles Krumwiede, New York: When it comes to a question of therapy, I am not certain of the value of vaccines, nor how far any results obtained depend upon specificity. Dr. Goler has said that he doubts whether we can do much with the vaccines therapeutically. It still remains to be proven how much they are worth therapeutically.

Dr. George W. Goler, Rochester: It still remains to be shown that pertussis vaccines are of much value therapeutically.

Dr. Shaw has brought out a point with reference to vaccination in hospitals and has told the way in which he keeps whooping cough away. I have been much impressed by the fact that if a little child comes to a hospital with gonorrheal vaginitis or cervical gonorrhea, or with the eyes destroyed from failure to use nitrate of silver we have put these children in the wards with others. We can prevent the spread of these infections by prophylactic vaccination. Children should not first be vaccinated against whooping cough, but should be given the Schick vaccination, and should be vaccinated against all diseases where vaccination has been shown to afford protection. If there is a typhoid case about and those likely to be exposed are not vaccinated against typhoid fever they are as foolish as the mariner without a compass.

AN EPIDEMIC OF BACILLARY DYSENTERY.*

By JOHN A. SMITH, M.D.,

ALBANY, N. Y.

DURING the summer of 1916 there occurred in one of the third-class cities on the Hudson, having a population of 35,000, an epidemic in the course of which 227 cases of intestinal disease occurred. As many of these were later proven by bacteriological examination to be true bacillary dysentery, it is only fair to assume they were all more or less severe types of the disease. Of these 227 cases forty-nine died, the cause of death being given as bacillary dysentery in sixteen instances.

The epidemic covered a period of about two months and extended from the latter part of July to the last of September, although several cases had occurred prior to July 15.

I was assigned by the Department to investigate the epidemic at about the time it had reached its height—on August 27—which was also about the time the poliomyelitis epidemic had reached *its* height in the State outside of New York City.

A considerable number of cases of poliomyelitis having occurred in the city, the local health officer and the city health department were bending every effort to control the poliomyelitis epidemic when the dysentery epidemic was engrafted on it.

The local physicians at the onset, not suspecting their dysentery cases to be other than ordinary cases of summer diarrhea, did not report the same to the local health department and, owing to the fact that the local registrar of vital statistics at that time was not required to report *all* deaths from communicable diseases to the local health department, the health officer engaged in the control of the poliomyelitis epidemic was not aware of the occurrence of an undue number of deaths from intestinal diseases.

However, as soon as he learned of their occurrence and of the existence of a large number of cases of dysentery in the city he at once sent a circular letter to all physicians calling their attention to the fact that bacillary dysentery was a reportable disease under the Sanitary Code, with the result that from the time of the issuance of the circular letter on August 8 to the date of commencement of my investigation on August 27, seventy cases of dysentery had been reported—an average of about four a day. During this time I learned from the registrar that there had occurred twenty-one deaths from dysentery, thirteen of which had been reported as of the bacillary type.

Bacillary dysentery we know to be caused by

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the bacillus dysenteriæ, an organism closely resembling the typhoid bacillus in cultural respects. There are at least two well-recognized types of B. dysenteriæ—one corresponding to the original organism described by Shiga in 1898 and Kruse in 1900 as found by them in epidemics in Japan and Westphalia, and the other to that described by Flexner in an epidemic at Manila in the Philippines. In addition to these main types there are several varieties of less importance, not being so widely distributed. The B. dysenteriæ described by Flexner must be considered as the representative of a group of closely allied bacilli which differ slightly among themselves as regards cultural, serological and biological characteristics but still have features in common which separate them from the Shiga and Kruse group. Furthermore, the clinical disease with which the Flexner strains have been associated is almost always of a milder type than that due to the Shiga-Kruse strain.

While an outbreak of the disease has seldom been traced to a person who has carried B. dysenteriæ from a previous epidemic, there is no doubt that convalescents after severe and also often from mild attacks of dysentery continue to pass the bacilli in the stools in large numbers for a considerable time after the symptoms have ceased.

Müller, recently, after an examination of 20,019 troops, in which he found 165 carriers of both para-typhoid and bacillary dysentery, emphasizes the necessity for repeated examination of carriers of bacillary dysentery as the conditions of their elimination vary at different times—his statistics showing that an indigestible meal or exposure to cold or wet is liable to bring on the disease in a previously healthy carrier.

Wars and the movements of armies have played a large part in the distribution of these bacilli. This was especially noticeable in Germany after the war of 1870-71. When the soldiers who had been attacked by the disease during the war returned to their homes some of them were still acting as carriers of B. dysenteriæ and set up epidemics in several parts of Germany. During the present war Kennedy and Rosewarne in an examination of several hundred British troops found six cases carrying B. dysentery. Likewise Barrett in his report of a search for dysentery carriers among soldiers coming from Gallipoli and Egypt (countries where dysentery is endemic), out of fifty soldiers examined thirty-three had had previous attacks of dysentery and three carriers were found. Arkwright, Yorke, Priestly and Gilmore, in an examination of fifty dysentery carriers report in British Medical Journal of May 13, 1916, that of troops examined all reported convalescence from illness over two months before investigation and of these, all excreted bacilli from three to six months after recovery, thus being potential sources of outbreaks.

For two months previous to the outbreak of dysentery in the city under investigation there had been established a military mobilization camp at Camp W———, for the mobilization of the State troops for United States service on the Mexican border. This camp was located about ten miles out of the city and at various times from three to six thousand troops had been encamped there and numerous cases of dysentery had been reported. A company from the city had been encamped there during July and returned to the city the first week in August—one week before the outbreak of the disease.

In order to learn of any possible connection existing between the dysentery at the camp and the outbreak in the city, I obtained, with the assistance of the local health officer, the names and addresses of the members of the company from the city who had had dysentery while at camp and were now living at their homes in the city. Securing the names of five such, we were able to obtain specimens of blood from but two of these. Both of those, however, gave the charactertistic agglutination tests with the B. dysenteriæ.

These men lived in a section of the city containing insanitary privies and several cases of dysentery had occurred in the immediate neighborhood. In addition to these recently ill patients who were likely to infect others directly by use of the same closets, on investigation numerous cases were found in the city which gave histories of attacks of dysentery from time to time, some existing over a period of years—these presumably forming so-called "reservoirs" or active distributing centers for the bacilli.

In looking up the deaths from all intestinal diseases in the city for the past three years I found that there had been thirty-seven deaths in 1914 ascribed to dysentery, enterocolitis, enteritis, etc., twenty-seven of which had been in children under five years of age; that in 1915 there had been twenty-nine such deaths, twenty-six under five years; and from January 1 to date of my investigation there had been forty-three already during 1916—thirty-six of which had been in children under five years in a degree endemic in the city among children during the first five years of life.

I also learned that seven cases of dysentery had occurred on an estate about seven miles from the city—the onset of the first case being on June 29 and the last on July 15. Two of these cases had shown upon examination of their feces the B. dysentery, Flexner type. The head of the household visited the city but there was no history of association with any of the future cases. These patients had their own milk supply and no food supply in common with the city cases.

Patients, convalescents and healthy carriers are frequently sources of infection in outbreaks of bacillary dysentery directly by the use of the same toilet which is especially apt to be fouled by persons suffering from the griping pains and paroxysms accompanying the disease, or less directly by such means as food infected by the hands, dust or flies, and in some instances by milk and water.

The population of the city consisted of a considerable number of foreigners, chiefly Italian, employed in the various foundries and machine shops. These Italians lived mostly in the easterly section of the city between W——— and M—— streets, running north and south, and the Hudson river.

On the outskirts of the city, adjoining the westerly boundary, is located a driving park. At this race-track during the last week in August and the first week in September were held the Grand Circuit Races. Many stable hands were employed at the track and their number was augmented by the races. Several of the stablemen and drivers boarded at a certain boarding-house, to be described later, near the track in the town outside the city.

The outbreak apparently consisted of two distinct foci—one of which existed in the westerly outskirts of the city in the adjoining town and appeared to be centered around the driving park; the other in the easterly section of the city, in the Italian quarter, where the larger part of the city's poorer population resided and where the sanitary conditions were the worst.

Here, then, were two different foci, each constituting a community "nest," one of which existed among the city's foreign population. It has recently been proven that no relationship exists between the prevalence of high temperature and the case incidence of bacillary dysentery, though this epidemic occurred during the season of highest temperature and humidity in the city. On investigation there was abundant evidence of filth in the Italian district and at the race-track it was said the men afflicted with the disease deposited their excreta on the manure pile outside the stables—freely accessible to flies to be borne to food exposed in many near-by dwellings. Thus the disease was spread by the careless, neglectful, poorer classes, squalor, poverty and filth going hand in hand with the advance of the epidemic. However, it should be remembered that insanitary conditions are not the *cause* of bacillary dysentery but contribute largely to its spread.

In looking up the possible relationship between the existence of insanitary privies and deaths from intenstinal diseases in the city I learned that on six different streets in the Italian quarter deaths had been reported for three successive years and that on eleven different streets such deaths had been reported for two successive years.

On further investigation I learned that during the present epidemic cases of dysentery had been found on all of these streets in houses where outdoor privies still existed with two exceptions.

In order to obtain a complete list of cases (since it was evident many cases had occurred which had not been reported to the health department) I inaugurated a complete census of the physicians of the city and secured from them the name and address of every patient who had come under their care suffering from dysentery since the beginning of the epidemic one month before. In this way ninety-eight cases were learned of in addition to the seventy reported to the local health department and a spot map was constructed from the list of cases thus obtained. Often the physician was able to furnish me with the information as to where the patient contracted the disease. The next step in the investigation was to make house-to-house visits to the cases—many of whom had recovered and some of whom had died—in order to obtain first-hand information from the cases themselves, their parents or friends, as to the date of onset of the disease; the activities of the patient for ten days previous; the history of the person as to contact with a previous case; the source of milk, food and water supply, etc., and furthermore, for the purpose of making a sanitary inspection of the premises on which the cases occurred.

In regard to the contacts it was found that the disease was much more likely to spread in a dirty, ignorant household than in the homes of the well-to-do, for when one member contracted the disease there were almost sure to be other cases.

In the case of contact with other cases in the same household it was found that older children and adults contracted a milder type of disease from their younger brothers and sisters; likewise a mild adult case caused fatal illness often in a child; further, if the patient remained in the household over one week after the onset of the disease we were almost sure to get secondary cases which made prompt hospitalization necessary.

In adults the disease was often called "ptomaine poisoning." The differential diagnosis being made from:

I. Symptoms.—In B. dysentery diarrhea preceded vomiting and was the chief complaint.

II. Bowel Movements.—In B. dysentery bowel movements changed from being like rice water in character to blood-stained and contained much greenish mucus.

III. Cases of dysentery came on separately from different households. If food poisoning we would have expected other members of same household to have been affected at same time.

IV. There was an immediate and complete response to administration of anti-dysenteric serum, showing neutralization of toxin.

V. Bacilli dysenteriæ were isolated from stools of the patients.

VI. Blood of patients after 10 to 12 days, agglutinated one or the other type of B. dysenteriæ and often blood from other members of the family agglutinated the bacilli in high dilutions, indicating that they too had had the disease.

In the case of suspected carriers we found it very difficult to isolate the bacilli from the stools but their blood nearly always agglutinated the bacilli and thus a tentative diagnosis was made.

It was found that hospital contacts were possible and no hospital was permitted to admit cases of bacillary dysentery unless rigid enteric precautions were taken and fly prevention provided for.

The number of cases in the city due to each cause was ascertained; housing conditions were observed upon the visits of the nurses to the houses, particular attention being paid to the screening of windows against flies, to the cleaning of toilets, to securing proper ventilation of rooms and proper provision for boiling of the diapers of infants and the pasteurization of milk.

It was found that in nursing infants the mortality, as might be expected, was much lower than in the case of babies who were bottle fed.

To obtain histories from so large a number of cases in order to ascertain the agent in spreading the infection, the services of three State Supervising Nurses were requested to assist in securing the data.

Upon their arrival the city was divided into three districts and each nurse supplied with a number of case report blanks. The nurses then proceeded to visit each case reported or found to exist and obtain the information asked for.

In order to assist the local physicians in the diagnosis of their cases the State Department at once established a branch laboratory in the city in charge of trained bacteriologists from the Albany laboratory division, since the exact diagnosis of bacillary dysentery can only be determined from clinical symptoms confirmed by examination of feces and agglutination tests made on specimens of blood from patients. A circular letter was sent to all physicians in the city offering them these laboratory facilities for the prompt examination of specimens of feces and for making the other laboratory examinations necessary for the complete study and control of the epidemic. These examinations were made on all reported cases to determine the presence or absence of the usual causative agent or to determine the existence of a carrier in suspected cases. Likewise examinations of blood for the agglutination test were made on all reported cases to determine the exact bacterial nature of the infection and similar examinations were made on recovered cases or wherever the case was suspected of being the cause of an outbreak. Where the blood of these convalescents showed a positive agglutination of feces were then examined for the B. dysenteriæ. Thus a constant search for convalescent, spasmodic or healthy carriers was kept up. A polyvalent dysentery serum was furnished the physicians for treatment of cases and dysentery vaccine was also furnished for the immunization of contacts.

B. dysenteriæ corresponding to the Flexner type were isolated from the stools of two cases; B. dysenteriæ corresponding to the Mt. Desert type from the stools of nine cases; while from the stools of eight cases there were isolated an atypic B. dysenteriæ more closely allied to the Shiga type but failing to agglutinate in a specific Shiga serum. Thus in this epidemic of bacillary dysentery three type of organisms of the dysentery group were found. Smilie in his report on the epidemic in Boston of last year reports the isolation and identification of the three types—Flexner, Mt. Desert and Shiga.

In studying the data obtained from the nurses' reports and received from the laboratory workers the distribution of the cases was found to be as previously stated by the local health officer—in two groups, one in the eastern and one in the western section of the city. As the entire city was supplied by the same water supply this was not suspected, nor did the character of the epidemic suggest a water-borne outbreak. However, the water supply which was obtained from the Hudson river (being both filtered and chlorinated), was investigated by a member of the engineering staff of the State Department and his report was that at the time of the investigation nothing was found to indicate that the water supply was at all connected with the outbreak.

The incubation period of the disease being three to seven days, the daily chemical and bacteriological analyses of the water for two weeks previous to the onset of the first case were examined. These records, on file in the office of the Superintendent of Public Works showed no evidence which would connect the epidemic with the water supply.

Of the total number of twenty-four dealers supplying the city with milk, representing some seventy producers, only two dealers were found supplying any number of cases of dysentery. One was supplying eighteen cases and the other seventeen. These dealers, as well as the producers supplying them, were then visited in order to learn if any cases of dysentery or suspicious intestinal disease existed on the premises and none were found.

A study of the age groups of the patients showed the largest number to have occurred between the ages of ten and twenty. The epidemic

was, therefore, not one of infantile diarrhea nor did it occur especially among milk drinkers.

The infection appeared to be spread by contact with the excreta of cases or carriers either direct or through the medium of food or flies.

These were the conclusions arrived at after a careful study of the data obtained from the 227 case reports furnished by the nurses.

Since none of the privies of the infected districts were screened flies were numerous about them and endo plates exposed inside privies in an infected district where flies were allowed to walk over the same after having fed upon the contents of the privy vault showed fecal contamination. The seasonal variation in the number of flies and cases of bacillary dysentery was described by Bahr in his study of the Suva epidemic in the Fiji Islands. Bahr also isolated dysentery bacilli from the intestinal tract of flies caught in the vicinity of patients suffering from the disease, thus confirming the observations of Graham Smith on the persistent vitality and virulence of bacilli of the colon group in the intestine of the domestic fly where they are capable of surviving five or more days.

The number of outdoor privies was the largest in the section of the city where the cases of dysentery were most numerous, showing the relation which the insanitary privy probably bore to the number of cases in the district.

The first case in the east side section occurred in a house where there was an insanitary privy in the yard and the recovered patient informed me that during the two weeks that he was seriously ill and passing large quantities of blood and mucus his stools were all placed in that privy vault without previous disinfection and thus became accessible to flies. This man's blood, seven weeks after his illness, gave the characteristic agglutination for B. dysenteriæ.

The spread of the disease by contact is best illustrated in an outbreak in the outlying town, adjoining the city. There on July 28 a stable hand working at the race-track became ill with dysentery. This man boarded at Mrs. B's boarding house and played with her grandchildren. One week after the onset of his illness the two grandchildren H—— and M. H—— were taken with the disease, and died. During the same week three other workmen—stable hands—at the race-track were taken ill. Two of these men lived together. The first case informed me he desposited his excreta on the manure pile in the driving park. Following the death of the two grandchildren at Mrs. B——'s boarding house, five days later, the grandfather B—— was taken ill and died of the disease. Two days later a child living in a house in the rear of Mrs. B——'s boarding house, where the B—— family obtained their water, was taken with the disease. There had been frequent visiting between the two houses. The following day the daughter of Mrs. ——, who kept the boarding house, was taken ill with the disease and died. Two days later Mrs. ——, in the house in the rear of Mrs. B——'s, was taken ill and died. The same week two other men employed at the track were taken with the disease in a mild form, giving a history of intimate contact with fellow stablemen ill the week previous. The next case was the mother of the two children who had died—the daughter of Mrs. B——, who had nursed her children two weeks during their fatal illness and her father one week previous. The same week a Mrs. H——, who boarded at the B—— boarding house, was taken ill the day after she returned to her own home. This same week Mrs. B—— herself, who had nursed her husband during his fatal illness eleven days previous and her daughter, who was then ill, also came down with the disease and recovered. A total of fourteen cases and five deaths from apparent contact infection.

The cases all gave a similar history of an incubation period of one week or less after exposure, with an onset of pain, mild fever (102°), profuse mucus and bloody stools varying from ten to thirty in number in twenty-four hours, followed in some instances by profuse hemorrhage from the bowels. Prostration was extreme and death from exhaustion, together with inability to retain food on the stomach, was most frequent.

The duration of the disease was from one week in children to two weeks or longer in adults. There were two recurrent cases. There were no complications of serious import.

The health officer circularized the physicians a second time calling their attention to Regulation 16 of Chapter II of the Sanitary Code relative to the disinfection of excreta, also to Regulation 37, forbidding the sale of food from infected premises. Instructions were sent to all households where there were cases of dysentery, calling their attention to the need of proper cleansing and disinfection of their hands after being contaminated with fecal matter or after nursing the sick.

Milk bottles were kept on the premises until termination of the disease, when they were disinfected with boiling water and returned to the milk men. Mothers were instructed, where bottle feeding was necessary, to protect everything connected with baby's feeding from flies. The pasteurization of milk was recommended and the screening of sick rooms, kitchens and dining rooms against flies was urged.

All open privies were cleansed and disinfected by the health officer and notices served on property owners where privies existed to connect them with the sewer where available. Exposed

rubbish heaps were removed and closed receptacles required for manure and garbage.

Food exposed for sale in public places was ordered screened as per city ordinance and official inspection of public eating places instituted to enforce such ordinance.

The isolation of all reported cases of dysentery for a period of three weeks, together with three negative examinations of feces before release from quaratine was also recommended.

Inasmuch as the endemic occasional cases which occurred in the city previous to last summer and have occurred during the past winter since the epidemic, depend, mainly, upon contact infection with the exreta of convalescent or healthy carriers, it is my belief that the epidemic of last summer was in a large measure due to flies. The influence of flies on the spread of this as of other epidemics has been suggested by Shiga and others and found most ample circumstantial support in this epidemic.

Discussion.

DR. HENRY L. K. SHAW, Albany: I am glad the point has been brought out and emphasized that many of these diarrheas are contagious. You will all recall that when Flexner discovered the bacillus which bears his name he called attention to the fact, though he did not claim to have found the cause of all infantile diarrheas and summer diarrheas, etc. Twelve or fourteen years ago I made a study of the stools of all cases of the ileocolitis type. In all of these cases in which there were thick gelatinous masses of mucus and blood we found the Shiga organism. I wrote a paper on this subject with Dr. Pease in which we called attention to these findings. I have observed that if this type of ileocolitis gets into an institution it spreads like wild-fire. The lesson to be learned is that these cases should be isolated like any other contagious disease. The nurses caring for these cases should be taught to wash their hands after handling these patients, and the same nurse who cares for the patients should not prepare the milk or wash the bottles. Such regulations should apply in all institutions. Dr. Smith has brought us a most excellent and beautiful study.

I also wish to speak of the necessity of keeping track of the dysentery cases in the summer. Our records show a large amount of dysentery during the summer months. We should call the attention of physicians to this fact and to the importance of reporting these cases. They should be required to report these cases to the Department of Health and the Department is ready to furnish the serum. The Department is equipped to make the bacteriological examination but it must be made early in the course of the disease and the specimens must be obtained in the proper way and kept in the proper way until they can be examined.

Furthermore, the matter of isolating these cases of dysentery is very important. We must teach that this disease is communicable and that patients must be isolated in order to protect the community.

As to the cloud-burst in Dannemora: The reservoir was located at the bottom of the mountain and it seems that in all probability material had been washed down from above and contaminated this reservoir. They now use the general water supply and have sewers and have been having no more trouble with epidemics of this kind.

DR. J. B. RANSOM, Dannemora: I would like to ask Dr. Smith whether he has had any experience with epidemic dysentery following a cloud-burst. In Clinton Prison, Dannemora, New York, following a cloud-burst, we had an epidemic of dysentery, in number 246 cases. In these days laboratory findings were not to be had, mortality was not high, but convalescence was protracted. About two years later there was a recurrence after a similar cloud-burst, in which 126 cases developed. Considering the topography of the locality, I cannot understand how the epidemic came about, as the country lying in the direction from which the storm came was unpopulated. The only way I could account for it was, that there was a distributing reservoir at or near the foot of the mountain, which possibly may have become contaminated, for since the water supply of the institution has been changed and that particular reservoir abandoned, we have no cases of dysentery in this institution. Notwithstanding this, I am still at a loss to know just what was the cause of this epidemic, or where the infection came from.

DR. CHARLES S. PREST, Waterford: It seems to me that we see in the splendid description of this epidemic at Poughkeepsie as in many other things that hind-sight is better than foresight. We have learned considerable this afternoon and we should be able to make a diognosis in these cases to-day where we could not have done so ten or twelve years ago. * * * *

DR. F. W. SEARS, Syracuse: A point to be emphasized is in reference to flies. The popular opinion is that we should swat the fly or poison the fly or get rid of him in any way possible but I think we should go one step further and prevent the breeding of flies. We should use our most extreme efforts to do away with breeding places of the fly.

DR. LEROY W. HUBBARD, Mount Vernon: Bacillary dysentery is a disease with which we are not sufficiently acquainted; an outbreak of what is ordinarily termed summer diarrhea may be bacillary dysentery. For example, we had in a small rural community in the village of Pat-

terson, in Westerchester County, some 30 or 40 cases with several deaths which neither the health officer nor the physicians thought to be anything more than cholera infantum of a severe type such as we see in younger children. It was not until the matter was brought to my attention that anything was determined about it, but in one or two cases bacilli that were apparently of the Shiga type were isolated at the State Laboratory. Attacks of dysentery or of diarrhea of severe type ought to be brought to the attention of the health officer for an outbreak of bacillary dysentery may occur at any time in this state.

Dr. Frank Overton, Patchogue: Dr. Smith has had some interesting experiences with serum in his dysentery cases. It will be profitable for us to hear about the kind of serum used and the results that were attained.

Dr. John A. Smith, Albany: Dr. Overton has asked in regard to the use of serum. The State Department of Health is now prepared to furnish polyvalent dysentery serum and such serum was used in this epidemic. The first serum we used was obtained from the Rockefeller Institute, but the Department is now in a position to furnish it for these cases.

I wish to cite just one instance showing its efficiency. The mother of a large family was reported early one morning very sick, having had twenty or thirty bowel movements since midnight. We gave her 20 c.c. of the polyvalent serum about ten o'clock, subcutaneously in the groin and removed her to the hospital since it was impossible to secure proper nursing at home. She was much improved by evening. Within twelve hours she was given 10 c.c. more of the serum, and the number of movements was reduced to two in the next twenty-four hours. One more injection of 10 c.c. was administered. We rarely administered more than three doses of the serum.

The State Department is also prepared to furnish dysentery vaccines for the different types of dysentery. In the above instance every other member of the household was vaccinated, and the vaccination repeated in ten days, three doses being given. Almost surely the entire family would have contracted the disease had these contacts not been immunized.

I wish to emphasize the importance of careful observation of any undue number of cases of diarrhea in a community and to ask you to bear in mind also that the State Department of Health is ever ready to furnish a laboratory diagnosis, vaccines, and serum treatment of the disease. In order to control dysentery we must have, as in all other communicable diseases, the cooperation of health officers and physicians. We must guard against the occurrence of epidemics due to the failure to report suspected cases at the onset.

ROLE OF FOOD IDIOSYNCRASIES IN PRACTICE.*

By FRITZ B. TALBOT, M.D.,
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FOOD idiosyncrasies[1] have been recognized for many years, and from time to time cases have been reported of children who could not tolerate either eggs or milk. Such cases have been described as clinical entities, and could not be explained until recent advances in medicine proved that they were of anaphylactic origin. Anaphylaxis is too broad a subject to be discussed in the scope of this paper, but a few definitions are necessary before taking up the discussion of food idiosyncrasies.

Active anaphylaxis results when a foreign protein is injected in small amounts into an animal at intervals of at least nine to fourteen days. After the first injection there is no visible reaction. The second injection, however, is followed immediately by charactertistic symptoms which are often very severe, and which in some cases may result in death.

Passive anaphylaxis develops in a normal animal within a few hours after the injection of the serum of a sensitized animal of the same species. An animal may transmit to her offspring, during pregnancy, any sensitiveness present in her.

Anti-anaphylaxis occurs for a short period after anaphylactic shock. During this period an animal will not react to the protein to which it has been sensitized. After the anti-anaphylactic phase, the animal again becomes sensitive without further injections of the foreign protein.

Immunity follows repeated injections of foreign protein at short intervals (three to four days).

These facts, which have been established in the laboratory by means of animals, are of the greatest value in giving us a working basis upon which to build our conception of anaphylaxis in the human. There still remains, however, many points to be cleared up, but there is enough conclusive data on hand at present for the clinician to apply and put to practical use.

Acquired sensitization is comparable to active anaphylaxis in the animal. The method of sensitization in the human is not clear in many instances. We must pre-suppose that the first human to acquire sensitization had the foreign protein introduced directly into the blood. At first glance it would seem that the subcutaneous injection of horse antitoxin for therapeutic purposes, would be the only example of acquired sensitization. The dose of antitoxin, however, is usually so large and the interval of injections so close together that a high degree of sensitization is not obtained. This, however, is not the sole means of active sensitization. It has been proved that during the first days of life a foreign pro-

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 25, 1917.

tein can pass through the healthy mucous membrane of the infant's digestive canal[2]. In later months an injury to the mucous membrane is necessary before the foreign protein can pass unchanged into the blood[2]. Such injuries may occur in severe indigestion, infectious diarrhea or ileocolitis. If in such instances the proper dosage of foreign protein has been given at the proper intervals, the infant becomes actively sensitized.

Hereditary sensitization is comparable to passive anaphylaxis in the animal, but differs in that it may be transmitted from the paternal branch of the family as well as the maternal. By far the majority of cases of hypersensitiveness give a family history of one or another of the diseases which may be ascribed to anaphylaxis. The writer has been able to trace a definite history of sensitization through three generations in several instances, and in twenty-nine out of thirty-six cases studied there was a definite family history of either asthma, hay fever, or eczema.

Skin Test: The technic of the skin test has already been described in detail in a previous article[3]. This test is the specific reaction of the skin to a foreign protein, and may occur even in an unbroken skin. In doing the skin test it has been found to be more satisfactory to use a linear incision in preference to the round von Pirquet scarification, as there is less mechanical injury to the skin. Many skins, especially in individuals who give a tache cerebral, or who have any form of eczema, are so delicate that the slightest mechanical injury is sufficient to cause a pseudo-reaction, which may be confused with a true reaction. An extra scarification should be, therefore, made for comparison in all cases, as a control. A positive reaction is characterized by an irregular outline both in the urticarial wheal and the surrounding roseola, while a pseudo-reaction has a regular outline.

The intra-dermal test is made by injecting 0.02 c.c. of the foreign protein to be tested into the layers of the skin. This test is the most sensitive of all skin tests but is harder to interpret than the scarification test. It is necessary in performing the intra-dermal test to have the cooperation of the patient. This is often impossible in children. Care must also be taken that the foreign protein is not administered subcutaneously because it might bring on symptoms of anaphylaxis. The writer feels that, whereas the intra-dermal tests may be more delicate in the adult, it has many disadvantages in children. The scarification skin test, on the other hand, has been shown to be specific and is perfectly satisfactory and dependable.

The materials which may be tested to determine food idiosyncrasies include the proteins of animals, fish, milk, eggs, grains, vegetables, fruits, nuts, bacterial proteins and pollens. In many instances the fresh raw materials may be used, as for example, egg white, or beef juice. The vegetables, fruits and grains, on the other hand, contain relatively small amounts of protein, which is diluted as high as 1:50 with carbohydrate or water. Since such dilutions were often so great that no reaction resulted, it was found necessary to prepare a pure soluble protein from each of the foods. This was done by Mr. Wodehouse, and the methods used by him are described in the *Boston Medical and Surgical Journal,* 1916, clxxv, p. 195.

The differential count of the blood in asthma, hay fever, and eczema is characterized by an eosinophilia. Schloss[4] has shown that in animals an eosinophilia appears after the subcutaneous injection of a foreign protein, and in infants after taking a foreign protein in the food for the first time. This reaction comes at the time when sensitization is developing. The latter observation was confirmed in a series of observations by Berger[5]. It seems probable that all diseases with pronounced increase of eosinophiles in the blood will eventually be connected with anaphylaxis.

The following report is confined to the writer's studies of different diseases by means of the skin test. In emphasizing the connection between anaphylaxis and the symptoms described below it is not the intention of the writer to conclude that all these symptoms are due to anaphylaxis alone. Great care should be taken to have properly prepared and controlled materials for the tests. The tests are easy to perform, and yet when carelessly interpreted may lead to many erroneous conclusions The symptoms referable to different parts of the body, taken up in sequence, may all appear in one child at different times, but when taken singly may be present in other diseases having no connection with anaphylaxis.

The symptoms to be described below may be divided into the following groups:

a. Those connected with the eyes.

b. Those arising from the nose and respiratory tract.

c. Those arising from the alimentary tract.

d. Cutaneous symptoms and general symptoms in other parts of the body.

Eyes: A local reaction of the eyes to a foreign protein was illustrated in a patient sensitive to eggs, with a positive skin test to egg albumen. One day while being desensitized to egg, some of the powder from the broken capsule got into her eyes, which in a few moments became red and congested. Similar reactions due to the pollens appear in hay fever, causing the characteristic conjunctivitis and rhinitis. These reactions are comparable to the eye reaction from tuberculin, described by Calmette.

Nose: Sneezing may be caused by dry powdered eggs being blown into the nose of patients sensitive to egg albumen. Enough protein may be absorbed in this manner to bring on an

attack of asthma. This happened in cases 14 and 18. The absorption of the protein of pollens by the mucous membrane of the nose causes hay fever. Sneezing may also come from other causes, for example, one patient, a boy of five years, sneezed forty to fifty times every night and morning. His feather pillow was finally removed and a felt one substituted. As a result the sneezing stopped and there was no more trouble until one afternoon his mother had a pillow fight with him at 4 P. M. At 5:30 P. M. to 6 P. M., he commenced to sneeze and continued to do so until midnight, when he was able to go to sleep. His uncle cannot sleep on a feather bed without asthma. Coryza, sneezing and running nose have been caused by the powders made from the orris root[6].

Croup: While a symptom of both laryngeal diphtheria and catarrhal laryngitis, croup may in some instances be due to anaphylaxis. The history of one case is so striking that it is given as follows:

E. B., a girl of four years, her maternal and paternal grandfathers has asthma, and maternal aunt had rose colds. She had slight eczema as an infant. When one year of age she was given her first egg which caused hives to appear all over her body within fifteen minutes. Her face was puffed up so that it was impossible to see her eyes, but she did not vomit. She had some symptoms of obstruction in the throat which were relieved by an enema. These symptoms all disappeared at the end of two days. At two years, she received some pudding by mistake, which contained egg, and the same symptoms returned, with increased severity. The laryngeal obstruction was so great that intubation was necessary. Negative cultures ruled out diphtheria. This patient gave a marked positive skin test to egg.

Chronic bronchitis when afebrile and not due to bacterial infection may be due to food. The etiological dependence of the bronchitis upon food protein may be determined by means of the skin test. Case 17 had chronic bronchitis due to egg. Bronchial asthma is usually preceded by a history of chronic bronchitis.

Asthma*: After ruling out cardia, renal, and thymic asthma, and asthma due to the bronchical glands, there remains bronchical asthma, or better asthma due to anaphylaxis. Bronchical asthma may be of three types:

a. Inspired type which includes hay fever, horse asthma, and asthma from the dust of fowl.

b. Ingested type with which we are concerned.

c. Bacterial type.

The ingested type of asthma is the commonest in childhood, and is the only type which comes into the scope of this communication.

Out of thirty-six cases studied by the writer, the following reactions have been obtained:

	Positive	Negative
A. Animal Foods:		
Egg	26	8
Beef Serum	4	7
Cow Casein	5	19
B. Vegetables:		
Beans*	5	14
Pea	5	17
Potato	2	9
Carrot	1	5
Turnip	1	3
Cauliflower	1	0
Asparagus	1	1
Tomato	1	3
C. Fruits:		
Apple	2	5
Orange	2	5
Banana	3	5
Strawberry	1	1
Watermelon	1	2
Cantaloupe	1	1
Date	1	0
Fig	1	0
Peach	1	2
D. Nuts:†		
E. Grains:		
Wheat	8	16
Rice	5	12
Oat	3	18
Corn	3	8
Rye	2	2
F. Fish:		
Halibut	1	0
G. Pollens:		
Corn	4	0
Squash	1	0
Grass	1	1
Timothy Grass	1	3
Ragweed	1	3
Cocoa	2	9

The following proteins were tested in thirty-four instances without giving a positive reaction: Duck, pork serum, blueberries, pear, plum, rhubarb, pineapple, beet, radish, parsnip, squash, celery, cabbage, barley, sago, and barley pollen. The greatest number of times that a single one of these proteins was tested was four. The results of the tests with the preparation of spinach were so uncertain that they have not been included.

Although eggs are the commonest cause of asthma in childhood, other foods may bring it on even when egg has been entirely excluded from the diet. There are other instances in which eggs are inocuous and the primary cause of the asthma is milk or some other article of food.

* A description of the skin reactions obtained in the writer's cases may be found in Asthma in Children, III, Its Treatment. *Long Is. Med. Journ*, 1917.

* The following beans were tested: Kidney, lima, black, California, pea bean, and peanut.

† The following nuts were tested: Almond, Brazil nut, walnut, pecan, castana, protoid, and hazel nut.

Curiously enough when a child reacts to one article of food, it is apt to react also to all the other members of that particular botanical group[8]. For instance, wheat, a member of the grass family, is often positive when rice, oat, barley or other members of the same family give a positive reaction. This peculiarity also applies to the pollens of the grass family as shown by Goodale[9]. He has shown that patients reacting to the pollens of June or Timothy Grass often give a skin reaction to the proteins of grains. Conversely, some of the writer's cases with a positive reaction to wheat protein, have given a history of June hay fever, with positive reactions to grass pollens. This tendency to group reactions is very striking in some cases and often gives valuable information as to treatment. If a careful history reveals no particular food idiosyncrasy as the cause of the symptoms, the patient should be tested with material representing each of the food groups. For instance, halibut, beef serum, milk, egg, wheat, potato, bean, orange, banana, English walnut. Should negative reactions result from these tests, with the exception of wheat, the materials for subsequent tests should be chosen especially from the foods closely related to wheat, such as barley, rye, oat, corn and rice. Group reactions, however, are by no means the rule, and it is necessary to test all the proteins before it can be said that a case is thoroughly investigated. There is also a biological similarity as well as difference between products of the same animal. For example, an individual may react to both beef serum and milk, but more often when milk is positive, the serum is negative, or vice versa. The same may be true of chicken serum, eggs and hen feathers.

The symptoms arising from the alimentary tract after the ingestion of a foreign protein, such as swelling of the lips, tongue mucous membranes of the mouth and pharynx, are intimately related to one another and depend upon the amount of mechanical obstruction caused by the local reaction. The obstruction and resulting swelling in the glottis or trachea may be so great that intubation or tracheotomy are necessary in order to save life, as in the case reported above. Other symptoms such as vomiting, abdominal pain (colic), and diarrhea, are usually associated, but are modified by the violence with which the body rids itself of the foreign protein. If the offending protein does not pass into the intestine, the only symptom will be vomiting. The food which most commonly causes vomiting and the associating symptoms of urticaria and diarrhea, is eggs. Cases of egg idiosyncrasy were reported from time to time but were not fully understood until Schloss[10] reported his investigations and skin tests. These were later confirmed by Koessler[11]. Blisters in the mouth were brought on in case 13, which is described in full in an earlier publication[12], by an over-dose of egg. Children who are only slightly sensitive to egg frequently complain that eggs give them a "shivery feeling" or make their throat tingle or sting. Colic may also be due to eggs, for example, from an over-dose received during the course of immunization. As evidence accumulates, it seems more and more probable that some of the colic of infancy can be laid to the door of the protein in cow's milk. Idiosyncrasies to cow's milk are not uncommon. In one of two cases reported by the writer[13] a positive skin test was obtained to cow casein. In both of these cases goat's milk was taken with impunity. In a case seen by Calder[14] neither cow's milk nor goat's milk could be tolerated. Another patient was so profoundly sensitive to nuts that once after biting by mistake into a piece of chocolate candy containing English walnuts, it was a question for many hours whether or not he would survive the anaphylactic shock. It is not necessary to go into the various foods which may be poisonous to an individual, as they are met with in every one's experience. Mild symptoms of anaphylaxis are apt to be over-looked in persons who are only slightly sensitive to a food protein, unless their susceptibility has been previously proven.

The cutaneous symptoms secondary to anaphylaxis, such as urticaria and certain cases of angio neurotic edema, open up a fascinating field for study. Up to date the writer has not been able to establish any connection between these diseases and foods by means of the skin tests, and it is possible that some other method of diagnosis will have to be devised. Eczema, on the other hand, has been shown in many instances to be connected with food sensitization. Eczema may be divided clinically into two classes:

a. That in the nursling, and
b. the older child in a general diet.

Eczema in the nursling: Schloss[15], Blackfan[16], and others have shown that the nursling with eczema in nearly all instances is sensitive to either human or cow's milk. They have also shown that when milk is taken away and some other food is substituted, the eczema disappears in four or five days. Unfortunately the eczema invariably reappears after a few days of the new food and persists even if the diet is again changed. The experience in the cases here reported has been similar and the writer feels that there is not sufficient data on hand at present to justify the procedure of taking a bottle baby entirely off milk and feeding it a synthetic food. There is much suggestive evidence, however, which seems to prove that the mother's diet has a marked influence on the nursing baby's skin. In one case of infantile eczema, a skin rash appeared on the baby whenever the mother took chocolate candy or cocoa. Since there was a pronounced family history of sensi-

tiveness in this case, it seems probable that some of the chocolate passed through into the mother's milk unchanged, and thus reacted on the baby. Careful and intelligent dieting on the part of the mother cured this baby's eczema without any other treatment. Fortunately, however, eczema tends to cure itself after the first year.

Eczema in older children is quite a different problem as is illustrated by the following cases. E. L., girl of 12 years has had eczema all her life. Sixty-seven different skin tests for food proteins were made without a single positive reaction except rice that could in any way connect the food with the eczema. This case, therefore, obtained very little help from the skin tests, but it is possible that later work may give a definite dietetic basis upon which to proceed. The second case, E. B., age 4 years, has had eczema all her life and had received many kinds of treatment without improvement. She gave a positive skin test to egg and cow's milk. The eggs were then entirely omitted from the diet, and the milk was boiled and reduced in amount from a quart to a pint a day. The eczema entirely disappeared in five days and the skin remained perfectly normal for two weeks, at the end of which time one hard boiled egg was given. This caused an eruption to again appear on the skin and was, therefore, omitted from the diet. She has been free from eczema ever since. Out of seventeen cases of eczema tested with food proteins, the following positive skin reactions have been obtained:

Egg 14.	Rice 3.
Wheat 1.	Oat 2.
Cow casein 2.	Orange 1.
Beef serum 2.	

The great number of positive reactions to egg is surprising as in several instances the infant had never had egg in any form. This fact also gives ground for speculation as to whether the egg may not have passed through into the mother's breast milk unchanged, and thus sensitized the baby.

Arthralgia is a common symptom after the injection of antitoxin and it is possible that in a small group of individuals it is due to the food and not, in all instances, to bacterial infection. It is possible also that some of the diseases attributed to uric acid will eventually prove to be some form of allergy.

Conclusions: Although there is sufficient proof to place all symptoms and diseases mentioned above among those which may be due to anaphylaxis, it should be emphasized again that each symptom is only of anaphylactic origin in a small group of cases. They should only be attributed to allergy when in each case they are proven to have no other origin, and when a specific skin test to a food protein is obtained. With the withdrawal of the foreign protein, the symptoms should disappear and return again only when the offending protein is again given. It is safe to say that the knowledge obtained from the skin test is of great value in dealing with cases of food sensitization and has added much to our knowledge. It is probable that future investigations will add much more to our knowledge of the anaphylactic element in disease, and refinements of technic will undoubtedly bring out many facts which are still obscure.

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Discussion.

Dr. Thomas S. Southworth, New York: Dr. Talbot's paper is one of extreme interest. We all meet with the types of cases Dr. Talbot is working upon. To have a method that we can utilize and that is capable of aiding us in finding the causation in these cases—a method that is easy and simple to apply—is of great value.

We all recognize certain of these types of food idiosyncrasy. I am reminded of a case where a man reacted to lamb. Dr. Talbot has mentioned a number of substances that cause a reaction but I do not recall that he has mentioned lamb. This man had never been able to eat lamb. It was considered by his friends that this was merely a whim. On one occasion he was dining out and his host had lamb for dinner. Not wishing to embarrass his host by refusing, he ate of it, and immediately became so ill that he fainted at the table.

There is a part of Dr. Talbot's paper in which he speaks of family heredity and the possibility of these idosyncrasies being handed down for several generations. I think that as we go on we will find more of these cases. At the present time I am working on the tendency of certain families to show an idiosyncrasy in an inability to digest fat of cow's milk. I have found that where a child shows inability to digest the fat of cow's milk one or other or both of the parents have been unable to take milk—not in the sense that they have an anaphylaxis, but that it causes a digestive disturbance and constipation and biliousness. These tendencies are handed down and they may be found in other directions than those Dr. Talbot and I have mentioned.

Dr. Louis Faugeres Bishop, New York: I have been extremely interested in Dr. Talbot's enlightening paper. He is to be complimented on the fact that he has kept within bounds and allowed his imagination to work in a field where the imagination does work too much. There is no more fascinating field than that of anaphylaxis. Having these cases and seeing them get well calls our attention to the practical application of our knowledge on this subject.

There is one phase which I would like to emphasize in connection with arteriosclerosis. I published a book* in which I laid stress on the fact that the origin of much arteriosclerosis was often due to continued irritation caused by foods for which the patient had an idiosyncrasy. Theoretically this is interesting, but I must speak of actual facts. Eggs are of the greatest importance in many older people suffering from cardiovascular disease. I can state from my experience that I have seen people about to die from arteriosclerosis that has been going on for months and years and when eggs were absolutely withdrawn from the diet they have recovered and gone on comfortably for a time. I recall the cases of two or three physicians with very high blood pressure (around 240 mm.), albumen and casts, oldema, dispnœa and everything pointing to early dissolution, who were given serial doses of castor oil, eggs were withdrawn and compensatory balance restored, and they had gone along for two or three years in comfort. The whole thing is a question of dietetics. A diet to be of any use must be an absolute diet. I was once interested in the low protein diet and in the caloric method of feeding, but I did not get any particular effects in the treatment of chronic diseases until I approached the problem from the point of view of the particular protein.

One of the most suggestive points that Dr. Talbot brought out was that some of the diseases attributed to uric acid may be due to food allergy. Many things that are blamed on uric acid are really due to food idiosyncrasy.

A point that needs more emphasis is that there are food idiosyncrasies that do not produce evident symptoms and the way to find out whether the food is to blame is to absolutely withdraw that food and then observe whether the patient gets better or not. I call my plan "the few protein diet." The quantity of protein is not considered so much as the particular kinds that are used.

Dr. William J. Schuyler, Utica: One interesting thing is the way in which strawberries affect some individuals. I recall one child seven or eight years of age who always had an aversion to strawberries; he claimed that they made him sick. If he ate even one he always broke out with hives or something of that type. His parents believed that this refusal to eat strawberries was just a whim and the father offered the boy a dollar if he would eat a certain number of strawberries. The boy managed to get three berries down, probably swallowing them whole. He became so sick that he almost died. He only recovered after a great deal of effort and work on the part of the physician.

Dr. Conway A. Frost, Utica: I would just like to speak of a peculiar instance of a food idiosyncrasy occurring in a family to the odor of onion. One member of this family in each of three generations showed this idiosyncrasy. Thinking it might be merely imagination, someone tried putting onions near one of these individuals while he was asleep and as a result he was sick for a week. In this instance the idiosyncrasy was not in a direct line but simply ran along in the family, not to direct descendants, but in one instance it was a niece who showed this peculiarity.

Dr. A. C. Mercer, Syracuse: May I ask Dr. Talbot how he prepares the toothpicks and whether they are sterilized?

Dr. Henry L. K. Shaw, Albany: We should not bring this discussion to a close without expressing our gratitude to Dr. Talbot for having thrown so much light on this subject. It is fitting that we should get this knowledge from Boston, since it was Dr. Oliver Wendell Holmes who coined the term "food idiosyncrasy." I feel we should express our appreciation by a vote of thanks to Dr. Talbot for having come all this way to be with us to-day.

Dr. Fritz B. Talbot, Boston: In the first place I want to thank all for the kind attention and interest you have shown in this subject, and in the second place I will answer Dr. Mercer's question about the toothpicks. I use toothpicks in order to keep the different proteins separate. I take them and use them as they come. I do not sterilize them because with the small incision I use the skin is rarely broken to draw blood. I have never seen a patient infected as a result of skin test. I wash the arm off with

* "Arteriosclerosis," Oxford University Press, London.

alcohol before the incision is made and after the protein has been put in I wash it off again with alcohol, so I think there is no danger that the arm will be infected by the toothpick.

Dr. Southworth's remarks are particularly interesting as I have been studying the fats; there seems to be some connection between fats and anaphylaxis. All I can say though is that in cases of anaphylaxis in which we see urticaria, eczema or hay fever there is more fat excreted in the stools than under normal circumstances.

In regard to Dr. Bishop's remarks, I feel that we should not confuse the two conditions, anaphylaxis and arteriosclerosis. When a food disagrees it does not necessarily mean anaphylaxis. I do not say that a patient has an idiosyncrasy, until I have proved it. The only way we can be sure is when the skin test proves that the patient is sensitized and that the patient reacts clinically to the protein, and by finding that the patient recovers when the protein to which we believe he is sensitized is withdrawn. Without that sequence of events I do not think it is fair to say that a certain condition is due to anaphylaxis. No conclusion should be drawn until it is proven that the clinical symptoms are not due to anything else. This cannot be too strongly emphasized.

Dr. Schuyler's remarks about strawberries bring out the point that strawberries are a very common cause of anaphylaxis.

One of the things that has impressed me most is that when a mother sees a child react to egg, she is not so much pleased because the child may be cured, but that it has been proven that she was right when she claimed that the child could not eat eggs.

Dr. Frost's observation about a family in which there was an idiosyncrasy to the oder of onion is interesting. I know of one instance where asthma is brought on in an adult by smelling a peach and I know an other instance of hay fever caused by people walking into a room where there are primroses. Here again I would emphasize that we should not draw conclusions without the proof and the proof is in the skin test.

THE TREATMENT OF DYSTHYROIDISM BY ROENTGEN RAYS.*

By MYRON B. PALMER, M.D.,
ROCHESTER, N. Y.

MUCH has been written on the subject of the thyroid gland. Much thought and the study of a large number of cases have been presented by various authors, as to the symptomatology and treatment, both from the internist and surgeon's view-point. Little do we know as to the cause of the thyroid disturbances, such as we find in the toxic goitre, with or without exopthalmos. Dysthroidism is found in nearly every locality and in individuals of various occupations, being more common in the female sex, from the ages of sixteen to thirty-five. The recent studies of the ductless glands offer many interesting factors in the causation, while worry and overwork have their share of responsibility in a very large class of cases. Heredity plays an important rôle in the histories of others. In one case, a male, age thirty-eight, the family history was notable for ductless gland disturbances throughout. Grandmother had myxodema, great-grandmother was supposed to have had myxodema. Mother has myxodema, one sister has Graves disease and two younger brothers have thyroid enlargements, though no pronounced toxic disturbances.

In 1908, Pfahler of Philadelphia, reported cases of exopthalmic goitre treated by the X-rays.

In 1909, Grey, of Virginia, reported the results of twelve cases of goitre treated by the X-ray with a reduction of the gland in every case.

In 1912 and 1913, Florence Stoney reported forty-eight cases of exopthalmic goitre treated by the rays, with good results in a large percentage of cases.

In 1913, Crotti in this country, used the X-ray treatment in a case of enlarged thymus, preceding thyroidectomy, to reduce, as he said, the thymus gland, which in a few cases he had regarded as the cause of sudden death at operation.

In 1914, Simpson of Washington, began treating exopthalmic goitre by means of the X-ray and at about the same time Waters, of Johns Hopkins, was also treating such cases of Graves disease successfully treated by the rays. Since then, many such as Pfahler, Case, Lange, Holmes and others have successfully treated many cases by means of the improved Roentgen treatment. I mention "improved treatment" for the reason that, while the early workers gave such treatments as apparatus produced in small doses, the advent of the Coolidge tube so aided in standardizing and simplifying the technic, that far more satisfactory results are obtained by what is called the massive dose treatment. Halsted and Waters have laid stress on the high lymphatic count in cases of Graves with thymic hyperplasia, while Simpson considers the blood count misleading. Seymour cites one hundred and forty-four cases of Graves disease treated at the Massachusetts General Hospital, eighty received X-ray treatments, all showed improvement except seven. Means, in the study of the metabolism of these cases, has demonstrated that the line of total metabolism seems to be the best index of the thyroid secretion and that the greater the intoxication, the higher the metabolism. In but three cases of a total of forty of my own cases treated, was there an estimation of metabolism made. These cases were of the type of advanced Graves, showing high metabolism.

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 24, 1917.

Bruno-Glaserfeld's compliation of 2032 cases of exopthalmic goitre, in which thyroidectomy was done, shows 82 per cent materially improved or permanently cured and Fischer has compiled statistics of Roentgenotheraphy in the same disease, showing 80 per cent cured or improved. He says his figures are too small for comparison. He further states that operative measures show a mortality of 5.4 per cent and 6 per cent in Hildebrand's compilation from Kocker, Riedel, Kleum and Schulze clinics.

Of forty cases of dysthroidism treated in my private and hospital work, every case showed improvement. Twenty-eight cases showed marked improvement and might be called free from toxic symptoms. Eight cases showed moderate improvement, but were classed as having only mild symptoms, such as slight increase in pulse rate and nervousness with no exopthalmos. Two of the cases had well marked tubercular lesions in the chest and both showed only moderate improvement. Two cases had cardio-renal disease and showed but moderate improvement. Fourteen cases had exopthalmos. Eight of these cases had long standing and pronounced cardial symptoms and had been under medical treatment with little or no improvement. One case was five months pregnant, with such severe symptoms that emptying of the uterus was considered. Her pulse was 125-35 extreme tachycardia and nervousness with loss of weight. Moderate thyroid and exopthalmos. Ten days after the first treatment, the pulse dropped from 130 to 98. At the end of three weeks it rose to 120, but she was less nervous and had gained six pounds in weight. At the end of the second and third treatments, marked improvement had taken place. Pulse ranged from 96 to 110. Four treatments in all were given, and, although she has not gone to full term at this writing, the improvement has been so decided that the treatments must be considered exceedingly important in this class of cases.

A brief description of two cases will suffice to show the result of the Roentgen treatment:

Case 1.—Male, age forty-six, married, four children. Previous history negative. Onset rather sudden. Duration five months. Pulse 120. Exopthalmos moderate. So nervous was unable to continue his occupation as a mounted policeman. Four weeks after treatment, gained five pounds in weight. Pulse 104. After three treatments pulse averaged 90, gained ten pounds and was anxious to return to his work. Four treatments were given and he returned to his duties, symptom free, goitre smaller and the exopthalmos not so pronounced.

Case 2.—Male, age sixty-two, married, confined to his bed, extreme emaciation, exopthalmos and tachycardia. After six treatments over a period of five months, he returned to his business, two more treatments being given at two-month intervals. His gain in weight was twelve pounds. The exopthalmos in this case was the most marked I have seen, and, although there was considerable reduction in the thyroid, the exopthalmos was but moderately reduced.

It was noticed that, while some of the milder types responded quickly to treatments, others required somewhat heavier doses before response was decided.

The change in the general appearance of the patient after four weeks from the first treatment was so noticeable that the treatment of these cases, by means of the X-ray is most gratifying.

The pulse was the first to respond in all cases with a gradual lessening in the nervous phenomena and a gradual increase in weight. The appetite improves and they sleep and feel better.

The goitre responds more slowly and does not entirely disappear or at least has not in the comparatively short length of time in which we have been treating this class of cases.

The exopthalmos is slow to respond and may not be at all diminished in some cases and the reason for this is obvious. The layer of fat which is supposed to be deposited behind the eye ball would probably be little influenced by any known method of treatment directed to the thyroid.

As to the technic, it varies but little, only in the number of treatments and according to the severity of the case. The average number of treatments or series was four, given at from four to six-week intervals. Coolidge tube was used, 8½ inch parallel spark, three millimeters of aluminum, three millimeters of sole leather and a focal distance of seven to eight inches, giving twenty-five to thiry milliampere minutes. One area on each side of the neck. At the first treatment one area being given over the thymus region.

The experience of most investigators in the treatment of Graves disease, in which only the thymus is treated, is that the results have not been nearly so satisfactory as in the thorough raying of the thyroid and thymus. Therefore, more attention should be given the thyroid. The thymus seems to be more easily influenced by the X-rays and therefore, needs less treatment. It seems reasonable to suppose that in raying the thyroid, scattered or secondary rays are sufficient to influence the thymus to a certain extent, though this cannot in any way be proven.

As to the presence of a thymus in all cases of Graves disease, it is without question difficult to prove either from physical or X-ray findings. The fluoroscope perhaps gives as much or more information than the plate method. The small thin thymus may cause little or no shadow and it is only by the most expert work that its detection can be demonstrated with certainty. Therefore, it is advisable to treat the thymus region in every case of dysthyroidism. In no case

should X-ray dermatitis or redness be produced. In most cases even a slight tanning of the skin should not appear. Carelessness in this respect from untrained operators is a discredit to the work. If, in later years, our cases should carry around their necks evidence of blood vessel changes or chronic X-ray dermatitis, I should now hesitate to treat these cases by the powerful rays. Too much stress cannot be laid on the fact that many general practitioners supplied with X-ray equipment may do unnecessary damage to this interesting field of work, unless they be qualified to manipulate their powerful equipment within the limits of safety.

Conclusions.

1. That provided the case be given the proper treatment nearly every case of dysthyroidism should show improvement and others should be symptom free.

2. Cases which are to be operated upon should have at least one treatment four weeks previous to operation and unless imperative, the second treatment should be given in cases showing a high pulse rate.

3. That the avoidance of surgery is essential in a large proportion of cases showing toxic symptoms.

4. Large goitres giving no symptoms of dysthyroidism should be best be removed by the surgeon, rather than given Roentgen treatments.

Discussion.

Dr. John M. Swan of Rochester: There are certain parts of the United States in which thyroid disease is very common. The Great Lakes basin is one of these areas and thyroid disease is common all the way from Syracuse to Duluth. In the State of New York it is found frequently as far South as the Pennsylvania border. The treatment of thyroid disease is by no means definitely settled. The massive doses of X-rays which Dr. Palmer uses produce good results in certain cases, and I hope that the subject will receive free discussion. I hope Dr. Palmer will tell us what treatment his patients receive between applications of the X-rays, which I understand are given at from two to four weeks intervals.

The idea prevails that thyroid disease is rare in men. A study of the literature shows that the disease is well known in men, and sometimes, in a large series of cases, forms in the neighborhood of twenty-five per cent of the cases seen. Starck says that in Baden every eighth man and every second or third woman has goitre. (*Berl. Klin. Wochenschr.*, 1911, XLVIII, 1909.) Enderlen says that every year in Switzerland six or seven per cent of the soldiers mustered are sent home on account of goitre. (*Deutsche Med. Wochenschr.*, 1910, XXXVI, 2033.) (Quoted from an Analysis of Fifty Cases of Dysthroidism. International Clinics, Volumes II and III, Series 26, 1916.)

Before the introduction of massive doses of X-rays given with a Coolidge tube, when the ordinary X-ray tube was used, the surgeons said that X-ray treatment of a thyroid gland produced a thickening of the capsule of the gland so that when surgery was undertaken later the free enunciation of the gland was interfered with. It is to be hoped that the technic now used will not be attended with such results.

Dr. De Lancey Rochester of Buffalo: I am particularly interested in this matter of thyroidism because we see so many cases in western New York. I was struck with the results of the treatment Dr. Palmer gave his patients and I should like to ask him if he gets better results when something is added to this X-ray treatment. Did he use rest, for example, or employ any drugs or any other kind of treatment?

Dr. Rosalie Slaughter Morton of New York: It may interest the members of the Section on Medicine for me to speak of some of the war conditions I have seen. Dr. Stoney is the head of one of the hospitals in London and he thinks the X-ray is of great value in the treatment of this condition, especially for those men who work in the ditches. The military strain under which these men labor causes what is termed "military heart." They usually have a great fear of going to war and that seems to be characteristic of men and of nations. Ninety per cent of these men have hyperthyroidism but this condition soon yields to the X-ray and the men are enabled to go to the depots in a short time. These men cannot stand the strain and stress that attends warfare in the trenches, and they develop hyperthyroidism. Many men with severe surgical wounds also have been found with tachycardia. Dr. Stoney places the X-ray tube on each side and this treatment is given once a week. The length of time of application depends somewhat upon the patient himself. Many of them are afraid of the treatment and many of these soon become so accustomed to it that frequently they go to sleep during its application. When they are first brought in they are kept in bed for six weeks and on a low diet. They do what they are told. Under this treatment the pulse rate drops sometimes 120 or even 140. They average eight treatments in nine weeks and then they go convalescing to the depots with practically a normal pulse. After the first two or three weeks' treatment with the X-ray they are again placed in bed; after that they are up and about the greater part of the time. The details of this treatment were published in the London *Lancet* of April 6, 1916. I am very glad to be able to make this little report.

Dr. Edwin MacDonald Stanton, Schenectady: In 1910 I read a paper before the Schenec-

tady Medical Society on the surgical treatment of goitre and the discussion that followed was hot and interesting and practically developed into an "experience meeting." Nearly every member of the Society had met with cases of goitre and reported good results from the treatments employed by them. Soon after I came across a paper by Dr. White showing the results obtained in Guy's Hospital in London, cases which covered a long period of years. One hundred and two cases were traced and the most striking thing in the paper was the statement that 80 per cent were ultimately cured. These patients had been treated by many different methods. This set me to thinking. It seems to me that the only way we can get at the bottom in our results was to study the normal course of the disease. We must know its natural history. Two men associated with me spent considerable time in looking up cases that had been traced for a considerable period of time. They gathered two or three thousand of these cases and tabulated them and found that the results obtained were practically the same as those presented by Dr. Palmer today. Tabulating these results it is seen that true exophthalmic goitre—the hyperplastic toxic cases of the Mayos—is in 60 or 70 per cent of cases a self-limited disease and that after 4 to 6 years this proportion of cases will be found cured no matter what the treatment. To prove that any method of treatment is of value one must show a rate of recovery under this particular treatment definitely in excess of the normal expectancy for the subsidence of symptoms in this disease.

Dr. C. J. Hunt of Clifton Springs: In relation to the epidemiology, I had an opportunity in Pennsylvania to study the distribution of the occurrence of thyroid changes during a period of some eight or nine hundred cases. The distribution showed a striking correspondence to the limits of the terminal morraine. Of course such a distribution does not pertain in New York State since practically the entire State is of glacial origin. Studies were made at the time in relation to the usual means of distribution with the exception of chronic infection. In Clifton Springs Sanitarium there has been an unusual opportunity to study the influences of chronic infection in cases of dysthyroidism. Severe recurrent attacks of hyperthyroidism following the occurrence of an acute infection has been noted in many cases. In one case in particular hyperthyroidism followed during two winter attacks of acute tonsilitis. The tonsils were removed but patient did not again show active evidences of disturbance until after the onset of an acute purulent gingivitis. With its subsidence, the convalescence from the hyperthyroidism was re-established. I have assumed that infection is not the etiology itself but supplies sufficient toxic irritation to develop the complete phenomena.

I should like to ask Dr. Palmer if, in his opinion, cases of hyperthyroidism treated with the X-ray without the removal of possible or probable infection is of actual service.

Dr. Myron B. Palmer of Rochester: In reference to the questions asked by both Dr. Rochester and Dr. Swan, a great proportion of the cases received no medical treatment. I have not prescribed for any of my cases and little or no attention has been paid to rest or to diet in the milder types. They are given the regular diet and take moderate exercise if they so wish. For the first two or three weeks the most severe cases are kept quiet. Cases No. I and II were severe types: they were placed in bed for the first week and then they were up and about the house. There is one remarkable thing about these patients: they are so easily excited that placing them under a tube with the idea that they must be quiet for only a few minutes, seems to them impossible and frequently I give but a short treatment, completing the dosage two or three days later. However, at the second treatment, which is in four weeks, they have little fear and assure you that they are feeling better and will have no difficulty in keeping quiet during the treatment.

Regarding Dr. Morton's remarks, I know of Dr. Stoney's work. She has done much good work along these lines. A large proportion of these cases are those with increased pulse, showing disturbances which are probably produced by their work. It seems to me that this is a good field for investigation. They respond quickly from the influences of the X-ray and nothing else being done for them, other than rest. This is a class of cases in which surgery is not needed. As to the theory of the influence of the X-ray, I think the rays must influence the glandular structures of the thyroid, rather than the glandular structures of the thymus.

In answer to Dr. Stanton, we may take a large number of cases and treat them differently and often get the same results. I wish to be distinctly understood that I am not saying the X-ray is the only treatment in this class of cases. Something must be done quickly and if we can get better and quicker results by the use of X-ray than we can by the use of medicines and rest or surgery, the X-rays had better be employed. In some cases surgery may be the wisest procedure.

With regard to the remarks as to time, I am opposed to redness or any discoloration of the skin following the use of the rays. I certainly do object to such results. I have seen cases treated five or six years ago when they did not use filters: the skin absorbed a large amount of the soft rays with resulting redness and dilated skin vessels and therefore no good followed. To-day we do not even wish to see dilated vessels in the neck appear as the result of prolonged or excessive treatment.

Correspondence.

New York State Committee of National Defense.
Medical Section.

September 5, 1917.

Dr. John Cowell MacEvitt, *Editor*,
New York State Journal of Medicine.

Dear Dr. MacEvitt:

In its issue of August 25, 1917, page 653, the *Journal of the American Medical Association* on the request of the Chairman of the New York State Committee of National Defense, Medical Section, printed the Petition for Selective Draft drawn up by that committee.

The *Journal* preceded the copy of the Petition by an explanatory introduction which states that "a committee was appointed to draw up a petition to the Congress of the United States to be circulated for signatures and then presented to Congress." Note, please, the last four words.

The introduction also states that, "Letters have been drafted . . . presenting the petition and urging that it be signed and presented to Congress." Again, note the last four words!

The point is just this: The New York State Committee of National Defense has never urged upon any man, or organization or institution, that this Petition be presented to Congress, and any statements to the contrary are mistakes.

Furthermore, it is not and has never been the intention of this committee to present to Congress the Petition for a Selective Draft of Physicians. On the contrary, it was and is the intention of this committee to present the Petition, after securing all the available signatures of physicians in New York State, to the Medical Section of the Council of National Defense.

Undeniable and (to a careful observer) unmistakable evidence of that intention was expressed in the minutes of the committee meeting on July 2d at which the Petition was authorized. A copy of the minutes were sent to the Medical Section of the Council of National Defense on July 10, 1917, and the paragraphs referred to are quoted below exactly as they appear in these minutes:

"The Secretary moved that: The New York State Committee of National Defense recommend to the Medical Section of the Council of National Defense the institution of a Federal classification of physicians similar to that of New York State and that measures be instituted to secure the necessary Federal legislation authorizing a selective draft of physicians based upon such classification, which draft shall provide exemptions of:

"1. Those with too many dependents—75 per cent dependent on their professional income,
"2. Those disqualified by health or age,
"3. Those needed for public health continuance,
"4. Those needed for medical education,
"5. Those needed for hospitals and clinics, and
"6. Those needed for isolated communities,

provided that such draft automatically exempt physicians as a class from the provision of the present General Draft Law.

"There was explanation of the motion as follows: That it had no reference to the necessary 2,200 men from New York State at the present time, but that it was a measure for the eventual fair selection of the men that will ultimately be required.

"In order to get the matter of a selective draft of physicians properly before the Council of National Defense as representing not alone the unanimous opinion of the State Committee, but also the overwhelming opinion of the profession at large, it was suggested that the committee draw up a strong petition to the President of the United States and to Congress which petition the members of the committee should sign and which should be circulated, through the County Committees, for the signatures of the great body of physicians in the State of New York."

Enough misunderstanding of the object of this Petition has arisen to make desirable an authoritative statement that this is in no sense an attempt to have conscription forced upon the medical profession from outside—as some men have apparently believed. On the contrary, its adoption will preclude the possibility of any such undesirable action and will at once afford an orderly system of furnishing those fittest for medical officers to the Army and of retaining in their communities those physicians most needed at home.

The New York State Committee of National Defense, Medical Section, requests you to publish this statement in justice to the twelve hundred or more physicians of this state who have already signified their approval by signing this Petition.

Any further information that you may desire will be gladly furnished by this committee.

Karl Connell,
Secretary.

Post Hospital, Madison Barracks,
Sackets Harbor, N. Y.

Dr. John Cowell MacEvitt, *Editor*,
New York State Journal of Medicine.

My Dear Dr. MacEvitt:

My attention has been called to an editorial in the August 11th issue of the *Journal of the American Medical Association* relative to the petition for Selective Draft of Physicians, which as a member of the State Committee I fear may do harm by clouding the issue.

This petition was prepared as a result of a very careful and exhaustive study by the New York State Committee of National Defense based on a census of physicians in the State and the results of a personal canvass through the State by eight officers of the Medical Reserve Corps.

In justice both to the medical profession at large and the members of the New York State Committee, I hope that the Journal will make a careful study of the situation, which I feel very certain will change its present attitude into one of active and cordial support and approbation.

Very truly yours,
Henry L. K. Shaw.

American Women's Hospitals.

The War Service Committee of the Medical Women's National Association has organized the American Women's Hospitals for work at home and abroad. The Surgeon-General of the Army and the General-Director of the Department of Military Relief of the American Red Cross have approved the provision made for service to the army and to the civil population. The work will be officially part of the medical and surgical service of the American Red Cross.

The scope of the plan is a broad one. It includes units for maternity service and village practice in the devastated parts of the Allies' countries and hospitals run by women for service there as well as for the United States Army in Europe. In this country acute and convalescent cases will be treated in hospitals equipped for the purpose; soldiers' dependents will be cared for, interned alien enemies will be given medical aid and substitutes will be provided to look after the hospital service and the private practice of physicians who have gone to the front.

The first units hope to go to France and to Serbia in the early fall.

Headquarters have been established at 637 Madison Avenue, New York City, with Dr. Rosalie Slaughter Morton as Chairman of the Committee.

Medical Society of the State of New York

THIRD DISTRICT BRANCH.

ANNUAL MEETING, TROY, N. Y.

Thursday, October 4, 1917.

9:30 A. M. to 12 Noon.

Medical and Surgical Clinics at Cohoes Hospital, Cohoes, by the Staff of the Hospital.

Medical and Surgical Clinics at Leonard Hospital, Troy, by the Staff of the Hospital.

Medical and Surgical Clinics at Troy Hospital, Troy, by the Staff of the Hospital.

Medical and Surgical Clinics at Samaritan Hospital, Troy, by the Staff of the Hospital.

Members of the Society can ascertain the program of each clinic by telephoning the respective hospitals upon arrival in the city.

1 P. M.

The Rensselaer County Medical Society will entertain the out-of-town members at luncheon at The Samaritan Hospital.

2:30 P. M.

Assembly room of the Samaritan Hospital, (a) Business Session; (b) Scientific Session.

"The Duties and Responsibilities of the Profession During the Present Crisis," James H. Mitchell, M.D., Cohoes.

"General Principles of the Surgical Treatment of Inguinal Hernia," Emmott Howd, M.D., Troy.

"End Results Following Operations for Goitre," Edwin MacD. Stanton, M.D., F.A.C.S., Schenectady.

"The Value of Digitalis in the Treatment of Auricular Fabrillation with Report of Cases," Herman C. Gordinier, M.D., Troy.

SEVENTH DISTRICT BRANCH.

ANNUAL MEETING, CANANDAIGUA, N. Y.

Thursday, September 27, 1917.

The meeting will open at 10 o'clock in the Liberty Theater.

Luncheon will be served at 1 o'clock at the Y. M. C. A. building by the Ontario County Medical Society.

The afternoon session will be held in the Y. M. C. A. rooms.

SCIENTIFIC PROGRAM.

President's Address, William M. Brown, M.D., F.A.C.S., Rochester.

"The Value of X-Ray of the Chest of Soldiers; Should It Be as a Routine Examination?", Myron B. Palmer, M.D., Rochester.

"The Carrel Method of Wound Sterilization and the Paraffine Treatment of Burns," William S. O'Neill Sherman, M.D., F.A.C.S., Pittsburgh, Pa.

"The Effect of War on the Health of the Civilian Population," George W. Goler, M.D., Major M.R.C., Rochester.

"The Getting of Wisdom," C. E. K. Mess, D.Sc., Rochester.

"Obscure Forms of Appendicitis," Robert T Morris, M.D., F.A.C.S., New York City.

"The Estimation of Cardiac Strength and the Importance of Conserving Energy During and Following Operations," Raleigh R. Huggins, M.D., F.A.C.S., Pittsburgh, Pa.

"Obligations of the Medical Profession to the Army in Times of War," Frank F. Simpson, M.D., F.A.C.S., Chief of the Medical Section, Council of National Defense.

Dr. Simpson's presence at the meeting is contingent on the work that is before him at Washington on that date.

SIXTH DISTRICT BRANCH.

ANNUAL MEETING, WATKINS, N. Y.

Tuesday, October 9, 1917.

"The Place of Water in the Materia Medica," Simon Baruch, M.D., New York.

"Treatment of Benign Growths of the Female Breast," John B. Deaver, M.D., Philadelphia, Pa.

Lantern Slide Demonstrations of the Carrel-Dakin Treatment of War Wounds, by a member of the Staff of the Rockefeller Institute, New York.

"Some Problems in the Treatment of Diabetes," John R. Williams, M.D., Rochester.

"Pylorospasm in Children," John A. Bennett, M.D., Elmira.

"Some Observations of Cases of Chorea," John M. Quirk, M.D., Watkins.

"Analysis of One Thousand Cases Appearing Before an Examining Board for Military Service," George H. Fox., M.D., Binghamton.

"Intestinal Obstruction," Harvey P. Jack, M.D., Hornell.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

DREAM PSYCHOLOGY, by MAURICE NICOLL, B.A., M.B., B.C. (Camb.), Capt. (Temp.), R.A.M.C. London. Henry Frowde, Hodder & Stoughton, Warwick Sq., E.C., Oxford Univ. Press, 35 West 32nd Street, New York City, 1917. Price, $2.00.

GOOD HEALTH, HOW TO GET IT AND HOW TO KEEP IT, by ALVAH H. DOTY, author of "Prevention of Infectious Diseases," "The Mosquito," a "Manual of Instruction in the Principles of Prompt Aid to the Injured," etc. Illustrated. D. Appleton & Co., New York and London, 1917. Price, $1.50.

ALCOHOL, ITS RELATION TO HUMAN EFFICIENCY AND LONGEVITY, by DR. EUGENE LYMAN FISK, Medical Director of the Life Extension Institute, and author, with Professor Irving Fisher, of "How to Live." 216 pages. Bound in cloth, $1.00 net; by mail, $1.12. Funk & Wagnalls Company, Publishers, 354-360 Fourth Avenue, New York City.

MEDICAL AND SURGICAL REPORTS OF THE EPISCOPAL HOSPITAL, Vol. IV. Wm. J. Dornan, Philadelphia, 1916.

SCIENCE AND LEARNING IN FRANCE WITH A SURVEY OF OPPORTUNITIES FOR AMERICAN STUDENTS IN FRENCH UNIVERSITIES. An appreciation by American scholars. The Society for American Fellowship in French Universities, 1917.

THE MODERN MILK PROBLEM IN SANITATION, ECONOMICS AND AGRICULTURE, by J. SCOTT MACNUTT, lecturer on Public Health Service in the Massachusetts Institute of Technology; author of "A Manual for Health Officers." The Macmillan Co., New York, 1917. Price, $2.00.

THE MASTERY OF NERVOUSNESS BASED UPON SELF-RE-EDUCATION, by ROBERT S. CARROLL, M.D., Medical Director Highland Hospital, Asheville, N. C. The Macmillan Co., New York, 1917.

A MANUAL OF ANATOMY. By HENRY E. RADASCH, M.Sc., M.D., Assistant Professor of Histology and Embryology in the Jefferson Medical College, Philadelphia. Octavo of 489 pages with 329 illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, $3.50 net.

Food for the Sick. A Manual for Physician and Patient. By Solomon Strouse, M.D., Associate Attending Physician, The Michael Reese Hospital; Professor of Medicine at the Post-Graduate School, Chicago, and Maude A. Perry, Dietitian at the Michael Reese Hospital, Chicago. 12mo of 270 pages. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, $1.50 net.

Practical Materia Medica and Prescription Writing, with illustrations, by Oscar W. Bethea, M.D., Ph.G., F.C.S., Assistant Professor of Materia Medica and Instructor in Prescription Writing, Tulane University of Louisiana. Second edition revised. F. A. Davis Co., Publishers, Philadelphia. English Depot, Stanley Phillips, London, 1917.

Diseases of the Chest and the Principles of Physical Diagnosis, by George W. Norris, M.D., Asst. Professor Medicine University Pennsylvania, and Henry R. M. Landis, M.D., Asst. Professor Medicine University of Pennsylvania, with a chapter on the Electrocardiograph in Heart Disease, by Edward B. Krumbharr, Ph.D., M.D., Asst. Professor Research Medicine University of Pennsylvania. Octavo volume 782 pages, 413 illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, $7.00 net. Half Morocco, $8.50 net.

The Treatment of War Wounds. By W. W. Keen, M.D., LL.D., Emeritus Professor Surgery, Jefferson Medical College, Philadelphia. 12mo of 169 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, $1.75 net.

The Fundus Oculi of Birds Especially as Viewed by the Ophthalmoscope. A study in Comparative Anatomy and Physiology by Casey Albert Wood. 145 drawings in the text, also 61 colored paintings prepared for this work by Arthur W. Head, F.Z.S., London. The Lakeside Press, Chicago, 1917.

Book Reviews

1915 Collected Papers of the Mayo Clinic, Rochester, Minn. Octavo of 983 pages, 286 illustrations. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, $6.00 net; Half Morocco, $7.50 net.

In the realm of surgery the name of Mayo stands for all that is best. The latest volume of "Collected Papers" is full of splendid material. There are thirty-seven contributors, each a specialist in his line.

The contents are indexed under Alimentary Canal, Urogenital Organs, Ductless Glands, Head, Trunk and Extremities, Technic and General Papers.

Gastric ulcer, duodenal ulcer and diseases of the bile passages are extensively covered. We regret that there are no articles on malignancy of the large bowel.

The Urogenital Section includes articles on perinephritic abscesses, stone in the ureter, clinical reviews of 240 cases of non-surgical infection of the kidneys and ureters, procedures following nephrectomy, foreign bodies in the urinary bladder, vesico-vaginal fistula, etc.

The section of the Ductless Glands covers the thyroid, goiter, studies in blood-pressure, adrenals and pancreas, pathology and diseases of the spleen, splenic anemia, splenectomy, etc.

McCarthy's papers on cancer are the most scholarly and best thought out series of articles on cancer that we have ever read. The fifty pages cover everything that is known about cancer to date.

The authors have used such rare judgment in selecting their subjects that the book is just as valuable to the internist as it is to the surgeon.

H. R. T.

Diseases of the Eye. By George E. de Schweinitz, M.D., LL.D., Prof. Ophthalmology, University of Pennsylvania. Eighth Edition, Thoroughly Revised and Enlarged. Octavo of 754 pages, 386 text illustrations, and seven lithographic plates. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, $6.00 net; Half Morocco, $7.50 net.

This work of about 700 pages is the result of a thorough and up-to-date revision of the seventh edition, published in April, 1915. A dozen or more new subjects have been introduced. The chapter on "Diseases of the Iris" is worthy of special note. Dr. William M. Sweet contributes a description of his improved method and apparatus for determining the location of foreign bodies in the eye. This last edition of de Schweinitz on Diseases of the Eye is in every respect a model textbook on the subject of ophthalmology.

J. W. I.

Blood Pressure: Its Clinical Applications. Second Edition, Revised and Enlarged. By George W. Norris, A.B., M.D., Assistant Professor Medicine, University of Pennsylvania, Visiting Physician to the Pennsylvania Hospital. Octavo, 424 pages, with 102 engravings and 1 colored plate. Cloth, $3.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1916.

The science of blood pressure is, at the present time, in its infancy as to its real merits because of the lack of exact methods of using the instruments devised for the purpose.

George W. Norris, in his revised second edition of "Blood Pressure—Its Clinical Applications," gives us an up-to-date treatment of the subject. The term "blood pressure" may refer to intraventricular, intra-auricular, arterial, venous or capillary blood pressure, but when not specified, arterial blood pressure is understood to be meant—pressure taken at the left brachial artery. Norris describes all kinds of instruments and the methods of using them, but, after all, he cannot assure the correct register to be had at all times from the methods used. Yet one will conclude from reading the first chapters that this is a study worth following. One becomes bewildered in reading the descriptions of all the instruments used, and decides that only in a hospital or sanitarium could they be found.

The writer gives a number of methods which have been suggested in the hope of throwing more light on the question of the functional efficiency of the circulation; most of them, based on sound theoretic principles, would be valuable if our instrumental measurements were sufficiently exact to insure an accurate basis for deduction. This shows that there is still work to be done before blood pressure can be made an exact science, yet much good can be gained from the study of its present stage of development.

The author refers to a class of cases, written of by L. F. Bishop, found in youth and early life and recognized by hypotension, the symptoms of which are want of stamina, cold extremities, inability to stand prolonged mental or physical work, dyspepsia, nervousness—a general condition, however, not regarded as illness. This state of health, being quite common, is readily recognized. Hypotension is found mostly in chronic troubles, while acute contagious diseases are characterized—in the beginning, at least—by hypertension.

The section on drug effects is very interesting, especially the parts relating to tobacco and alcoholic stimulants, and should be read by all.

Norris's section on diseases and their treatment as related to blood pressure is very instructive, and if one doubts its merits as an aid in diagnosis he should follow the doctor through this section. The study of the science of blood pressure—even in its present immature

state—is invaluable in guiding the physician to a correct diagnosis in obscure cases.

The chapter on high blood pressure and its treatment is of value to any one, and should be read carefully. In fact, the whole book is one that ought to be found in every working library, besides being widely used for reference.

A TEXT-BOOK OF FRACTURES AND DISLOCATIONS, WITH SPECIAL REFERENCE TO THEIR PATHOLOGY, DIAGNOSIS AND TREATMENT. By KELLOGG SPEED, S.B., M.D., F.A.C.S., Associate in Surgery, Northwestern University Medical School, Associate Surgeon, Mercy Hospital. Octavo, 888 pages, with 656 engravings. Cloth, $6.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1916.

In this new work upon Fractures and Dislocations Speed presents much clinical and statistical material obtained from the large service at the Cook County Hospital, Chicago. He has combined with his own ideas and experience much helpful information culled from literature.

The author's references to the work of others is a gratifying feature. A large amount of labor has been thoughtfully expended by author, roentgenographer and artist. There are many instructive X-ray tracings and diagrams. The illustrations number 656. It is a broad, comprehensive, useful and inclusive book. The task has been well done and it deserves a warm welcome. The sound judgment, the modern conservative teaching which characterize this volume should place it among the highly authoritative works upon this subject.

R. H. F.

AN INTRODUCTION TO BACTERIOLOGY FOR NURSES. By HARRY W. CAREY, A.B., M.D., Former Assistant Bacteriologist Bender Hygienic Laboratory, Albany, N. Y.; Associate in Medicine, Samaritan Hosp. and City Bacteriologist, Troy, N. Y. F. A. Davis Co., Publishers, Phila., Pa. English Depot, Stanley Phillips, London, 1915. Price, $1.00 net.

This is a concise little book, not too deep for the purpose for which it is intended, and fills a decided and long-felt want in our curriculum in the training of up-to-date nurses. It embraces a good scope of bacteriology of a practical sort, and also in plain and impressive language instructs along the lines of sanitation, prevention of infectious diseases, and kindred subjects of interest. The book should become a decided favorite in our hospital teaching.

L. K.

EXAMINATION OF THE URINE AND OTHER CLINICAL SIDE-ROOM METHODS. By ANDREW FERGUS HEWAT, M.B., Ch.B., M.R.C.P., Ed. Tutor in Clinical Medicine, University of Edinburgh; Lecturer Edinburgh Post Graduate Vacation Course, 5th Edition. New York, Paul B. Hoeber, 67 East 59th Street. Price, $1.00.

A splendid little work for the busy practitioner in medicine, as it does away with the didactics of a regular text-book without missing the important points of interest and yet is not so concise as to confound it with a quiz compend. The various methods of examinations of the blood, sputum and stomach contents are fairly up to date, and to one possessed of fair preliminary training in scientific laboratory methods this little book should prove a valuable and handy little manual and guide. It is small enough in size to be slipped into the vest pocket.

L. K.

OBSTETRICS, NORMAL AND OPERATIVE. By GEORGE PEASLEE SHEARS, B.S., M.D., Prof. Obstetrics and Attending Obstetrician New York Polyclinic Medical School and Hospital; Formerly Instructor Obstetrics, Cornell Medical College; Attending Obstetrician at the New York City Hospital. 419 illustrations. Price, $6.00. J. B. Lippincott Co., Philadelphia and London, 1916.

Part 1 of this work deals with the normal. There are chapters on pregnancy, labor, and the puerperium; the diagnosis and clinical phenomena of pregnancy; the management of pregnancy; the antepartum examination; the fetus in utero; the physiology and mechanism of labor; the diagnosis and clinical phenomena of labor; the management of labor; the physiology and clinical history of the puerperium; the management of the puerperium; and, multiple pregnancy and labor.

One will note that there are missing the usual chapters on anatomy and embryology, which, the author says, is a science in itself and should be treated as such in a separate work.

Part 2 deals with the pathology of pregnancy and labor. It takes up local and general disorders of the mother; intercurrent affections; the premature interruption of pregnancy; extra-uterine pregnancy; anomalies of the fetus and its appendages; anomalies of the expellant forces; malpositions and malpresentations of the fetus; fetal mortality in labor; lacerations of the genital tract during labor; the puerperal hemorrhages; contracted pelvis.

Part 3 deals with obstetric surgery, covering general technic of obstetric operations; procedures designed to overcome the resistance of the cervix; the inductions of abortion and of premature labor; the forceps; version; the Cæsarean section; symphysiotomy and pubiotomy; and, embryotomy.

Part 4 covers the pathology of the puerperium. There are chapters on puerperal infection, affections of the breasts and nipples, and other complications of the puerperium.

From this outline it may be seen that the book covers the field in a thorough manner.

It is a readable book, presented in an interesting manner.

The illustrations are exceptionally good, every one serving a definite purpose—which is as it should be.

Dr. Shears' book will prove worth while to the specialist in obstetrics, and very valuable to the general practitioner. In the opinion of the reviewer, to purchase this book would be six dollars well spent, and a purchase that will not be regretted.

Would that there were fewer books published and more books as well done as the Obstetrics as written by Dr. George Peaslee Shears. T. S. W.

Deaths

ANDREW J. BILHOEFER, M.D., New York City, died August 28, 1917.

WALTER D. GREENE, M.D., Buffalo, died August 3, 1917.

SKIDMORE HENDRICKSON, M.D., Brooklyn, died August 30, 1917.

JOHN HAMILTON POTTER HODGSON, M.D., New York City, died August 4, 1917.

WILLIAM A. KEEGAN, M.D., Rochester, died August 8, 1917.

ROLLIN ALEXANDER KIRKPATRICK, M.D., Troy, died July 28, 1917.

FREDERICK W. SMITH, M.D., Syracuse, died July 31, 1917.

WILLIAM H. VAN DEN BURG, M.D., New York City, died August 22, 1917.

H. E. WALKER, M.D., Rosebank, died August 16, 1917.

HENRY FREEMAN WALKER, M.D., New York City, died August 13, 1917.

WILLIAM L. WELLS, M.D., New Rochelle, died August 17, 1917.

NEW YORK STATE JOURNAL OF MEDICINE

A Journal Devoted to the Interests of the Medical Society of the State of New York

JOHN COWELL MAC EVITT, M.D., Editor

Business and Editorial Offices: 17 West 43d Street, New York, U. S. A.

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Vol. XVII. OCTOBER, 1917 No. 10

EDITORIAL DEPARTMENT

THE DRAFTING OF PHYSICIANS.

IN the August 11th issue of the *Journal of the American Medical Association,* there appeared in the editorial columns an article entitled "No Need for Drafting the Medical Profession." The author regrets what he designates as the "hysteria" in regard to procuring the Medical Force of the new army. If he means by "hysteria" the efforts of thoughtful members of our profession, taking the initiative in suggesting the adoption of a form of enrollment of all the physicians of the country for the purpose of a judicious selection of Medical Officers for military duty and others for civic duty, in which the best interest of national defense at home and abroad was to be considered, then his diagnosis of "hysteria" is wrong. But, as you know, we are all subject to diagnostic fallibility.

It is not now a question of doctors volunteering for service in the war. The Government has already decreed that we are to be a part of the general draft, and in this decision we uphold the Government. But, if we can assist the Government by suggesting a method of draft which will insure the greatest efficiency at home and at the seat of war, why should we not at least offer a suggestion which appeals to us as a body as being superior to an indiscriminate draft, in which it is possible that the value of the knowledge of medicine possessed by the physician would be lost in his serving as a private in the ranks?

The physicians who have already volunteered and who have been accepted or rejected are deserving of all praise—approximately 16,000 in number, of whom about 14,000 were offered commissions; so far, 9,000 have accepted. The acceptance of the others is pending.

These physicians, imbued with patriotic desires (as we feel all members of the medical profession are) evidently weighed well the sacrifices they were making and considered that in so doing they were just to their dependents, to themselves and to their country. Those who did not volunteer, for reasons personal to themselves, had no idea of opposing the general draft, and will cheerfully accept any duty assigned to them after enlistment, as all good citizens should.

It is true that with the number of medical men we have in this country we shall hardly be placed in the plight in which England and France find themselves today, where civil communities are suffering from the need of medi-

cal aid. It is probable that in some of our isolated towns there will be a dearth of physicians at first, but this loss will be remedied by doctors from other localities taking the places of those absent.

On the other hand, we must consider the needs of war, the requirements of civil life, and the adaptation of individual physicians for these respective needs, with their proper assignments thereto.

With this idea in view, the Medical Section of the New York State Committee of National Defense, local representatives of the Committee of National Defense in Washington, D. C., composed of men of the highest professional standing in various sections of the state, drafted preambles embodying a petition for a Selective Draft of medical men which would anticipate and exempt them from the general draft. This petition was simply a recommendation to the Medical Section of the Council of National Defense for the institution of a Federal Classification of Physicians, similar to that of New York State, in which the Governor of the state ordered a special medical census to be taken wherein each legally qualified physician was required to give his own opinion of his economic and professional status attested by the Auxiliary Medical Council of the county in which he resides. Thus, measures might be instituted to secure the necessary Federal legislation, authorizing a draft of physicians based upon such a classification, which would provide exemption of:

First.—Those with too many dependents—75 per cent dependency upon the professional income.

Second.—Those disqualified by health or age.

Third.—Those needed for public health continuance.

Fourth.—Those needed for hospitals and clinics.

Fifth.—Those needed for institutions.

This not to operate *post facto,* but for a selection of medical men for future enlistment.

This petition, which was sent to the Medical Societies for signatures, was for the purpose of calling the attention of this proposed selective draft to the President and to Congress, so that recognizing the voice of a united medical profession it would then be placed in the possession of the Council of National Defense for action.

It was far from the intention of this committee that because the profession did not volunteer *en masse* that a conscriptive draft should follow, which impression has in some way gained credence.

We do not like the attitude taken by the *Journal of the American Medical Association.* In a prelude to the publication of the petition for a selective draft, published in the August 25th issue of the Journal it stated "that the petition when signed was to be presented to Congress"—whereas, the intention of the committee was to present the petition, after securing all available signatures of the physicians of New York State, to the Medical Section of the Council of National Defense.

It is the contention of the NEW YORK STATE JOURNAL OF MEDICINE that the efforts of the New York State Committee of National Medical Defense should receive the hearty approval of every member of the profession and be endorsed by the medical press, particularly by so valuable a journal as that one representing the American Medical Association.

The need of a proper medical personnel for service in the war is beyond question, otherwise the reputation of the profession will suffer. Who can better judge of that personnel, for selection at least, than a committee of like character in every state similar to that of the New York State Committee? There has been so much said and written about patriotism, serving one's country, sacrifices to be made and imperative duty, that we feel it would be questioning the patriotism of our readers to say more on these subjects. We know what is expected of us, and shall not be found wanting. But let our qualifications be placed where efficiency to the country at home and abroad will be conserved to the highest degree, and that "without coercion or threats."

MEDICAL ORGANIZATION.

"The purposes of the Society shall be to federate and bring into one compact organization the medical profession of the State of New York."—*First sentence, Constitution of the Medical Society of the State of New York.*

THE great law of April 4, 1806, to which reference was made last month, was essentially an organization law. Most other medical laws have been designed to restrict or modify medical practice or education. This law organized the medical profession of the state into a corporation. A hundred years ago the term "corporation" did not have the sinister meaning that reformers have engendered in the popular mind of today. The medical profession was unorganized and the differences between doctors were proverbial. The importance of organization and unity became apparent even at that early day.

A society had been formed in New York City on November 14, 1794. It was known as The Medical Society of the State of New York, and had for its object the promulgation of scientific knowledge and the uniting of the members of the profession. It was not improper that it should have been called The Medical Society of the State of New York, as there was no other medical society then existing in the state.

In 1803 the first effort to obtain legislation looking towards incorporation was originated. Nothing was accomplished until 1805, when more active steps were taken, and on April 4, 1806, the law under which the state and county societies are now incorporated was passed by the Legislature. It was known as Chapter 138, Laws of 1806, and its title was as follows: "An Act to incorporate medical societies, for the purpose of regulating the practice of physic and surgery in this state."

The Preamble read as follows: "WHEREAS, Well-regulated Medical Societies have been found to contribute to the diffusion of true science, and particularly the knowledge of the healing art:

"Therefore, be it enacted by the People of the State of New York, represented in Senate and Assembly, that it shall and may be lawful for the physicians and surgeons in the several counties of this state, now authorized by law to practice in their several professions, to meet together on the first Tuesday of July next, at the place where the last term of the Court of Common Pleas next previous to such meeting was held in their respective counties."

After being authorized to meet and organize, extraordinary powers were conferred upon the societies, the following being a part of the authority granted: "Whenever the said societies shall be organized as aforesaid, they are hereby declared to be bodies corporate and politic, in fact and in name, by the names of the medical society of the county where such societies shall respectively be formed, and by that name shall be in law capable of suing and being sued, pleading and being impleaded, answering and being answered unto, defending and being defended in all courts and places, and in all matters and causes whatsoever."

The special power was conferred upon them of prosecuting violators of the medical practice laws. The county societies are in a class with the Society for the Prevention of Cruelty to Children and the Society for the Prevention of Cruelty to Animals, in that they have the right to prosecute special types of criminals.

Under this law twenty-five county societies were incorporated in 1806, and three in the following year. The Medical Society of the State of New York was also incorporated in 1806, pursuant to the provisions of the same law.

In many respects the relation of the State Medical Society to the county societies is similar to that of the federal government to the states of the Union. The parallel, however, is not perfect, for there is one essential difference. The United States is a union formed originally of thirteen sovereign states,

each yielding certain of its powers of sovereignty in order to form a nation. The State Medical Society does not consist of original and independent county societies surrendering rights and powers to the State Society. All were formed at the same time and pursuant to the same law. There was no surrendering of powers by the one to the other.

The State of New York in this enactment organized the medical profession into *one body*. That body was divided into two sections, the state and the counties, with the design of securing the greatest efficiency. Certain powers were given to the state section; other powers were given to the county section. The county societies never surrendered anything to the State Society, as the thirteen original states surrendered rights to the federal government. The medical profession of New York is organized into one body, divided into two sections for the sake of efficiency. A county society can retain its powers and privileges as a county society only when it is in affiliation with the State Society. An independent county medical society is an impossibility under the laws of New York State.

The statement is often made that membership in the county society carries with it membership in the State Society. This is not strictly in accordance with the facts. The election is to the medical *organization*. It would be as near the truth to say that the election was to the State Society, which carried with it membership in the medical society of the county in which the member resided. Neither statement is legally correct. Election means membership in the "Medical Corporation" and includes equally the state and county sections of the corporation.

As a matter of wisdom and policy the selection of members is placed upon the county society, as being a local body, best able to judge of the character and fitness of candidates. The admission of a member, however, is to the medical organization not to a county society alone.

Error is sometimes made in regarding the state assessment as a tax on the counties. It is nothing of the kind. It is the portion of financial support due to the state section of the medical organization. The counties collect the whole amount assessed for financial support of both sections as being the most economical and efficient method.

Applicants are sometimes heard to say that they would like to be members of a county society but care nothing for the State Society. As well might an alien say that he would like to be a citizen of New York or Ohio but does not care to be naturalized as a citizen of the United States. Citizenship and membership would be almost worthless if limited to the local unit, either of the civil or medical organization.

The United States at the outset formed a weak and inefficient union under the Articles of Confederation. This was later changed into a compact union to form a real nation under the constitution. Our Society has had a similar experience. Under the stress of modern conditions and under modern ideas of the value of union and organization the original law was strengthened and a more compact and efficient union was instituted in 1905.

The purposes of this union are admirably set forth in Article I of the Constitution, which reads as follows:

"The purposes of the Society shall be to federate and bring into one compact organization the medical profession of the State of New York; to extend medical knowledge and advance medical science; to elevate the standard of medical education and to secure the enactment and enforcement of just medical laws! to promote friendly intercourse among physicians; to guard and foster the material interests of its members, and to protect them against imposition; and to enlighten and direct public opinion in regard to the great problems of state medicine."

F. M. C.

Original Articles

CHOICE OF OPERATION FOR RETRODISPLACEMENT.*

By E. E. MONTGOMERY, A.M., M.D., LL.D., F.A.C.S.,
PHILADELPHIA, PA.

UTERINE retrodisplacement for long has been a condition which has appealed to the investigator as one capable of much injury, and when found has been held responsible for all the ills to which its possessor was heir. When I began practice it was being corrected by mechanical means, and some very substantial reputations have been established by pessaries constructed for the correction of backward displacements: Hodge, Smith, Thomas and Mundé deserve to rank as inventors in this line.

With the introduction of antiseptic and aseptic measures by which peritoneal surgery was made safe and easy it is not surprising that backward displacements should have been thought worthy of attack. A great variety of procedures has been the result, the end of which is not yet visible. It has been truly asserted that retrodisplacements of extensive character may exist for long periods and not cause symptoms. While this cannot be disputed it is not a valid argument against correction of displacement because the position interferes with the return circulation from the organ through the veins, which is still more aggravated by the misdirected internal pressure, and the uterus gets larger from passive congestion, its drainage is less effective and its resistence to possible infection lowered. In the line of prevention these conditions are valid reasons for the employment of measures to maintain the organ in its proper position. In a woman who has recently been confined when the organ has not become fully involuted the employment of mechanical means, which will hold the heavy organ up until the process of involution has been completed, enables the ligaments to maintain it. In the young and growing girl, in whom the introduction of a pessary or the wearing of a tampon would be objectionable, the position may be corrected by hygienic measures; such as, deep breathing while in the genu-pectoral position, the regulation of the bowels, attention to evacuation of the bladder, avoiding tight clothing, assuming a straight position while sitting, and employing the lateral and prone positions in bed. Swimming is excellent exercise for those with a tendency to retrodisplacement.

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 26, 1917.

The instances in which the physician can secure that cooperation on the part of his patient which will ensure recovery in such conditions are rare. The class of cases which will afford the most favorable results from the employment of pessaries has been mentioned and constitutes a very limited number. The insertion of a pessary for support for many means that the wearer is condemned to its use for the remainder of her life. The instrument is a foreign body, uncleanly, prone to become roughened by the secretions, to cause ulceration, granulation and growth of tissue by which it becomes largely imbedded consequently should be investigated from time to time but is often neglected. Not unfrequently it causes pain and distress. It does not always maintain the uterus properly in position and aggravates the discomfort. It should never be forgotten that it does not correct a malposition, but maintains the uterus in position when the malposition has been corrected; consequently it should not be employed when the organ is fixed by adhesions or acutely flexed. With a large class unfitted for the use of a pessary, the constant supervision necessary to make its employment safe, and the recognized inefficiency of it as a curative agent, a search for more effective measures naturally occurred.

The study of natural supports for the uterus promptly drew attention to the influence of the round ligaments as stays to prevent falling backward. The extraperitoneal shortening of the round ligaments was advocated, but not practised by Alquie, in 1840. The operation was unsuccessfully practised by DeNeffe in 1864, and Koeberle (1869), Adams (1880) and Alexander (1881) followed with experiments in the use of the round ligament. The publication by the latter of his experience gave it world-wide publicity. The original operation soon underwent many modifications, most notable of which were those of Edebohl, Newman, Martin and Goldspohn. It was soon determined that its application was limited. In all cases in which the uterus was extensively, or even slightly fixed, it could not be successfully employed. When the uterus or its appendages were more or less fixed, shortening of the ligaments meant the subjection of the uterus to traction in different directions in which the ligaments as the most elastic of these forces must sooner or later give way. These adhesions could not always be recognized by bimanual palpation, hence the procedure was a blind one which was applicable only to the known uncomplicated cases, or those least needing correction. Goldsporn endeavored to overcome this defect by dilatation of the openings and the incision of the peritoneum at such points, but without secur-

ing sufficient freedom to make treatment of complications safe and possible. He has given up the operation because he has seen that the displacements can be treated more safely and effectually by abdominal incision.

The next method in order of priority is that of ventrofixation, or ventrosuspension first practised by Olshausen in cases where the ovaries had been removed, when he fastened the stumps to the abdominal wall by a suture on either side of the wound to keep the uterus out of the lower pelvis. Kelly modified it by inserting a suture through the fundus and bringing this in relation to the peritoneum of the anterior wall so that the uterus was held in anteflexion. In any case of retrodisplacement the extent and firmness of this union made it respectively a fixation or suspension. In the former the uterus is held against the anterior wall by a firm band of adhesion; in the latter the peritoneum becomes drawn out in a ligamentous band. This operation was an advance over the Alexander operation in that it permitted the inspection of the condition of the pelvic organs, the correction of complications, the removal of diseased structures, the separation of adhesions, and the more certain replacement of the uterus; but, it had the following disadvantages: 1. It was impossible to regulate the amount of fixation: what was intended as a suspension would under some infection become a positive fixation. 2. Even when satisfactory suspension was brought about the suspensory ligament was largely cicatricial. It would gradually become attenuated, especially if the woman became pregnant, and subsequent to pregnancy would exert no favorable influence. 3. A band of adhesion, whether fixation or suspension, was not free from danger. Occasionally, a portion of intestine would become obstructed and produce all the symptoms of ileus. This condition was not necessarily limited to the period immediately following operation but might occur at any time subsequently as long as the artificial band remained. 4. When fixation occurred it was a source of distress during gestation and a cause of dystocia at its termination, not unfrequently causing an abnormal delivery. Occasionally rupture of the uterus took place owing to the great expansion of the posterior wall while the anterior wall was held fixed. Not infrequently in ventro-suspension the band of adhesion would hold the fundus forward and cause the developing uterus to resemble double pregnancy in a bicornate uterus. The inability to limit the results of an operation to a suspension, the uncertainty of its subsequent course, the possibility of discomfort during gestation and obstruction to parturition have impressed the surgeon that some other method of procedure must be devised.

It was not unnatural that the round ligament should be utilized in various ways and as a consequence various modifications of the operation on this ligament have been introduced: as folding the ligament inward on itself, tripling it as in the Mann operation, carrying a fold of ligament through the broad ligament and suturing its posterior to the uterus so as to sling the organ forward; in all of these, however, the strongest part of the ligament was utilized, leaving its weakest portion, that within the inguinal canal, to support the traction. Operations performed on the ligaments or for fixation of the uterus have also been done through the vagina and the fundus of the uterus sutured to the vaginal wall. These operations, however, are found to so complicate subsequent gestation and parturition as to render them unworthy of consideration. Operations have been performed on the utero-sacral ligaments either through the vagina or from above. These operations are undoubtedly on a correct principle inasmuch as the drawing back of the cervix necessarily tilts the other end of the lever forward, but unfortunately in cases in which this operation would be most serviceable the utero-sacral ligaments are so attenuated that the operation consists in little more than folding up the peritoneum. In very deep retrouterine pouches where the uterus is dragging on its anchorage I have found satisfactory results in taking up the peritoneal folds at the side of the round ligaments and uniting these together laterally, and especially to the posterior part of the infravaginal cervix, then suturing the retro-cervical peritoneum to that of the rectum. This procedure lifts upward and backward the cervix, causes the fundus of the uterus to fall forward which may be efficiently maintained by shortening the round ligament. Where the uterus is not prolapsed but only in a state of retroversion or retroflexion the most satisfactory operation is a modification of the Gilliam operation which I have been employing since 1904.

This operation consists in opening the abdomen in a median line, or by transverse incision through the skin, superficial fascia and aponeurosis, or by vertical incision in the middle line through the peritoneum. Adhesions are broken up, abnormal conditions of the tubes and ovaries treated, and a ligature carried under the round ligament about one and a half inches from the cornu of the uterus; the ends of the first ligature introduced secured by a hemostat, and the ends of the second threaded into the eye of a modified Dechamps' needle. The round ligament is caught with a hemostat external to the point at which the ligature is passed beneath it where an incision is made in the anterior leaflet of the broad ligament and the needle threaded with both ends of the ligature is carried outward between the layers of the broad ligament until it reaches the point at which the peritoneum

is reflected on the anterior abdominal wall, when it is brought through the aponeurosis and its ends secured with a hemostat which has been removed from the round ligament. The same course is pursued on the opposite side. Then holding the ligature tense, a pair of closed scissors is passed along it through the aponeurosis, the blades slightly separated and withdrawn. Traction upon the ligaments usually brings through the loop without difficulty. Each loop is then secured on either side by a suture, which includes the distal and proximal portions of the loop and a portion of the aponeurosis. The loop can be drawn out or relaxed so as to permit the necessary traction upon the uterus.

This procedure has the advantage that it utilizes the best part of the ligament to hold the uterus forward, it creates and produces no raw surfaces within the abdomen for subsequent adhesions, leaves the uterus a moveable organ yet incapable of being displaced into the retrouterine pouch. It leaves the ligaments capable of evolution and involution and thus insures greater probability of maintaining the uterus in position in subsequent childbearing. It is applicable to the worst cases as well as to the simple ones. It cannot be claimed, however, that it will correct all conditions. Indeed, I would not advocate it alone in cases of retrodisplacement associated with prolapsus. Shortening of the ligaments in such cases means that the uterus which is probably heavy will drag on its anchorage. In such cases it is important that the cervix should be drawn upward and backward, thus insuring the uterus to lie across the pelvis in a position similar to that which occurs in women with a normal position of the organ. In all cases of prolapse the operation should be associated with other operative procedures, such as restoration of the pelvic floor, and occasionally shortening of the utero-sacral ligaments or by application of peritoneal folds.

In *Surgery, Gynecology and Obstetrics* for May, 1915, I reported 756 operations for maintenance of the uterus in position by the procedure of retroperitoneal suspension utilizing the round ligaments. In more than ninety per cent the operation had been combined with procedures for the correction of complications. The principal procedures in the order of frequency were: Curetment, 632; perineorrhaphy, 239; trachelorrhaphy, 175; amputation of the cervix, 104; resection of ovary, 58; anterior colporrhaphy, 56. The mortality was five cases. The last four hundred were without a death.

In the fatal cases the first had undergone curetment, perineorrhaphy, resection of the right ovary in addition to the operation on the ligaments. She had a severe vaginal hemorrhage following the operation which so lowered her resistance that she succumbed two weeks later. The second case after curetment and salpingo-oophorectomy for a left-sided pus collection with shortening of the right ligament died the following day from fulminating peritonitis. These cases were in 1905, the year after I began the procedure. The third case in November, 1916, had been subjected to curetment, perineorrhaphy, appendectomy and excision of hemorrhoids with shortening of the ligaments, died on the eighth day with pulmonary embolism without any previous abnormal symptoms. The fourth, in 1908, underwent curetment and shortening of the ligaments through a Pfannenstiel incision. Subsequently the abdomen was found filled with blood, which was without apparent explanation as no vessels had been cut and there had been no bleeding when the abdomen was open. The fifth case also occurred in 1908. Curetment, amputation of the cervix and perineorrhaphy were done before the abdomen was opened by a Pfannenstiel incision through which shortening of the ligaments and an appendectomy were performed. She had a severe intestinal hemorrhage followed by peritonitis and death.

Since the above report until April, 1917, I have performed the operation in combination with other procedures one hundred and forty times. The operations with which this procedure has been combined have been curetment, 131; appendectomy, 110; amputation of the cervix, 46; perineorrhaphy, 29; trachelorrhaphy, 26; resection of the ovaries, 10; and temporary ventrosuspension in 10 cases. Various other operations as gastropexy, nephropexy, cholecystotomy and cholecystectomy were done in occasional cases. In this series one death occurred. The patient was a nurse at the State Hospital, Norristown, Pa., who underwent operation January 23, 1915. It consisted of a curetment, and appendectomy and breaking up extensive and firm adhesions binding down ovaries and tubes through a median abdominal incision; both ovaries contained hematomata which were squeezed out, and the ligaments were shortened. The appendix was large and contained concretions. The evening following the operation the pulse was rapid, and she had some elevation of temperature. The day following it was still higher and reached 105 degrees on the third day; she died early on the 26th.

In the six fatal cases of this series of 896 operations, the condition in but one was so uncomplicated that the operation might be held responsible for the termination, and yet there was nothing about the procedure to explain the fatal abdominal hemorrhage. The procedure has stood the test of pregnancy without recurrence in many instances. Singularly, at the present time I have in the ward at Jefferson Hospital the first patient upon whom I have been obliged to operate for recurrence following labor.

Discussion.

Dr. Robert L. Dickinson, Brooklyn: Those of us who have had the pleasure of seeing Dr. Montgomery operate know that there is only one very serious matter concerning his operation that ought to be frankly stated, when it is done, and how he does it is the thing I have had trouble in determining. He has offered to take two or three minutes to do it and show me how it is done, and if any of you visit him in Philadelphia he will be glad to demonstrate the operation to you. In other words, the simplicity of it is one of the very striking things.

A review of the steps by which we reach these methods has always seemed to me of great value as I have heard Dr. Montgomery give it, and a question that seems worth discussing is whether a single operation meets all the needs, or whether it be desirable that the specialist shall have an armamentarium of operations so as to adapt particular conditions to particular operations. I would suggest that such a phase of the subject might be profitable for discussion.

Dr. Walter W. Chipman, Montreal, Canada: I think Jefferson Medical College is to be sympathized with in the loss of Dr. Montgomery. It is a great pity to lose a man like Dr. Montgomery, who has had an extensive and rich experience, and who is such an admirable teacher. If possible, he ought at least to continue his teaching.

As you have heard, Dr. Montgomery has given us an admirable review of the history of this operation and the various steps by which it has been developed. The whole point about it, seems to me, is the gradual development of the fact of using the strong part of the round ligament. The first operations that were done forgot that part of the round ligament that is the weakest is the part in the inguinal canal. Gradually we have arrived at the conclusion that this weak part we must disregard, as it were, and trust to the uterine part of the round ligament which is richer in muscle and blood supply, for drawing the uterus forward and upward. I like and use in practice the operation of Gilliam, modified in such a way as not to leave two "pillars" in the peritoneal cavity. The modification of Dr. Montgomery's is an excellent one. What I frequently do is to draw the round ligament through the rectus muscle and close the opening outside the withdrawn round ligament, by stitching it to the peritoneum of the anterior wall with a running suture. However you do it, the object is to occlude any fenestrum outside of the pillar. You leave a large round fenestrum between the two pillars. I like the Pfannenstiel incision in this operation, and I might say that it is the only occasion when I use it. The Pfannenstiel incision, with the Gilliam operation, seems to be ideal in such conditions.

Dr. Dickinson referred to the question of whether there is one perfect operation, or whether we should have a choice according to conditions found. The only choice I make is this: if there has been a good deal of inflammatory trouble behind the uterus associated with the tubes and ovaries, if I have to free many adhesions, I rather prefer the round ligament suspension of Ohlshausen; simply two sutures passed through rectus fascia and peritoneum and picking up the round ligament close to the uterus. That, it seems to me, is a stronger operation than the Gilliam. However, I am open to conviction on that point, but those are the two operations I use, the two suspension operations. I do not like the Baldy-Webster operation. On two occasions I have had to reopen the abdomen to free tubo-ovarian adhesions, the patient suffering from intense pain.

Where there are many operations there is no really good one, but I think you will find that the Alexander operation, the Baldy-Webster operation, and various plications of the round ligament will gradually be dropped and the operations that will remain—or one of them at least—will be the Gilliam and possibly the Ohlshausen. They have a distinct large field of usefulness.

May I add this, that the virtues of the operation, as I see them, are two. It not only draws the uterus forward, but in a certain degree it suspends it, and therefore you take only the strongest part of the round ligament. The round ligament will hypertrophy during pregnancy and, as you know, involute during the puerperium, and that is a special virtue. We may rule out the ventro-suspension of Kelly in the child-bearing woman in my opinion.

I have enjoyed very much the history Dr. Montgomery has reviewed. It is really a most interesting chapter, and if some day we could induce him to write that history along the lines I was going to say, of cause and effect, and how one thing leads to another, it would make an interesting addition to our literature.

Dr. Harvey P. Jack, Hornell: I have been much interested in Dr. Montgomery's summary of this question. I think, however, if we go back to Dr. Chipman's paper* in the first place, we want to be sure whether it is necessary to do any operation or not, for many of these uncomplicated cases do well without any operation. But I believe I am one of those who want an armamentarium of operations at the present time. I have not decided which one I like the best. I have done perhaps about twenty Gilliam operations, and I have yet to see any complications from this operation. However, some of the patients complained of some dragging over the area where

* See page 453.

the ligaments are stitched, and for the last two or three years I have been doing the Baldy-Webster operation. I cannot find any fault with it, but in any operation we do for this condition we must remember we are dealing not alone with a retrodisplacement of the uterus, but there is a general tendency to prolapse. I have examined several cases done by myself and others in which after the operation the ovarian ligament has stretched out and you find the ovary painful and riding on the rectum, so that now in almost all of these cases we shorten the ovarian ligament. This should be done with great care so as not to interfere with the ovarian circulation. It has been much more satisfactory. In many of these cases the symptoms are not due alone to displacement of the uterus but to a dragging of the ovaries, and if you fasten the ovary at the same time you fasten the uterus, the symptoms will be very much more completely relieved and you will get away from the danger of prolapse and adhesions of the ovary. Inasmuch as Dr. Montgomery has called our attention to the history of the operation, I will say that thinking back to the time when Ohlshausen and Kelly began suspension operations, we have all wonderfully progressed in dealing with retrodisplacements of the uterus, because these operations are very satisfactory in selected cases where I believe I should do any operation at all. Either one of these operations may be done. I do not condemn the Baldy-Webster operation because I have had good results from it. It has stood the test of labor and it has met the indications.

Dr. Robert L. Dickinson, Brooklyn: I would like to ask whether there be any truth in the statement that that group of operations which shorten the round ligaments by puncture in the neighborhood of the inguinal canal is afflicted with a relatively high percentage of phlebitis.

I have had the pleasure of seeing Dr. Simpson operate as well as Dr. Montgomery, and I think my own personal drift has been steadily towards the wider use of an operation like this in principle. We older men have seen and have tried one operation after another. The only test of an operation perhaps is the personal one. Each of us wants to see the originator, the operator, do his work and show us the class of cases which he thinks are particularly adapted to the operation and try it out himself. It is the only way in which we can develop the real effects or defects of an operation.

I have seen Dr. Coffey operate, and you would be surprised to observe the very large number of very large catgut sutures with double knots that he buries, making a mass of tissue in front of the cornu of the uterus that remains tender for months. Two such patients of his were operated on in Brooklyn and they are still under observation.

An objection to the Baldy-Webster operation is that you puncture through the edge of the pampiniform plexus and some of these delicate nerve groups in the broad ligament and you may produce that unhappy traction that makes "gas pain" or "adhesions" later in a patient's history. I have done a large series of Webster operations with satisfaction, like the previous speaker, and good delivery results. It was picked up by me particularly because it took care of prolapse of the ovary and the varicosity of the broad ligament, slinging them well upward without the need of fastening up the ovary or quilting the upper edge of the broad ligament or doing a secondary procedure in the cases of relapsed and prolapsed ovaries.

The best review of the Baldy-Webster operation has been made by Dr. Polak, of Brooklyn, who found a large percentage of adhesions, and another small percentage of twisted ovaries, or recurrences of prolapsed ovaries, so that Dr. Polak in his very extensive material and with his Teutonic thoroughness in following up the cases has given us a valuable contribution. No man has a better record of following his operative cases than Dr. Polak has, or perhaps of reoperating on so many cases that come to him. As I have said, Dr. Polak has shown a considerable series of adhesions after the Baldy-Webster operation. One of the secrets of prevention of adhesions and of low mortality in connection with Dr. Montgomery's operation is that test we all apply to laparotomies, namely, he tenderly treats his peritoneum, and no man is more exquisitely delicate with his peritoneum than Dr. Montgomery, hence few adhesions, the bugbear of laparotomy.

I would like to ask Dr. Montgomery whether there is any field whatever for ventro-fixation (combined with sterilization by tying off the tubes in some way). It does seem to me that there are cases, particularly the adhesion cases, where the simplicity of sweeping a couple of silkwork sutures through the fundus and bringing them to the end of the abdominal incision would make it desirable.

I would like to ask Dr. Montgomery also whether he finds any considerable group of cases in which he thinks the anterior vaginal wall ought to be lengthened to throw the cervix backward? Great stress has been laid on that matter.

I was a partner of Dr. Skene for years who did that extensively, and I have seen Dr.

Reynolds' Work, whose more thorough operation has laid new emphasis on the matter. Dr. Chipman referred to this yesterday. What is the doctor's belief concerning the prevention of the cervix from sliding down and forward in cases in which it has a tendency to stay forward? Is it sufficient to keep the fundus forward without getting the cervix backward? Has the doctor tried shortening of the utero-sacral ligaments? We have tried it and abandoned what Bovee advocated.

This is a field full of interesting problems, many of which are still open, particularly in their refinements.

DR. MONTGOMERY (in closing): I appreciate very highly the compliment you have paid me in discussing so freely the paper I have presented.

With regard to the exploitation of the operation Dr. Dickinson referred to, it is not that I operate any more rapidly than other men, but I am trying to follow out what he has been emphasizing so effectively in this meeting, and that is efficiency, in other words, no lost motion.

Regarding the suggestions made by Professor Chipman, it is important to have the ligaments brought through the abdominal wall and secured properly, which is one advantage of the operation. We can bring the ligaments through the abdominal wall at any point, high up or low down, for the purpose we may desire.

With regard to the Gilliam operation, it takes a little longer in my judgment to fold up the peritoneum on either side where the loop has been brought up than it does to follow the procedure I have devised. You have in that instance a certain amount of cicatrical tissue in the peritoneum; a narrow space between the two points of the ligament. One case has been reported to a local medical society in Philadelphia in which adhesions had taken place through the central space; a loop of intestine had passed in front of the uterus and became adherent on its external surface and a twist had led to obstruction which caused the death of the patient.

As to whether this operation is necessary, as mentioned by Dr. Jack, I would like to ask, is it necessary to do any operation? Let us take a woman who has given birth to children; her pelvis is more or less relaxed, with retrodisplacement of the uterus, the intra-abdominal tension is directed against its anterior surface increasing, either the probability of retroflexion, or of prolapsus. The position of this folding over the uterus and twisting of the broad ligaments interferes to some degree with the venous circulation, and this is evident from the fact that when it exists for a long time, the fundus is enlarged; hence in a state of chronic inflammation, I advise the operation of shortening the ligaments. As you have been told the operation has mostly been done where there are other complications. The operation of shortening the ligaments was done in very few instances where conditions within the abdominal cavity did not demand a desirable procedure for the treatment of pelvic inflammation. I would not do this operation in a patient with a suppurative process in presence of active peritonitis, you would carry with the round ligament infection behind the peritoneum to a position where it would be difficult of access; I would not do the operation in a young girl, or an unmarried woman, with a slight retrodisplacement, until every other means in the way of hygienic measures had been tried, such as the wearing of loose clothing, the employment of deep breathing in the genupectoral position, and regulation of the bowels.

Shall we fasten up the ovary? When the uterus is replaced the ovaries rest on the posterior surface of the broad ligament, and this posterior surface looks upward and backward hence the ovary is on a shelf when the patient is erect, consequently, instead of shortening the ovarian ligament, I would rather shorten the infundibulo-pelvic ligament to hold the ovary in its more natural and proper position.

With reference to phlebitis, its has not been my experience that phlebitis occurs following this procedure unless the operator has been imprudent in cases in which there has been infection within the peritoneal cavity at the time the operation was done.

I do not wish to be understood as considering this operation to be a panacea for all forms of retrouterine displacements. I would not depend upon shortening of the round ligaments in a woman suffering from prolapsus. I would feel it was a kind of crucifixion, the round ligaments being shortened, the uterus would necessarily drag upon the ligaments as its only support. It should never be done in cases of relaxation of the pelvic floor with a tendency to retrodisplacement without association with plastic procedures on the posterior and anterior walls of the vagina. The recto-vaginal interposition of the levator ani muscle, when rectocele or cystocele are present.

When you read my paper you will find a large number of cases reported in which the operation is combined with others. In such cases there should be shortening of the utero-sacral ligaments, where these ligaments are so atrophied that they are of little moment, I

have folded the peritoneum over the utero-sacral ligaments and in some cases the retro-peritoneal pouch, obliterating that pouch by sewing the peritoneum of the anterior surface of the rectum to the peritoneum over the cervix, thus forming a shelf in which the intestines can subsequently rest. This procedure is of advantage when the sigmoid and rectum form a large fold which drops into the pouch of Douglas.

Is there any place for ventro-suspension? Ventro-suspension alone in these cases of prolapsus is open to the same objection that we have to shortening of the ligaments. It is simply a point from which the uterus must drag unless supported by plastic operations below, and in those cases where we have a deep retroperitoneal pouch, it is better to obliterate that pouch by plicating the peritoneum than it is to depend upon ventro-fixation.

CONSERVATIVE SURGERY OF THE FALLOPIAN TUBES.*

By HARVEY P. JACK, M.D.,
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TWO years ago I found myself constantly growing more and more radical in my treatment of tubal disease. After reading about the difficulties in obtaining sterilization, in cases in which this was considered justifiable, by operative means, pregnancy having occasionally taken place when a short stump of tube only remained and regeneration of the tube having occurred sometimes after ligation, I began to ask myself if we were giving our cases with infected tubes a fair chance for the joys of maternity. Was it possible that a future co-ordination of the ideas of gynecologists along the line of conservatism in these cases, and thereby the development of an orderly procedure in these operations would result in restoring a much larger number of young women, condemned by their infection to absolute sterility, to a condition in which pregnancy might, with reasonable possibility, take place.

The text-books of ten and fifteen years ago devoted considerable space to conservative operations upon the tubes; then we seemed to become more radical and less attention was given this subject. Right now conservative surgical treatment of tubal disease is receiving careful attention. There is a rennaissance from which much may be expected toward a settlement of the question. Opinions differ, but a perusal of the literature will show a constantly increasing number of births as a result of conservative operations upon the tubes.

My own experience is limited to ten cases in which resection of one or both tubes was practiced in the manner I shall later describe. No case has yet borne a child, but one came to me the other day, stating that she had skipped her period. In none of these cases was recovery from operation attended by other than a normal post-operative course. In one case a cyst of the ovary developed two years after operation and I removed it. There were dense adhesions about this ovary to the intestines. They were freed and peritonized as far as possible and the woman is well now, as ascertained by personal interview three weeks ago. At the first operation in this case adhesions were very dense and the chronic Neisser infection was complicated by a fibroid tumor, the size of a goose egg, in the anterior cervical region beneath the bladder. But the woman was young and desired children so a myomectomy was done with resection of both tubes. No pus was present at either operation. It is doubtful in this case if the attempt at conservatism had anything to do with the development of the cyst, unless one should say the proper procedure would have been a hystero-myomectomy with removal of the ovaries.

Just recently there was a very interesting discussion of this phase of the subject between H. N. Vinberg, J. N. West, F. R. Oastler, G. G. Ward and G. C. Child, Jr. (*American Journal of Obstetrics and Diseases of Women*, page 487, Volume LXXXIV, Number 465). Vinberg reported a case of drainage of double pus tubes, due to a concomitant appendicitis, in which pregnancy had taken place eight months after operation.

West reported three pregnancies as a result of his conservative work on the tubes, in which both tubes were resected, but condemned the operation for the reason that two women had died from intestinal adhesions, which he attributed to the fact that he had left a portion of the tube.

F. R. Oastler, in the same discussion, reports two hundred cases, and states that he is doing more or less of this work now, generally less, and he would limit the operation to cases specially desiring children. He, however, reports five children and no deaths. His conclusion, though, is that the work is unsatisfactory for the reason that one cannot be sure of the patency of the uterine end of the tube. Oatsler, in one case, did not attempt to open the club-ended tubes, but slit them and inserted in each a drainage tube, which he brought out of the abdominal wound. He has since delivered this woman of her fourth child.

G. C. Child frankly believes in conservative

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 26, 1917.

work and answers West's objection, i. e., that the patency of the uterine end cannot be assured. He says, "The work the pathologists have done on these tubes shows that the uterine end of the tube is seldom, if ever, closed. It is the distal end that is closed and those that have been examined very carefully have shown no obstruction at the uterine end of the tube. The function of the Fallopian tube being absolutely necessary for the continuance of the race, Nature has shown wonderful recuperative and restorative powers in this organ, as indicated not only by the fact that pregnancy has occurred after ligation and resection in the sterility operation, but also by a case reported by J. C. Webster (Findley, page 470), in which he had resected the tube and at a later date found the fimbriae reformed at the end of the stump.

It has been repeatedly shown that sterility is surely obtained only when the stump of the tube is peritoneised. Hence, it is reasonable in certain cases that plastic work on the tube, looking to a restoration of its function should be done. What are the cases, and what the procedure?

Selection of Cases.

Given a case in which conservative work should be done, and we shall have:

First—One who is young, under thirty to thirty-five years of age.

Second—One whose history is such as to make probability of gonorrhoeal or other infection clear and, most important of all, that the history shall show that the infection is not less than from six months to a year old. If it is still older, other things being equal, the case will be all the more favorable for plastic work on the tubes.

It is now well known that in six months to a year the pus is sterile in gonorrhoeal cases, which form, by far, the largest number of tubal strictures.

Third—Location of the lesion by physical examination under anaesthesia, during which it should be carefully noted whether the stigmata of gonorrhoea are present; whether other or puerperal infection has been present, as shown in the first by Barthalonitis and inflammation of Skene's ducts. The Barthalonian glands need not be palpably inflamed, but the presence of red spots at the duct openings of any of these glands is presumptive evidence of a past gonorrhoea. And in the second, by the location of the lesion, gonorrhoeal lesions being located almost invariably in the tube, and puerpural ones in the parametrium, the tubes if involved at all being affected only secondarily to the connective tissue lesion.

Before one decides to make the fight for restoration of function he must be in possession of all the knowledge he can obtain in order to plan the battle, and to this end the most careful and complete history must be secured.

What are the procedures that promise success? In the first place the most gentle handling of tissues and the separation of adhesions under light is necessary.

P. B. Salatich (*American Journal of Surgery*, 1916, XXX, 98) details a technic with a view to treating the adnexa conservatively, which is of great value. It consists in the use of a long sponge holder, equipped with a flat sponge, to separate adhesions under the eye, and by its use the operator is enabled to keep his hands largely out of the cavity. The adhesions are sponged away or, if some are too dense for such treatment, they are made taut and severed with scissors, thereby doing away with raw surfaces as far as possible. At the close of his paper, Salatich reports a case, in which the tubes were very adherent and the ovaries cystic. Partial resection of one tube and ovary was performed. The patient has been pregnant twice since this operation.

As to the treatment of the tube itself—when the tube is clubbed the fimbriated end is resected by most operators and the mucosa and peritoneal surfaces united by a few fine catgut or silk sutures. Strands of fine iodized catgut are now passed into the tube in the hope that they may keep the lumen patent until healing has occurred, this being done especially where the tube has been resected in the middle. G. C. Childs, Jr., uses kangaroo tendon for this purpose and fastens the strand. There is no reason why the catgut or tendon could not be passed into a previously iodized uterine cavity, grasped at the cornu and brought into the vagina. I have thought of using paraffined silk in this way, by means of which the patency of the tube could be maintained as long as desired. Iodizing the uterus and vagina should constitute a preliminary in all operations upon the tube and especially is this true when it is desired to do conservative plastic work. By iodizing I mean a preliminary dilatation and a swabbing out of the uterus with a 25 per cent alcoholic solution of the tincture of iodine. I. S. Stone (*Journal A. M. A.*, March 1, 1913) goes still further and forcibly injects the iodine into the uterus and out the tubes, this treatment to be followed by an immediate laporatomy when he forcibly injects the same solution down the tube into the uterus. He reports two pregnancies following this procedure. Though Stone reports no shock following the forcible injection, it has not impressed me as necessary. Preliminary swabbing of the uterus and

forcible injection of the remnant of the tube down into the uterine cavity with the iodine solution I believe should always be done in cases in which a portion of the tube is to be saved. This is practically the treatment recommended by Green (Case Histories in Diseases of Women, page 52). He saved one one side one-third of the tube, which he stitched to the ovary.

R. C. Turck has modified Ferguson's operation of hystero-salpingostomy. In this operation, instead of splitting the tube as advocated by Ferguson, Turck cuts the tube at an angle from above downward and outward as in Van Hook's uretro uretral anastamosis and the tube is drawn by a mattress suture in two needles, both of which are passed from mucosa to serosa of the tube, thence from the cut edges of the uterine mucosa up through the uterine wall. Traction on this suture brings the tube into its new position, mucosa to mucosa. Turck reports two pregnancies in eight cases, but remarks that this proportion probably cannot be maintained. This operation has always impressed me and further work along this line will probably give it its place. However, in the vast majority of cases, in view of the fact that the uterine end of the tube is almost always patent, a much simpler procedure is indicated. In my series of cases the tube was split in all and mucosa united to serosa by a few fine catgut or silk sutures and iodized catgut left in the stump of the tube at the larger or distal end. This is a simple procedure but, as one approaches the uterine end, it becomes increasingly difficult, until, by the greater number of operators, as resection or sacrifice of the tube within one or two inches of the uterus becomes necessary, total destruction of the tube is deemed the proper procedure. Even in view of its wonderful recuperative and reconstructive history a short stump of tube is not given a chance. If such an operator were asked why, he would probably reply, "On account of the difficulty of being sure of its patency," and this aside from the question of continued infection.

These probe-pointed scissors have proven of great service to me in these cases. The fine probe is easily inserted into the tubal stump to, and into, the sterile uterus. By means of the scissors the tube is then split for the desired distance, the split ends everted and fastened by stitches, finally being sewn to an ovary or the remnants of one. It is evident, I believe, that the scissors are a great help, for without them considerable difficulty will be encountered in splitting the proximal inch or two of tubal stump and thus uniting mucosa to serosa.

I am constantly performing this operation on practically all these cases under thirty-five years of age and I have yet to regret so doing. I am aware that in a way this is a new if not a revolutionary thought, the old idea being that we must remove all *possibly* infective areas. Panhystorectomy with removal of bladder, uterus, kidneys, and a post-mortem would be the position of the surgical enthusiast, but security enough is sufficient in surgery as well as in finance and the practical and happy results of conservative surgery of the tubes are beginning to dawn.

The conclusions deducible from the above are:

First—That serious post-operative results do not follow conservative surgery of the Fallopian tubes.

Second—That pregnancy is possible in a fairly large proportion of selected cases.

Third—That conservative and gentle preoperative treatment for months is necessary to convert a bad risk into a good one.

Fourth—That the gentlest handling, the most careful separation of adhesions and a well-ordered technic in dealing with the stump of tube remaining is a *sine qua non* of success.

Fifth—That, while we are combatting war, pestilence, famine and persecution, we should devote more time and patience to stamping out this greatest enemy of the race—gonorrhoea.

THE GYNECOLOGICAL HISTORY.*

By GEORGE GRAY WARD, Jr., M.D., F.A.C.S.,
NEW YORK CITY.

The Importance of Accuracy and Thoroughness in Making a Correct and Complete Diagnosis.

IN bringing to your consideration such an elementary subject as "History-Taking," I feel that perhaps an explanation, if not an apology, is in order.

"Every Day Gynecology" is a topic that especially concerns the general practitioner, and he is naturally more interested in learning how to make a correct diagnosis of a gynecological case, than to listen to the details of operative technique.

The attainment of a correct diagnosis largely depends upon making a right start. In a great proportion of cases the source of an error in diagnosis, occurs at the outset of the investigation, due to the hurried and imperfect interrogation of the patient. This may be the result in some instances of the lack of emphasis placed on this matter in our teaching, thus engendering a failure of appreciation of the importance of detail. As a rule a very few

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 25, 1917.

pages are allotted to this subject in the text-books on gynecology. Two to three pages is a liberal average—more than this is unusual, and indeed, in one text-book which has gone through many editions, no mention is made at all of the history, although a chapter is devoted to methods of examination, thus emphasizing its apparent insignificance. Frequently any junior interne is considered competent to take the history of a case without proper instruction, and the usual result is that there is a lack of uniformity and thoroughness in this work during his hospital days, which often becomes a habit that he carries with him when he goes out into practice.

The same was formerly true of the administration of anaesthetics, but fortunately a better appreciation of the rights of the patient to receive skillful anaesthesia exists today.

Let us hope that history-taking may shortly be elevated in dignity and importance.

In a recent paper on "Group Study," by Behlow, of San Francisco, he quotes Read as having shown that from a careful history one can make a positive diagnosis of the primary or major conditions in 53 per cent of cases, and the same care in taking a history will make possible a positive diagnosis of the secondary conditions in 41 per cent of cases.

It is therefore obvious that an accurate record of the patient's past and present history is of the utmost value for the proper consideration of data elicited on examination.

The usual method of procedure is to endeavor to bring out the chief complaint of the patient with a few leading questions, and then reliance is placed on the bimanual examination to arrive at a diagnosis—truly a "snap diagnosis," and the patient is often advised to have an unnecessary operation, or not to have a very necessary one, owing to the formation of an *incomplete,* if not an incorrect opinion.

If the physician asks questions in a hurried and superficial manner, he is very apt to get hurried and superficial replies. The general practitioner may plead with some apparent justification that he cannot afford time for any other method than that just described, and that all that can be expected of him is a "snap diagnosis" in a gynecological case and that he must leave to the specialist the refinements of the art. Unfortunately he frequently leaves it until too late to prevent serious results, or as he feels competent to do a curettage anyway, he may do irreparable damage by operating unnecessarily himself, all owing to an inaccurate diagnosis.

I feel sure that it will be more profitable to the general practitioner, as well as to his patients, if he will but realize that right here he can make haste by going slowly, and that the longest way round will be the shortest way home to an accurate diagnosis, which must augment his reputation.

I do not believe it is possible for any man to make a correct and complete diagnosis before operation without first obtaining a careful and accurate history. This, therefore, applies to the specialist just as much as to the general practitioner, and there surely is no excuse for his lack of time, as his work *must* be characterized by system and thoroughness to make it "special," and he expects extra compensation for his opinion. Yet I fear that there are some men with reputations as specialists who are little better than some general practitioners in their tendency to slur over the "preliminaries" to a complete diagnosis. A good diagnostician must be systematic as that is the only safe way of preventing forgetfulness and failure to investigate every part, and if he fails to be thorough his opinion is proportionately valueless, whether he be specialist or general practitioner.

Instances of how carelessness in history-taking has led to the neglecting of important features in a case might be multiplied indefinitely. How often does the failure to ascertain if there has been a marked loss of weight result in cancer being overlooked? A patient with a leucorrhoea or pelvic tenesmus due to a venous stasis, the result of back-pressure from a non-compensating heart lesion, would be given digitalis instead of a needless curettage, if a thorough inquiry had been made. Proper questioning may develop the fact that a backache is the result of sacro-iliac disease or faulty posture, rather than to a displaced uterus.

In no case are the details of the history so important as in the differential diagnosis between ectopic gestation and acute pyosalpinx. In many instances we cannot make this differentiation without an accurate and thorough history. The careful details as to the exact dates of the appearance and the non-appearance of the menses, the character of the pain, the nature of the bleeding and the discharge, tip the scale one way or the other with vital import to the patient, as an ectopic means immediate operation, while an acute pyosalpinx means delay.

Constipation has an important relation to gynecologic disease, and the careless inquiry as to whether the bowels are regular may elicit an affirmative answer, while detailed questioning brings forth that they are regular once a week.

It should be borne in mind that gall-stones and duodenal ulcer are more important lesions than a lacerated cervix, while the latter will be discovered by the examination, the former will be completely overlooked unless a care-

ful and thorough history be taken. To only repair the cervix of such a patient, and to expect her to be a well woman, is a travesty.

Tuberculous peritonitis cannot be diagnosticated before operation without the aid of a complete history. How rarely do we diagnose it? How often, on opening the abdomen and finding we have made a mistaken diagnosis, a careful review of the history will make us wonder how we could have missed it. Enough has been said to justify a plea for more care and thoroughness in history-taking.

It is a good plan to begin by allowing the patient to recite her complaints at will. This will give the physician an opportunity to study the type of the patient, her physical appearance, her nervous system, etc. He should then systematically ask direct questions in order to ascertain the facts of the case, and record the answers.

Great care and persistence is necessary to insure accurate statements from many patients, owing to their lack of appreciation of the important bearing exactness may have on the diagnosis.

In addition to the points common to all medical histories, certain facts in the life history of the patient peculiar to her sex, which may have a special bearing upon the condition of the reproductive organs, should be carefully inquired into, namely:

The Menstrual History.—This must be thoroughly ascertained—the age at which the menses first appeared and became established; the type of the flow, whether regular or irregular in appearance, and the number of days of interval; the duration; the quantity (the number of napkins used each day is the best guide); the character, whether accompanied with clots or tissue, color and odor; whether there is associated pain, and, if so, its location, viz., uterine, ovarian, back, or general pelvic; the character of the pain—colicky, sharp, stabbing, aching, ovarian (which is the same as testicular pain), or soreness; the time of the pain in relation to the flow, which is important in such conditions as obstructive dysmenorrhea, when it may precede the appearance of the blood; the previous character of the menstruation; and finally, menopause symptoms, if the patient has reached or passed that period.

It is well to remember, in judging the condition of the menstruation, that every woman is a law unto herself as to habit, but, this having been properly established, she should not markedly deviate from her rule. For instance, one woman will menstruate for six or seven days, using four or five napkins during the height of the flow; while in another the function will last but two to three days and she will use only two or three napkins. Both may be perfectly normal menstruations, but if the second woman should flow as profusely as the first she might have an endometritis and vice versa.

The Obstetrical History.—Two-thirds of all gynecological patients can trace their sufferings to something going wrong with the childbearing function, a presumably normal phenomenon. Therefore, it is necessary to investigate carefully the character of all pregnancies—both labors and miscarriages. The dates of the labors, whether they were abnormal in any particular, the nature of any operative procedure—especially the use of forceps, and the duration and character of the puerperia should be ascertained. Likewise, the number of miscarriages—with the dates and the duration of the gestation—whether they were induced or spontaneous, whether the patient was curetted, and the character of the convalescence, are all essential, as they may have a bearing on the diagnosis.

Pain.—Pain, in some form or other, is the most frequent gynecological symptom and is usually the cause of the patient's seeking relief. The pain may be in the form of backache, pelvic tenesmus, headache or dyspareunia, or it may be referred to some particular part of the pelvis. Its character and location should be carefully studied.

Ovarian pain is similar to pain in the testicle and is peculiar in that it is accompanied with a feeling of nausea and faintness, or even shock, like that experienced from testicular trauma, for the ovary is normally as sensitive to pressure as the testicle. Tubal pain is characterized by tenderness and, if pronounced, is sharp, stabbing and severe, as instanced in ectopic pregnancy. Uterine pain is of a colicky type if caused by any foreign substance, such as blood or a submucous fibroid invading the cavity, due to the efforts of this muscular organ to expel such contents; otherwise, a general tenderness and a feeling of weight may be complained of.

Discharge.—Any discharge from the vagina or external gentalia should be studied in its relation to other symptoms, and also its quantity and character should be noted. *It is a safe rule to regard every abnormal or persistent discharge with suspicion until its character is proved by a microscopical examination.*

Bladder.—Whether the function of micturition deviates from the normal should be inquired into. Symptoms referable to the urinary tract are practically always the same, namely, frequency, burning or smarting, and sometimes vescal spasm at the end of the act. Consequently, a diagnosis can only be made by the process of exclusion.

Bowels.—The condition of the bowels is a frequent cause of the pelvic congestion which is a potent factor in gynecological pathology; therefore, the woman's habit in regard to this function may have an important bearing on her symptoms.

Previous Operations.—The details as to any previous operations should be asked for.

Husband.—It may be necessary to interrogate the husband as to his freedom from specific diseases.

Finally, it is wise to make a summary of the

GYNECOLOGICAL HISTORY No._____

NAME PHONE

ADDRESS

DATE REFERRED BY NAT.

AGE S M I I W HEIGHT WEIGHT OCCUP.

GENERAL CONDITION HEART LUNGS

PREVIOUS ILLNESSES FAMILY HISTORY

SPECIFIC DISEASES Husband

PREVIOUS OPERATIONS Date Character

PRESENT COMPLAINTS:

Duration

DIGESTION NERVOUS SYSTEM

MENSTRUATION Began Established

Type Duration Pain

Amount No. Napkins Clots

Alterations Previous

Last Period Menopause

CHILDREN NO. Ages

Labors Natural Abnormal

Puerperia Duration Fever

MISCARRIAGES No. Dates

Duration Curettage

Spontaneous Induced Convalescence

PAIN Character Lower Abdomen R. C. L. Upper Abdomen R. C. L.

Head Back Dyspareunia

LEUCORRHOEA Amount Character

BOWELS Drug Pain

BLADDER

Pain Frequency Quantity

Fig. 1.

present complaints of the patient, for ready guidance in studying the case and for future reference.

To insure completeness and to avoid omissions a printed form is a necessity. Outline diagrams of the various pelvic planes and the abdomen, on which it is simple to record graphically the size, situation, and shape of the growths, displacements, etc., are of especial value in recording gynecological cases.

ABDOMINAL EXAMINATION Muscles

R. Kidney L. Kidney Liver

Gall Bladder Spleen

Stomach Appendix Hernia

Intestines Neoplasms

PELVIC EXAMINATION Ext. Genitals

Clitoris Urethra Skene's Glands

Pelvic Floor Bartholini's Glands Anus

Rectum Coccyx

Vagina Ant. Wall Post. Wall

Cervix Fornices Parametria

Uterus

R. Tube L. Tube

R. Ovary L. Ovary

Utero-Sacral Ligaments Pelvic Cavity

CYSTOSCOPY Urethra Bladder

Trigone Fundus

R. Ureter & Kidney L. Ureter & Kidney

POSTURE

LABORATORY REPORTS: Urine

Blood Pressure Blood

Smears

Tissue

DIAGNOSIS

REFERRED { OPERATION / TREATMENT

TERMS

Fig. 2.

Many forms of record blanks have been devised in accordance wtih various tastes. Our honored chairman, with his characteristic thoroughness, makes his patients fill out at home a form of almost encyclopedic completeness. His printed instructions read as follows:

"Please fill out the enclosed blank and bring it with you to the office.

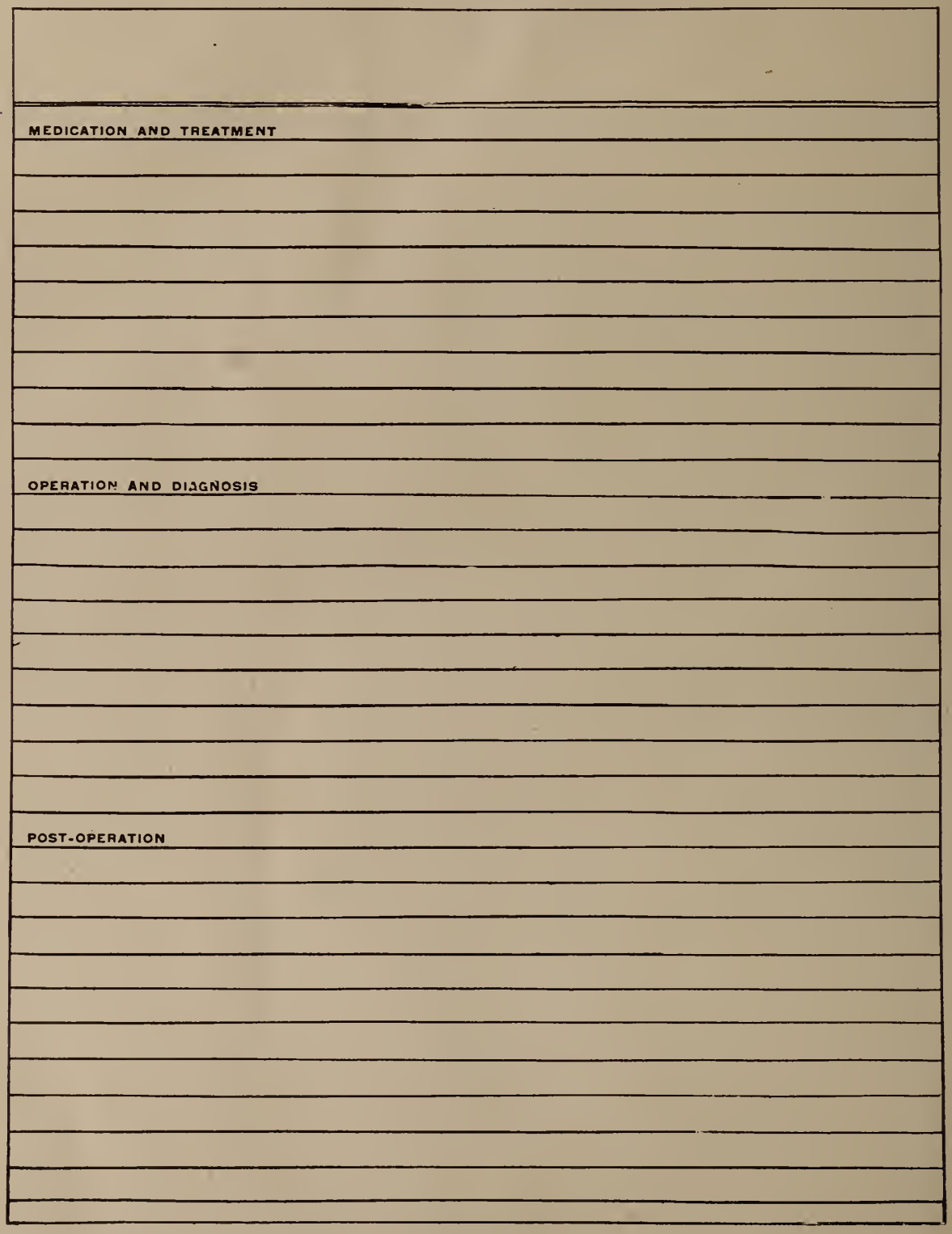
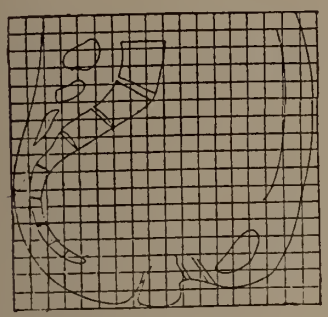
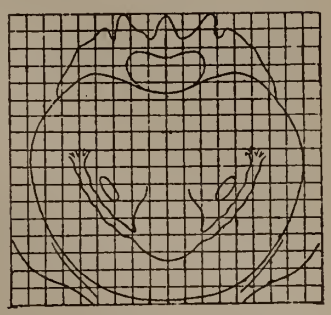


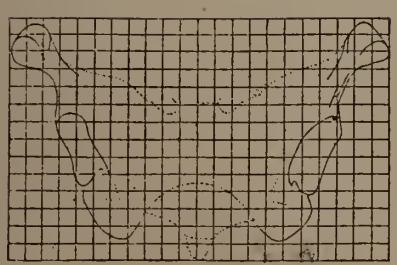
Fig. 3.

"It is very desirable that a patient should appreciate how essential a complete and orderly history may be in diagnosis and treatment. A problem is worked out, not by some magic of intuition, but by studying all the available data lest some important detail be overlooked.

"Incidentally it may be said that one who has had much disability will do well to have in her







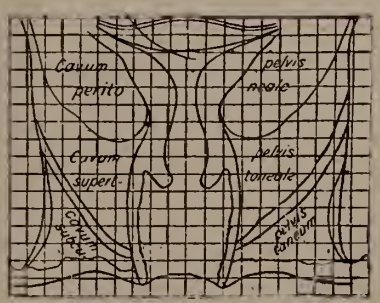


Fig. 4.

possession, kept together for future reference, not only a history thus in order, but also a statement in writing from each doctor, which would consist of an outline of any serious or repeated illness; opinion at consultation; findings at or steps of operation or delivery; together with special or unusual points in treatment or in physical peculiarities.

"Furthermore, records have a cumulative value in the care of the next generation and of other members of the family."

Thus the patient is impressed with the importance of accurate statements.

The record blank devised by the writer is here shown. (Figs. 1, 2, 3, 4.) This has been designed to be as brief as is compatible with efficiency, in other words, to the irreducible minimum.

I will summarize my plea for more care and thoroughness in history-taking in "Every-Day Gynecology" by emphasizing the facts:

That the more puzzling the diagnosis, the more important the history.

That a correct diagnosis depends not only upon a *"tactus eruditus,"* but also on an accurate history.

That a thorough history will make much easier the formation of correct conclusions.

That if more complete histories are taken there will be fewer unnecessary operations.

That time is essential to insure care and thoroughness.

The biggest word in the modern business world today is *"efficiency."* The same may be said to apply to the professional world.

The chief sign of inefficiency is the dread of working overtime. Efficiency means time saving. Many who say they haven't time would no doubt be surprised should they make a careful study of the subject, as does the business man, to find that they are not living up to their possibilities in this regard by one-half.

Finally, by giving more time to this essential aid to diagnosis, we will show that we appreciate more fully our responsibility and duty to those who place their lives in our hands.

Discussion.

Dr. Robert L. Dickinson, Brooklyn: Inasmuch as the writer of this paper has been kind enough to quote my method, I will say this: no *patient gets into my office without a written history* in her hand, except in case of emergency, and it takes her a good long while to fill it out. It takes me an average of 22 to 25 minutes to write a good history, and a history cannot be brief, because it is a long series of questions which every patient must be asked. When she brings in her filled-out history, it takes four minutes to red pencil that history, and perhaps two or three minutes more to amplify certain points. The average time saving is something near 20 minutes with a new patient, a thing not lightly to be regarded. I have said that no patient can get into my office without a history. Also, I try to see that *no patient escapes without a written diagnosis,* the best I can make at that time, and if it is but a partial examination a written statement so states. We are trying to develop a habit in the hospital service that a patient shall not be discharged without a written statement of what was found when the abdomen was opened, so that it is not a mere layman's perverted statement that goes to the next doctor, and they will get fewer patients who are said to have adhesions. So Dr. Ward hits this hobby of mine very hard.

We would like to have some discussion as to whether a history as voluminous as that taken in the Peter Bent Brigham Hospital is desirable and what constitutes an irreducible minimum.

Dr. Walter W. Chipman, Montreal, Canada: I have been interested in this paper very much because it touches upon a practical and interesting question to us all. I think a case report may be long or short, according to the man who takes it. In the hospital service with which I am connected, we take, say, a fourth or fifth year man to write the history, and you will be struck by the needless labor of that history in the first place, and the next thing that will strike you is that so many things have been omitted. When that case report is gone over by the visiting man, it is again repaired along these two lines. The more experienced man can take a short history. In a conversation we had at lunch today one of the physicians said, "Dr. Chipman, I am a great believer in hard work, in continuous work, especially for young men." I think one in early practice should make his case histories long and full, and as his experience increases he can gradually shorten them.

An epitome of these case reports must be preserved. We are now endeavoring to learn the "end results." This we do by means of a card about six by four, which I fill out myself—the diagnosis, the preoperative diagnosis, and the post-operative, and I am sorry to say that they do not always agree. Then I fill in, say, three inches of space describing the operation. My house surgeon or senior takes that card, as he has been my first assistant at the operation and using it as a guide, fills in the case report, and amplifies it himself. That card, the one I filled in, is sent to the office, and one year from the date it is written, the patient is sent a postal card asking whether the symptoms for which she came to the hospital are present or absent, and the end results so secured. That is the method we adopt. We make a résumé for ourselves. We find that the case reports of the house man are too bulky. We epitomize them in red ink or red typewritten copy, and we find by so doing that our books are not really too voluminous.

RECENT DEVELOPMENTS IN GYNECOLOGY THAT EVERY PRACTITIONER SHOULD KNOW.*

By WALTER WILLIAM CHIPMAN, M.D.,
MONTREAL, CAN.

MY subject, as you see, is placed on the programme under the heading of "Everyday Gynecology." Therefore, what I shall say is simply for every day, the recent developments in gynecology for the every working day of the week. I shall not refer especially to the seventh day, the seventh day of orginal investigation, or of scientific research, for this properly comes in another place. I shall remind you, however, that we all need constant commerce and communion with this seventh day, this scientific work, for it is the spiritual life of our professional body. It can make for each one of us the most routine and humdrum practice interesting and scientific; and it alone can perform this wondrous miracle. So, toilers though we be, in the practice of medicine, seven full days in the week—many patients would make it eight—we, nevertheless, and in this special sense, must all be seventh-day workers. We must, in the daily routine drive, stop, look and listen; pause, read and think; in seagoing phrase, "reckon our position," do this seventh-day work. And yet how few of us do it! Take time, for our own growth and appraisement. "No time to think" is the dirge of the medical profession today, whereas the busier the man, the more he ought to think, lest he become a mere routinist—a carving knife of greater or less speed, or a huckster of drugs, about the streets.

Thinking, hard, sane thinking by howso'er humble a student, is genuine investigation; and the critical, consequent application of this thought to the problems of his practice, constitute a true research. Whether we know it or not, we must all be thinkers and investigators, each to the extent of his sixpence, for otherwise we, in a professional sense, sign our own death certificate.

All this is simply an enunciation of the *"experimental method,"* a recent educational development, and luminous in the general darkness of our scholastic life. As we perceive this method is applicable to all work, to general practice and to the specialty, to the practitioner as to the under-graduate, for in this way are we true students, both now and always. The universal application of this seventh-day work, this experimental method, constitutes a recent development in gynecology, as in all medicine and surgery. It points the way and will quicken with live spirit our daily work.

And now as regards the work itself: What are its recent developments that every practitioner should know? I shall give first a general statement and afterwards discuss shortly three gynecological problems. These three are old problems that everywhere trouble and beset us. Even for the trained specialist they are difficult, while they furnish many a pitfall in general practice. I shall discuss these questions only practically and from my own experience, and there may be little that is new.

The sum and substance of recent development of gynecology is embraced in the following statement: More careful individual and systematic study of the whole patient—a broader view-point; greater care and thoroughness in details of diagnosis and treatment—a more specialized view-point; and, greatest of these, a more scientific view-point, in an added conservatism concerning her God-given furniture. This expresses, in my opinion, the whole trend of modern practice.

The three points that I now discuss are these:

(1) Dysmenorrhea.

(2) Uterine dispacements (so-called).

(3) Uterine cancer.

(1) *Dysmenorrhea.*—The difficult cases are the young and unmarried. Let us take an example. She is seventeen and is a stenographer, or at boarding school, engaged upon a so-called education. While the general health is considered good, she is not robust; from an asthmatic father she inherits a sensitive and unstable nervous system, though she has suffered no serious illness. Her menstruation began at fifteen—somewhat late; it is regular, but the blood loss is small. For the first year there was only slight discomfort, but with the sedentary habit the pain has become severe and spasmodic, and is now, till the flow is established, a total disablement.

The current history reveals in addition to the sedentary habit, an irrational indulgence in sweets, that she drinks no water, save at meals, and is sublimely innocent in respect of any regular evacuation of the bowels. She is wofully constipated.

Such is the history—it is almost a refrain.

Now, the first thing here is *not* to make a vaginal examination; this is not the *first,* but the last thing to do. True, from the menstrual history alone—the late onset and scanty flow—we can take odds that the Mullerian tract is immature and infantile, that its wall, deficient in expansile, muscular elements, is thin, firm and fibrous; that the uterus is small, and, owing to this retarded growth, especially of its anterior wall, is asymmetrical, often acutely anteflexed. Nine times out of ten this assumption is correct, but in the meantime we are to forget the genitalia. We leave the uterus alone; it will grow till she is twenty-three, especially in its anterior

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well, and so possibly undo its own deformity. And, after all, the main trouble is not here.

The first thing in order is a thorough, systematic general examination, beginning with the teeth and ending with the cold feet, for here the feet are always cold. Go carefully over the different systems, especially the lungs. Examine the urine and the blood; the latter shows often a degree of secondary anemia, of a chlorotic type —the result of a bowel toxænia. As regards the pelvis, inspect the vulva, hymen and urethra, for evidence of masturbation, or gonorrheal infection. It is an imperfect world. Make only a rectal examination, and make this in order to exclude a tubal tuberculosis. In the ordinary case, no vaginal examination is necessary, or is made. The patient's attention is in no wise directed to her sexual organs.

The treatment is determined naturally by the findings. If there be no organic disease, there remains always the faulty metabolism. You will correct this by hygienic reform of her daily life. Elimination is the missing word in her vocabulary. Encourage the intake of water and compel the bowels to one complete evacuation after breakfast. Make this by education, exercise and diet, as the sun rises, an invariable rule. Control the indulgence in sweets, cane-sugar aggravates all dysmenorrheas. Give for a time a mild chalybeate saline, and for months ovarian extract. You may exhibit iron or arsenic. Prescribe a holiday with change of barometric pressure. In my experience a low reading, for example, the seaside, gives the best result.

So in these ways you improve the general health, ballast the crank nervous system, and promote muscular growth in the small, fibrous uterus.

Now for the treatment of the pain itself: The secret of success is to anticipate the pain, create a state of general preparedness. These are the orders: Six hours before the onset of the severe pain, remove the corsets and lie down, preferably in bed. Keep warmly covered and place a hot water-bottle at each foot, so bleeding yourself into your feet. Take enough castor oil or laxol to make the bowels move twice. All this is six hours before onset of the pain. If pain still supervenes, take a teaspoonful of sal-volatile, or of viburnum compound in hot water every hour for three doses; or in like fashion, five grains of aspirin or phenacetin. Alcohol or morphia you take never. You will find, gentlemen, that such treatment answers in the ordinary cases, and these are the greatest number. In only a few instances am I compelled to resort to cervical dilation with or without the use of the stem. Surgical procedure here is always to be regretted, for while the relief is usually transient, it magnifies, in the mind of the patient, the sense of sexual disability. We must never forget that the sensorium is above the neck.

In the rare cases with the migraine-syndrome of headache, nausea and vomiting, nothing succeeds so well as cauterization of the genital tubercles of the nose, according to the method lately discussed by Brettauer of New York.

(2) *Uterine Displacements (so-called).*—I shall deal only with the so-called "backward displacement," and which I shall say is meant to apply to the whole subject.

Apart from dislocation the result of neoplasm, or inflammation, there is, in my opinion, only one displacement of the uterus, and that is a downward displacement. The mere rotation backward of the uterine body, a retroversion, is not a displacement, though still it is often so considered. I speak here of a primary "congenital" retroversion, and not of acquired retroversion, the first stage of a prolapse. Recent, more comprehensive and scientific study has done much to clarify this situation. Our thought is naturally reactionary and we usually arrive at a truth from behind, slowly passing from the more complex to the less complex and simple. Only grudgingly do we allow free scope and range to normal variation, so prone are we to dogmatize and to set to this excursion narrow and traditional limits. In reality a retroversion of the uterus is simply an expression of variation in development. For if, in embryonic life, the genital cord is placed forward in the pelvis, the anterior vaginal wall must necessarily be short, the utero—vesical pouch narrow, and the uterus in its growth at puberty, become of necessity retroverted. For such a woman there is no alternative, since in this way, at the beginning, her pelvic viscera were arranged. The retroversion in her case is a normal variant; and this contention is borne out by such statistics as those of Hegar, and the Mayos. These show that fully 25 per cent of healthy women have the uterus in retroversion and my own experience fully justifies this view.

Now it is also true that a retroverted uterus is somewhat handicapped in the race, and is not so strongly supported as an anteverted one. Its essential supports, the utero-ischial portions of the pelvic fascia—the "ligamenta transversa collis" of Mackenrodt—are longer and therefore weaker, and there is no subjacent bladder. Consequently it is more liable as the result of parturition, or under the strain of heavy work, to suffer prolapse. In these vicissitudes it demands greater care and consideration, for with any definite prolapse, we cross beyond the health-line in the pelvis.

Accordingly, the true measure of the pelvic situation is not whether the fundus is directed to the front, upward, or to the back, but is concerned solely with the level of the whole uterus in the pelvis. Does it or does it not preserve its

natural level, the fundus at the height of the symphysis pubis and the external os at the ischial spine. If this level is preserved there is no displacement; if this level is lost, there is prolapse.

Nevertheless, to this simple retroversion there are frequently attributed various signs and symptoms; backache, sterility, and constipation figure in the classic picture. These symptoms demand a short analysis and consideration.

Backache in this connection is a veritable Ananias, or Sapphira. As you know, its assigned causes are many and various. An expression of structural weakness or strain, a gouty or rheumatic diathesis, specific infections, actual disease or dislocation of the bones or joints, obesity, bowel stasis and visceral ptosis are among this legion. We observe that it is essentially a symptom of mid-life, and is seldom felt in the young or the old, but there is much here that we do not know. In serious pelvic disease it is surprisingly absent, and, when present, marks always the involvement of the fourth sacral nerve. I have never seen it the result of a simple retroversion, and in this I am supported by no less an authority than Howard Kelly.

Backache is a bugbear in all practice. In my experience its commonest cause in women is a relaxed muscular habit, a growing obesity, or a bowel stasis, associated frequently with enteroptosis. No deviation of the uterine axis will produce it, but only ptosis of the whole organ.

Sterility.—Here our ignorance is still profound. So far as I know, the most frequent cause of sterility in healthy women is not uterine, but ovarian. The fault is in ovulation, and the position of the uterus has little or nothing to do with it. I know we can all cite instances of conception following replacement of a retroverted uterus, either by operation or with the use of a pessary. We can also report cases, the result of mere patience. It is as usual again the "post" or "propter hoc." Some of the most stubbornly prolific women that I know have a uterus in retroversion, while many cases of sterility have this same organ in an ideally forward position. The problems of conception are deeper and more subtle than mere mechanics. In any given case it is the merest equity to examine the husband's semen, the partner in the business, and yet this is not always done. It is my firm belief that simple retroversion of a healthy uterus is not a cause of sterility, and I plead that in any fair judgment, it ought not to be the first and only organ that is impeached.

Constipation.—The whole uterus weighs two ounces, and the body only part of this. In simple retroversion coils of bowels lie beneath this body, and the intra-abdominal pressure is exerted equally from below, a supporting pressure. The fundus floats, as it were, and can exercise no possible occluding pressure upon the rectum. Where, however, there is prolapse, and the uterus lies directly upon the peritoneal floor, gravity and intra-abdominal pressure act together, and the fundus may exert upon the rectum a definite occlusion. But here again, it is not the version, but the prolapse.

So much for this short analysis of these classic symptoms. In my opinion, some such study as this should be made in every case, for both the patient and the profession it is costly to "back the wrong horse." In any given case of retroversion measure carefully the level of the uterus in the pelvis. If this level is preserved it is simply a normal variant, and if not, the patient suffers a uterine prolapse. We must call things by their proper names. And where there is no prolapse, treat the patient along broad and general lines, strengthen her trunk by exercise, support her enteroptosis, and first and always correct the constipation. I am sure you both will be frequently encouraged. Above all things, do not tell her that she has a womb displacement, for this I think is a grave professional mistake. The womb is the organ from which the woman's whole outlook on life is made, and a sense of its displacement loads her mind with a dire misgiving. To it she will attribute, her remaining days, all her various aches and pains. How often you have heard them do it! Once implant such an idea, and no power on earth short of an abdominal section, and not always that, will uproot it. In one recent case of such displacement the abdomen had been opened on three occasions. First, to tie the uterus forward, second, to untie it, and, third, to retie it in another place. And through it all, and still, the patient has had backache, her sterility and her constipation.

(3) *Uterine Cancer.*—So far as we know this is the oldest, as it certainly is the most serious, problem of the three. Of our added knowledge concerning its etiology there is little that is new. The general effort naturally is along the lines of treatment. We still believe that there is no complete cure, save by early and complete extirpation, and a total hysterectomy after the manner of Wertheim, marks the surgical limit in this region.

It is in the treatment of the late, the inoperable cases, by all odds the more numerous, that most of the recent work has been done. Intensive application of X-Rays, the use of radium, of strong iodine solution, and the Percy cautery, represent the recent development in this therapeutics. These measures are all tentative and empirical, and while they undoubtedly inhibit the progress of the disease, at least they kill the surface infection, they are, so far as I know, not curative. Of all these palliative methods the most ambitious is that of the Percy cautery, in its application of low, or "cooking" heat. Percy's claims, however, in the matter of the deeper penetration

of the low heat and its selective action on the cancer cells, have scarcely been verified. The procedure has proved itself, moreover, far from devoid of danger and the risk of damage to neighboring viscera is disproportionately great. There is a growing consensus of opinion that the cooking by low heat exhibits no advantage over the charring by high heat, while on the other hand it is a much more tedious and dangerous business. The Percy Cautery, used at high or red heat, is, I believe, a most efficient palliative agent, and lately, in its use, I have first tied the internal iliacs. The occlusion of these vessels, not only starves the growing cancer, but reduces to a minimum the destructive action of heat upon the blood stream, and the risk of an absorptive toxæmia from the proteins of the burned cells.

This is the method that I advocate in these inoperable cases, for in my clinic the use of X-Rays and of radium has been disappointing.

Lamentable indeed is the number of these advanced inoperable cases! To emphasize this fact I may say that, during the month of February, there were admitted to my service in the Royal Victoria Hospital of Montreal fourteen cases of uterine cancer. Twelve of these were cervical cancer, and, of these twelve, but two were frankly operable. The remaining ten are doomed, mothers are they all, three of them in the thirties.

In our present-day ignorance, our only hope lies in prophylaxis and in early recognition of the disease, and these are the two points that I wish to emphasize today. Of the two points, prophylaxis is the more important, and this concerns chiefly our obstetrical work. There is no doubt that the porous cervix is more frequently attacked by cancer, and there is also no doubt that an overlooked or neglected laceration is frequently its precurser. It is plain and common duty to see to it that in our practice no such laceration is either neglected or overlooked. Dr. Dickenson, our worthy chairman, is here, as in many things a great missionary. His present practice is, on the third or fourth day after delivery, to repair all these lacerations, using a continuous suture. The results are excellent, for I have seen him do it.

My present teaching, however, is the following, as applied to both hospital and private practice. Immediately on the termination of the labor, examine always the perinæum and vaginal walls. If the delivery has been rapid or artificial, forceps or breach extraction, or the child large, examine also the cervix. If the latter is torn beyond the limit of natural repair, say to the depth of half an inch, simply approximate with plain, gut sutures, loosely tied, the raw surfaces. This is all, beyond the invariable practice of making a thorough vaginal examination at the conclusion of the puerperium—a discharge examination. If at this latter time the cervical lips are morbid, or asunder, treat the condition at once, or when lactation is concluded, perform a systematic repair. These are simple procedures of true prophylaxis, for prevention is still our chief hope in this dread disease.

The early recognition of uterine cancer demands a closer confidence and co-operation between the profession and the laity. Cancer, in this situation, is beset by special difficulties, what with lay-ignorance and timidity on the one hand and professional inertia on the other.

As regards the laity, a poor education is worse than no education at all, and, in my opinion, we must more and more enlist in this service the right teacher, the nursing sisterhood. In the meantime, our chief practical sin is the one of omission—of non-examination of the patient. Over and over again it is: "The doctor made no examination, but simply ordered a dark medicine with an evil taste." Ergot, unmistakably, with no knowledge of the why or wherefore. And this want of knowledge is not due to ignorance, but to laziness.

Uterine cancer is not a special lesion of the menopause; many cases occur in the twenties and more in the thirty years of life; there are no early symptoms; pain is always and only a late manifestation, so late that the disease is in the parametrium and inoperable. The only early signs are irregular or increasing red or white discharges. This is both the chapter and the verse of the whole sad business.

As physicians, will you regard any depravity of the menstrual habit, any menorrhagia, metrorrhagia or leucorrhea with grave concern. Examine the genital tract thoroughly and it is often wise to curette the uterus. Go carefully over the edges of the external os with the fingernail for friability in any area here is an ominous sign. Submit the specimens of mucosæ to the microscope, and if in doubt, call a consultant. By so doing you will not only preserve the best traditions of our profession, but will save the best citizens of your community, the women of our people.

Discussion.

Dr. Eliza M. Mosher, Brooklyn: We have all listened with much interest and profit to the address of our distinguished Canadian guest, Dr. Chipman. I am, however, unable to agree with him in one particular; I believe that it is not only wise but humane to use local pelvic treatment for the correction of retroversion of the uterus in young women, thereby preventing suffering in later life and a possible sterility.

More than thirty years ago our late revered Brooklyn colleague, Dr. A. J. C. Skene, called my attention to this unfortunate condition, due, he believed, in a large number of cases to the persistence of a normal prenatal and infantile

relation between the undeveloped uterus and the anterior pelvic wall. The utero-vesical ligaments fail to lengthen sufficiently before puberty and during the early menstrual years to permit the uterus to balance into place, so that the fundus, perforce, either antefluxes or retroverts.

In my study of the relations of habitual body postures to the position and shape of internal organs, I long ago demonstrated the effect upon the uterus of certain common habit postures, viz., those which permit the pelvis to drop at the back and those in which the head pokes forward and the trunk folds upon itself at the belt line (the round-shoulders-producing postures).

The mechanical effect of these postures is to crowd the lower segment of the uterus forward, thus favoring the retention of its infantile position. I have found it possible to entirely overcome the tendency to retroversion by correcting these habits of posture, conducting suitable corrective gymnastic exercises, *and with these* a digital stretching of the utero vesical tissues, and the repeated crowding of small tampons high up into the anterior vaginal cul-de-sac.

I am glad that Dr. Chipman spoke of the need of correcting abdominal ptosis as a preliminary measure to uterine replacement. He is quite right, but how can this be done? I have recently devised a very simple supporting belt that perfectly holds the organs in place. Of course they must be carefully elevated into position before this or any abdominal belt is applied. It is done by having the patient forcibly contract the lower abdominal muscles (lying on the back, knees bent) taking a deep inhalation and following it with a LONG, SLOW exhalation like a yawn. (I have named this the "Yawn exercise"). This movement repeated three or four times will always replace ptosed abdominal organs unless they are fastened down by bands or adhesions. The exercise when frequently repeated, lying on the back or side, sitting, and even standing develops the musculature of the abdominal wall, elevates the pelvic organs, pumps the blood forcefully toward the heart and lungs, and increases chest capacity.

DR. HARVEY P. JACK, Hornell: With reference to dysmenorrhea, the treatment of the essayist covers a large proportion of cases, perhaps the majority of them, but there are cases of dysmenorrhea which will grow worse on ovarian extract. The ovarian type of dysmenorrhea will grow worse; that may be a significant sign, and more improvement will follow some other glandular extract, like adrenalin chlorid given internally, so that we must differentiate our cases.

Then we have the obstructive form of dysmenorrhea which I believe in, and which we know these patients have if we can get a careful clinical history. I am unable to relieve them after the most patient hygienic measures without the Stem, which has given me the greatest of satisfaction.

In regard to displacements of the uterus and sterility, I think the statement that it never causes sterility is too strong. I know in my personal experience it is not true. I do not think the essayist meant to say never. I am reminded of a case I treated for a long time of uncomplicated retroversion of the uterus apparently. There was no evident disease of the ovaries; the woman was the wife of a professor in a school and they wanted children badly. They were highly intelligent people. We were unable to elicit any evidence of infection in his case. We did not examine the man. We assumed the displacement was the cause, and the result of a simple Baldy operation has been very gratifying because they now have a nice little family.

With reference to the repair of lacerations of the cervix, that is one of the things that Dr. Dickinson has emphasized, namely, the repair of these lacerations. According to the statistics of Leipzig, cancer as a result of lacerations of the cervix have decreased since all lacerations were repaired. That is very important. Then attention should be paid to the hygiene of these cases. Teach these women how to keep clean and how to keep down their irritations, and how to take care of their general health. We have got to be general practitioners as well as gynecologists.

My experience has been that the Percy cautery is not of any special benefit. The red heat which he applies repeatedly causes no greater benefit than other red heat repeatedly applied.

I have a case now that I sent to Dr. Kelly for radium treatment, and he is getting results in a certain number of cases. I am unable to get such results by repeated cauterization. This woman for months seemed to be at a standstill.

In closing, I want to commend this kind of paper. We must be general practitioners as well as gynecologists to keep us out of the hum-drum.

DR. CHIPMAN (closing): I agree thoroughly with what Dr. Jack has said, namely, we must all be general practitioners, and the object of the paper was merely to emphasize, as it were, that fact. I did not go systematically into the question of dysmenorrhea, and I only ask each one of you to do as I did. When a case comes before you, try first general treatment. Do not at first make a vaginal examination or put in a cervical stem. Do that last, and only if the general treatment has failed.

AFTER-CARE IN ABDOMINAL OPERATIONS.*

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THE technique of abdominal operations has been developed in recent years to a high point of efficiency. Notable advancement has been made in the prevention of shock, both mental and physical, as pointed out by Crile and others. But our efforts have been directed principally to minimizing the effects of shock before and during operation. Its place in the after-care has not been sufficiently emphasized.

In the routine care of uncomplicated cases, we encounter three great difficulties; thirst, nausea and vomiting, and gas pains. To the surgeon who has just completed a difficult abdominal section, these conditions seem relatively trivial. At least, they do not awaken his interest for he has seen the same thing for years, and accepts the situation without comment. But the patient waking from her anesthetic doesn't care what happened during the course of the operation. She only wishes to be rid of this troublesome trio: thirst, nausea, and gas.

In cases of salpingitis, for example, the pain before operation is often so intense that the after-pain is mild in comparison. Hence, these cases seldom need any anodyne or sedative on the first day. But in most abdominal sections there is need of drugs if we are to conserve the patient's nervous energy and her physical strength. Many are nervous wrecks before they have been induced to submit to operation. I propose to outline a method of treatment which has been found satisfactory.

If the patient wakes quickly from her anesthetic and begins to vomit or show signs of restlessness, 1/6 grain of morphine sulphate is given hypodermatically. If the patient sleeps out of her ether, this will not be necessary until later. Rectal saline, one pint, is administered slowly before the patient comes out of the anesthetic, or immediately after.

Water, either hot or cold, as best tolerated, is given as soon as the patient asks for it. We are all familiar with cases where the patient has swallowed a glassful of water in the temporary absence of the nurse, and no serious harm has resulted. One of my patients drank half a pint pitcherful of cold water less than three hours after leaving the operating table. I had not recovered from that surprise, when another patient, a ventro-suspension case, climbed out of bed about four hours after operation, removed some flowers from a one quart fruit jar, and drank at least half a pint of the water before she was caught in the act by her nurse. In both these cases, the patients did not vomit, and as far as my own observation is concerned, no harm resulted.

Since that time, my patients have been getting water, in half-ounce quantities, every fifteen or twenty minutes, until their thirst is satisfied. Objection may be raised that this practice encourages vomiting; but in that case, what the patient vomits usually consists only of ether-soaked mucus, and she might better be rid of it anyway. If vomiting persists after twelve hours, one dram of sodium bicarbonate in six ounces of lukewarm water is given. This usually results in washing out the stomach and the vomiting is ended. Only rarely does it become necessary to resort to the stomach tube. When the soda solution is retained, it is useful in overcoming acidosis.

In any case, bicarbonate of sodium in doses of twenty grains every three hours is useful for the first two or three days. It not only overcomes the acidosis, but seems to have a favorable influence on the gas pain. Chemically, this does not sound reasonable perhaps, but clinically it has proven satisfactory.

Many surgeons object to the use of morphine. There are few cases, however, in which the pain is negligible. By relieving the pain, we not only put at rest the tissues which have been subject to trauma, but also conserve the patient's nervous energy, and thus shorten her convalescence. In nearly every case, I order morphine sulphate, 1/6 to 1/4 grain, hypodermatically, every four hours, if occasion requires, for the first two days. In over two hundred cases, it has never been necessary to use more than 1½ grains in any one case. Some require none at all, the average case getting altogether ½ or ¾ grains. Codeine is a good sedative, but as an analgesic, it is inferior to morphine. The old objection that post-operative paralytic ileus, or peritonitis might supervene, does not rule out the use of anodynes for the first two days.

The bowels need not be disturbed with a cathartic until the third day. I could not well advise any other course after recommending the liberal use of anodynes during the first two days. With the use of plenty of water, and bicarbonate of sodium, or some other antacid such as light calcined magnesia, flatus is passed more easily. But if the patient is very uncomfortable from gas, there is no objection to a soap suds enema. Failing with this, a high enema containing one ounce of magnesium sulphate, one ounce of glycerin, and four ounces of water, may be used. Occasionally turpentine is added. But cathartics are not given by mouth until the third or even the fourth day. Morphine and antacids can be depended upon to take care of the gas pain.

In patients who tolerate liquids at the end of twenty-four hours, soft diet can be started. A cereal for breakfast, a poached egg on toast for

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lunch, and a custard or junket for supper. After the cathartic has been given, the return to liberal diet is made rapidly, so that by the evening of the fourth day, a house diet supper can be given.

The first cathartic is either one and a half ounces of castor oil, or milk of magnesia, one ounce every hour for four doses; in either case, if the patient does not get results in eight hours, a suds enema is given, and that is usually all that is necessary. If a cathartic is needed later, during convalescence, cascara, compound licorice powder, or the rhubarb and soda mixture may be used.

The patient is allowed to turn on her side as soon as she chooses. This often makes the expulsion of gas easier. But cathartics before the third day, I believe, do more harm than good.

After the third day the patient's head may be raised, and she may have strychninę sulphate, 1/30 grain, three times daily before meals. This stimulates the intestinal muscles, encouraging peristalsis, and braces the patient as well.

Except in cases where a ventro-suspension has been done, the catheter is not resorted to for twelve or even fifteen hours, unless the patient is uncomfortable. With liberal fluid intake, suspension cases are catheterized every eight hours. In other cases, no harm comes from allowing the patient to go for a longer period, and then the catheter may not be necessary. After the third day, the patient can sit up in bed to void if it is impossible in the recumbent position. In the rare cases where catheterization is necessary for a week or more, the administration of a urinary antiseptic, such as 5 grains of hemamethylenamine every four hours, is advisable.

The complications most often met with in after care are persistent vomiting, acute dilatation of the stomach, hemorrhage, peritonitis, and obstruction. If the treatment previously outlined is followed, persistent vomiting is not likely to occur. When it does happen, the stomach tube is resorted to, and calomel administered in small doses. This vomiting is most often bilious in character. Calomel 1/10 grain, with sodium bicarbonate 1 grain, every half hour or oftener, until one grain of calomel has been given, helps to remove the cause.

Hemorrhage seldom occurs in cases which have been kept quiet with anodynes for the first forty-eight hours. If the hemorrhage is slight, lowering the head of the bed and the administration of morphine or codeine, is sufficient. If the hemorrhage is severe, as shown by rapid pulse and syncope, the bleeding vessel should be sought and ligated.

Acute dilatation of the stomach is announced by epigastric distension, tenderness, and pain, perhaps hiccough. This again calls for the stomach tube. If the patient is in shock, strychnine, adrenalin, caffein, or possibly pituitrin should be administered.

Peritonitis is announced by great distension, rapid pulse, vomiting, and general abdominal pain. It calls for immediate drainage, and proctoclysis by the Murphy method. Here again stimulation must be used, and external heat applied.

If the vomiting becomes stercoraceous, and all efforts to move the bowels are unavailing, it is evident that obstruction is present, and operation must be undertaken for its relief.

In cases where drainage is left at the time of the operation, dressings should be changed as often as they become saturated. If the drain is a soft rubber tube, wound with gauze, and the gauze in turn wound with rubber tissue, it may be loosened a little each day for six or seven days, until a sinus is formed, and then removed. If the wound closes and drainage stops abruptly, then a new drain may be inserted. But if the first drain is left long enough only one will be required. Changing drains daily consumes the patient's strength and nervous energy, and as a rule it should not be done.

To insure a rapid convalescence it is important that the patient should sleep well during her stay in the hospital. If the usual sponge baths, and hot drinks at bedtime, do not accomplish this purpose, bromides and hyoscyamus, or some of the coal tar sedatives, should be used. Here again we are able to conserve the patient's nervous energy, and we should not hesitate to use means to that end. As soon as the patient is up and about, physical fatigue brings the needed sleep, and sedatives are no longer required.

Patients are usually allowed to sit up in from twelve to sixteen days. Very fat patients should stay in bed three weeks, on account of the danger of post operative hernia. They are allowed to walk a few steps the day after they sit up, and go home one or two days later.

Adhesive straps over the wound for support should be used until the end of the fourth week. Then the patient may resume her corset. I assume, of course, that the corset is of the type that holds the abdomen from below upward. If a support is needed at night a stout muslin or canvas binder may be worn as long as the patient wants it, but it is seldom required beyond the sixth week.

It seems to me that a word of explanation to the prospective patient often simplifies the after-care. I usually say to a patient, "You can expect to be sick from the anesthetic for the first day. You will have some soreness, and considerable pain, but if the pain becomes unbearable, all you need to do is to call the nurse's attention to it, and you will be given something to relieve it. By the third day you will feel better, and by the fifth day I expect you will feel so well that you

will probably ask when you can go home." In answer to the question, "Can I have water?" I always say "Yes, as soon as you want it." More than once I have been glad that this explanation was made before the operation.

In this paper I have made no mention of the ether bed, the importance of external heat, and such matters, because they are well covered in the text-books. But I would like to emphasize the importance of keeping the patient's mind at rest, as well as making her body comfortable, and for the present, at least, I shall continue to use morphine for the first forty-eight hours, and other drugs later if they are needed. It is the conservation of nervous energy that determines a favorable outcome in many cases. Attention to little details of the after-care not only reassures the patient, but also helps to save the surgeon from embarrassing criticism.

Discussion.

Dr. Robert L. Dickinson, Brooklyn: The scope and excellent way in which this subject has been reviewed is interesting to all of us. Some of the newer questions which the doctor has touched upon are worthy of some discussion. For instance, the use of gas as lessening post-operative vomiting and giving far greater comfort to the patient, the question of acidosis, drainage, early rising, are not questions relegated as yet to the limbo of desuetude.

Dr. Ross George Loop, Elmira: I regret very much that I did not hear all of the paper. I avoid the use of cathartics, as a rule, before operations, using instead a high enema the night before operation and a low enema in the morning. I believe this procedure is followed by less nausea and vomiting as well as by less severe gas pains than was the case in former days when violent purging with salts, castor oil or compound cathartic pills for two or three days before operation was the rule.

As regards post-operative vomiting in its relation to nitrous oxid, oxygen and ether anesthesia, my experience is that it depends directly on the amount of traumatism of the viscera, the length of time consumed in the operation and the relative amount of ether necessary to accomplish the operation. The patients that can be held almost entirely by the nitrous oxid vomit less than those who require more ether.

In the past few years I have used considerable spinal anesthesia according to Babcock's formula and technique, with great satisfaction. One gets such complete muscular relaxation and the intestines shrink down to such a degree that the use of retractors and abdominal pads and packs is reduced to a minimum. This naturally reduces the post-operative shock, vomiting and gas pains.

In the management of the post-operative period I wish to mention one drug that I have not heard discussed, pituitrin. To stimulate peristalsis, even when it seems entirely reversed, is a wonderful agent. When enemata fail to relieve gas pains and when the stomach will not tolerate cathartics, pituitrin given in doses of 1 c.c. hypodermatically every four hours, usually following each dose by an enema in about thirty minutes, is the most effective treatment I have yet found. In two or three cases of pure fecal vomiting, one post-operative and the others inoperable for various reasons, I have seen this plan succeed in reversing the intestinal current.

I did not hear Dr. Jones speak about the use of water after operation. I allow my patients to drink freely as a rule. If they vomit, it is much easier than empty vomiting, and it helps to wash out the stomach, thus eliminating the ether. I usually give six ounces of normal saline solution with twenty grains of sodium bicarbonate every four hours, per rectum. As a rule, I prefer this method to the continuous drip and keep it up for 24 to 36 hours. I also allow morphine quite freely for the first day or two.

Dr. George W. Stark, Syracuse: We should not catheterize so many hours after an operation but catheterize only when the bladder is full by percussion. Some patients secrete urine faster than others, also the rate of excretion varies in the same individual, it depends upon the amount of water in the circulation.

I was very glad to hear the doctor say that bacteria injected into the bladder seldom cause cystitis. You must have bacteria plus injury to the bladder, such as over distention, therefore it is better to catheterize.

I agree with Dr. Jones that *water* should be given as soon as possible after an operation. The body is usually very well depleted before operation by restriction of fluids and cathartics. The kidneys need this water to aid in the elimination of toxins from the system.

Dr. Dwight H. Murray, Syracuse: In regard to catheterization to remove the toxins, I agree with Dr. Stark in that respect. I would like to give you the result of some experience I had some years ago when I ordered a patient catheterized. One of the internes endeavored to catheterize the patient and failed to get urine. I came in just as he was about to remove the catheter. After removal I exerted some pressure on the inside of the catheter and pushed out a plug of dried blood that had probably been left in the catheter when it was sterilized after its last use. In such a case I can see how a lot of trouble could be made. My standing order is that every patient to be catheterized must have a new catheter, and the patient keeps that catheter as long as he needs it. This will prevent the possibility of forcing clots of dried blood or other foreign or infectious matter into the bladder, which may readily occur without definite personal responsibility.

Dr. Jones mentions the use of soap suds enemata on the morning of the operation. I do not use an enema on the morning of the operation, as most of my operations are rectal, there is, therefore, a special reason why I do not do a rectal operation following an enema. I use enemata the evening before operation.

The Doctor says he orders a soap suds enema; I would like to have him tell me whether soap suds is a routine order for his enemata. If so, I must register my protest against a soap suds enema or any enemata with any addition to the water as a standard of simplicity. I know perfectly well that a soap suds enema is now used as the standard of simplicity in most hospitals. I have fought this order for the last fifteen or twenty years. They do not give an enema of soap suds or put anything in an enema for my patients unless I order it. I believe that the standing order in any hospital, or any other place, for an enema should start out with the simplest possible thing that can be used to accomplish the result, and plain water will do it. I have no objection to a man using any substance in an enema if he has good reason for it, but nine hundred and ninety-nine times out of a thousand plain water will do the work, and it will not leave the patient with an irritated or smarting rectum as soap suds do. During the present high cost of hospital administration we can at least save the cost of soap without decreasing hospital efficiency and our patients will be more comfortable as a result.

Dr. Leon M. Kysor, Hornell: In regard to gas distention, it is largely in proportion to the degree of thoroughness with which one cleans out the intestinal tract before operation. The administration of calomel salts before operation is bound to cause more or less gas, pain and abdominal distention. You take a healthy patient and give him a good enema, he will complain of more or less pain in the stomach. Vomiting following the administration of ether, after all, is directly in proportion to the amount of ether saturation. One man will use a few ounces of ether, while another man will use a few cans. These patients become thirsty and have ether vomiting. I use an ounce or a pint of soda solution and do the rest with tap water given by the Murphy drip or a small amount by inhalation. As a rule, I do not think these patients want so much water. If they want it, let them have it. I find a great many people like hot water with tea leaves in it. It takes the flatness away from the water, and hot water works better than cold for gaseous distention. The patient won't have as much, and it is directly proportionate to the harm done to the intestines. If the intestines are high on the diaphragm and are not handled, these patients will not have gas.

In regard to pituitrin, when you have a blocking of peristalsis I use largely five minims of pituitrin every hour. It does not cause cramping, and I allow my patients three doses, and one or two doses will carry the patient over. I think pituitrin is one of the best agents we can use, especially in these cases, whether you get absorption or not. If you have a definite line of obstruction, anything of that sort is absolutely contra-indicated.

Dr. Walter W. Chipman, Montreal, Canada: I have been much pleased with Dr. Jones' paper. I think it is an admirable idea that we should not have a routine way of doing things. Do not give a 98-pound woman the same dose as you would give a 200-pound man.

A thing of very great importance I have found in later years is preoperative treatment. My complications and difficulties have been largely due to the fact that a patient comes into the hospital one day and is operated on the next day. Very often a doctor comes with the patient and is anxious to see the operation. I tell him, however, that I want three or four days for the patient to become accustomed to the surroundings of the hospital, and that she may be thoroughly examined before she is operated on. This preoperative examination should always be thorough and should include the urine and the blood. If you admit patients to hospital on one day and the next day place them on the operating table, they do not do well in my experience. We should have these patients under careful observation in the hospital for three or four days before we undertake any abdominal operation.

Another point is with reference to the administration of pituitrin. I give it a good deal. Do not give 1 c.c. of pituitrin as your first dose to a woman who has never had it before. I will not attempt to tell you why, because it would take too long, but it is a poisonous drug, and it nearly led me to one of my Waterloos. I ask a patient if she has ever had pituitrin given to her before. If not, I give her one-half c.c., that is, about seven minims, but no more. I would suggest that you do this to avoid a possible idiosyncrasy towards the drug which may lead to very serious consequences. I give morphine freely, as it is our best help in anoci-association. For that intense hot pain in the incision during the first twenty-four hours there is nothing that serves the purpose of nerve blocking as well as morphine.

I recall a surgeon who never gave morphine. He objected to it on the ground that it was liable to produce the morphine habit, but when it came to himself after the removal of his own appendix we argued with him about the morphine habit, but he said, "Bring along that morphine."

Dr. Robert L. Dickinson, Brooklyn: While I usually object to the routine application of any one method, I insist that every nurse and every house officer have constantly in mind the very great value of posture on the right side, after operation, as taught us by gastroenterologists, especially in ether cases. I make it a routine regulation in such cases. In two difficult laparotomies, with many adhesions, I called up a gastroenterologist to do the gastric lavage which he does with gentleness and swiftness. He said to me, "Have you tried the lateral posture?" No. "Have you tried the knee-chest posture?" No. The knee-chest posture, if the woman is fat, is sometimes infinitely distressing. However, both of those patients, though with enormous quantities of fluid, were greatly relieved by lavage, and then by the lateral posture and knee-chest posture. Lesser cases have been saved from lavage. I think, therefore, that in every case where there is nausea, posture should be given a trial if the nausea or regurgitation lasts any time at all. Since adopting as a routine in my own work Crile's anoci-association, my patients have had infinitely greater comfort. The great virtue of Crile's work is that he has perfected what we were partly doing.

A salaried anesthetist who can give gas without being afraid, although it is a difficult and somewhat dangerous anesthetic, is a source of a great comfort to the operator.

Dr. Jones (closing): I am grateful to the gentlemen who have discussed my paper. Dr. Loop spoke of giving no cathartics before operation. My paper was on "The After-Care of Abdominal Operations," so I did not mention that phase of the subject. In cases where patients' bowels are moving regularly once a day, it has not been my practice to give a cathartic before operation. I use an enema the night before and another enema in the morning of the operation.

I did not speak of the use of pituitrin except in cases where you have dilatation of the stomach. We must consider the possibility of producing uterine colic with large doses of pituitrin. I have used pituitrin in three to five minims without any marked benefit. My experience with eserin has been limited and unsatisfactory, and for the same reason I did not mention it.

Dr. Loop has given saline solution by the rectum in six-ounce quantities every four hours. I have given patients one pint of salt solution by the rectum shortly after leaving the operating table, and in most cases it is a routine and does not disturb the patient's comfort during the time she is coming out of the anesthetic. If water is given freely by mouth and the indications do not make it necessary to restrict it, I question if salt solution by rectum every six or four hours is necessary. What we want is fluid intake to supply the lack of fluid in the tissues. If a patient can take the usual amount of fluid, it is unnecessary to use salt solution.

As regards catheterization, the objections to i are dependent upon certain hours of time. H spoke of the large amount of water that shoul be allowed patients. This was forcibly brough to my attention by the discussion of Dr. Chip man in the case of the doctor who had appen dicitis. His operation was performed some year ago. Recently I heard him make the statemen that even the days of the inquisition, so far a water is concerned are over.

Dr. Murray's discussion about enemata i somewhat interesting. The question of the us of soapsuds enema never occurred to me as be ing harmful. The addition of soapsuds to th water increases the solubility of that which yo are putting into the rectum to remove the feca contents. If plain water will do equally as we I shall try it.

One gentleman spoke of gas after operatio and the absence of gas where ether had been ad ministered. I think his suggestion about the us of strong cathartics before operation is a goo one. From my limited experience and observa tion, I am led to believe that where the bowel are violently purged before operation, there i a tendency towards gas formation which i greater than if it be left alone.

Dr. Chipman's suggestion about the individua ization of treatment is excellent. We are apt t neglect the after-care of patients for three c four days after a serious operation more tha we should. It is unwise, it seems to me, to sa that a nurse in charge should follow the direc tions of a chart pinned up in the dressing roon We should adapt ourselves to the needs of th individual case.

As to Dr. Dickinson's suggestion in regard t posture after operation, I allow my patients t turn in any direction they please after operatio They stay in the position they find most con fortable.

SURGICAL HAMEOSTASIS OF TH FEMALE PELVIS—A STEREO-RADIC GRAPHIC STUDY.*

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and
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THE idea with which this study was inst tuted was to:

1. Show the degree of anæmia that cou be produced by the ligation of certain vessels c certain groups of vessels.

2. To show the most effective methods of pr ducing anæmia for surgical operations.

3. To show the minimal amount of blood su ply compatible with adequate tissue nutrition.

* Read at the Annual Meeting of the Medical Society of t State of New York, at Utica, April 24, 1917.

This study was conducted by injecting into the arterial system a mixture of red lead and albolene, after the ligation of certain vessels; after the removal of certain ligatures, further injection was made and other radiographs taken. This was continued until all the ligatures were removed.

The radiographs failed to show the lead in some of the finer vessels, and the anastomosis between some of the vessels was thus not demonstrated. However, the gross or principal blood supply is well shown.

The failure of filling of some vessels that we might reasonably expect to be injected, leads us to believe that an improvement in the injected material and the method of its introduction will be of greater value in future studies in two of the three sets of pictures we were not able to show the ateria sacra media, a vessel that is constantly present.

In the first experiment the injection was made into the aorta just before its division into the common iliacs, and at a point below the origin of the inferior mesenteric, the ovarians, and the last lumbar. In the next two subjects the injection was made through the common carotid to obviate the failure to fill all vessels.

It was noticed that after the removal of a ligature from a vessel, the vessel at that point would not be filled when the next radiographs was taken, though the injected mass could be demonstrated on either side.

First Experiment.—a. After ligating the right ovarian, the right external iliac, the right internal iliac, and injecting the mass, radiographs were made stereopscopically. As the aorta was injected from just above the bifurcation of the aorta into the common iliacs, the inferior mesenteric and the ovarian are not filled from above. The external and internal iliacs with their branches are shown well filled on the left side, the side on which none of the vessels were ligated. The lead is shown to extend through the left uterine into the left ovarian, and across the midline into the ovarian, the uterine and the other branches of the internal iliac. The vessels are almost as well filled on the right side as on the left; the difference being due to the lesser pressure existing after the passage of the injected mass across the mid line. Small branches of the lateral sacral are seen to anastomose across the median line?

b. Injection after the release of the ligature on the right ovarian does not change the picture, the point from which the aorta was injected being below the origin of the ovarian.

c. Injection after release of the ligature on the external iliac does not apparently make any difference.

d. Opening the internal iliacs and injecting does not change the picture, except that the finer branches are better filled.

In none of the pictures of this first series is there any evidence of the blood supply of the sigmoid and rectum. The point of injection was below the origin of the inferior mesenteric.

Second Experiment.—After ligation of the ovarian and common iliacs, and injection of the lead through the common carotid artery stereoscopic radiographs were made. In this the only vessel seen is the superior hemorrhoidal branch of the inferior mesenteric.

b. Injection after release of the ovarian ligatures shows filling of the ovarian vessels and of the uterines, and through the uterines of some of the branches of the internal iliacs.

c. Release of the ligature on the external iliacs and radiographing makes little difference.

d. Release of the ligatures on the internal iliacs causes better filling of the branches than occurred through the ovarians. The deficient filling in this subject is probably due to technical faults.

Third Experiment.—a. Injection through the common carotid after ligation of the ovarian and the internal and external iliacs shows no vessels in the pelvis. As this subject had a fibromyoma of the uterus about the size of an orange, it may account for the failure to observe the inferior mesenteric.

b. Injection after release of the ovarian ligatures shows filling of the ovarians and of the uterines and some of the branches of the internal iliacs.

c. Injection after release of the ligatures on the external iliacs shows such marked filling of all the branches of the internal iliacs that we infer some of the material may have been forced past the ligatures on the internal iliacs, as in the other two subjects release of the external iliac ligatures caused a little change in the picture.

d. After release of the internal iliacs the pelvic vessels become well filled—better than in the other two subjects. This third one was stout and the other two thin, and this may account for the greater vascularity.

Conclusions.

From this study the following facts are demonstrated:

1. With ligation of the common iliacs and the ovarian arteries, the only vessel filled in the pelvis is the superior hemorrhoidal branch of the inferior mesenteric.

2. Release of the ligature on the external iliac makes little or no difference in the filing of the pelvic vessels.

3. The internal iliacs can be filled through only one ovarian, and the ovarian through only one internal iliac.

4. No experiment was made with the ovarian and the internal iliacs tied, but this will be done in subsequent studies to determine if any of the pelvic vessels can thus be filled.

Branches of the last lumbar arteries and of the gluteal and ileo-lumbar branches of the internal iliac can be seen in close proximity, but the passage of the injected mass from one to the other cannot be demonstrated. Had there been branches sufficiently large to pass the injected material it should have been demonstrated by the injection when the common iliacs and the ovarians were tied.

Therefore, it would seem that a most extensive and possibly dangerous ischæmia would be produced by the ligation of the ovarians and the common iliacs, or almost as complete an ischæmia by the ligation of the ovarians and the internal iliacs.

b. That bleeding would be lessened by the ligation of one ovarian and both internal iliacs, or both ovarians and one internal iliac, without seriously endangering the nutrition of the pelvis, provided that structures through which the vessels crossed the median line were not removed.

c. That possibly the ligation of the ovarian and both internal iliacs during a hysterectomy would leave an inadequate blood supply, and that ligation of the ovarian and the uterines would give good hæmostasis and yet leave sufficient blood supply.

As the injected mass did not extend into all the finer vessels, it can be properly said that this study does not represent true conditions, as many of the finer anastomoses are missed. It does, however, show the gross blood supply, and for that reason we believe it to be of interest and worth. In subsequent studies we hope to so perfect our technic that the result will be of even greater value.

REPORT OF A CASE OF ANTEPARTUM MAMMARY HYPEREMIA DUE TO UNRECOGNIZED MALIGNANT DISEASE.*

By GEORGE W. KOSMAK, M.D.,
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MY purpose in reporting this case is to call attention to a most unusual antepartum condition. In this instance the cause of the same was not elicited until after the delivery of the patient although there were several features which suggested a possible malignancy which, however, could not be localized. The unusual character of the case prompts me to place it on record and to call attention to the underlying causes of such disturbances.

The patient, Mrs. M. C., age 32, born in this country, was admitted to the service of Dr. A. B. Davis, at the Lying-in Hospital, January 10, 1917. She had had one child after a difficult labor in 1913, and the only other noteworthy thing in her previous history wa the statement that she had had alternatin attacks of obstinate constipation and dysenter for several years. Her last menstruation wa dated May 28, 1916, and she applied for admis sion to the hospital because of a complain of severe pain in the back and abdomen dur ing the previous month. She said that he bowels were obstinately constipated and sh suffered from heartburn and eructations. Sh also observed during the past month that he breasts became enlarged and were painful.

Examination on admission showed a rathe emaciated anemic woman. Both breasts wer greatly engorged, tender and painful, wit marked enlargement of the veins over the en tire chest, neck, upper arms and abdomen. Th breasts were firm and lumpy in places suggest ing the appearance associated with the ordi nary caked breasts. The skin was tense smooth, not inflamed. There was no fluctua tion present and nothing to be felt in th axillae. The abdomen was moderately dis tended with gas above the uterus, which wa apparently the size of the seven month's preg nancy. A fetal heart was heard in the lowe abdominal segment. The vaginal examinatio was negative and nothing abnormal was foun in either the heart or the lungs. The patien was put to bed and after the intestinal trac was cleaned out and a restrictive diet given she felt somewhat better. Stupes to the breast were also applied but had no effect on th condition. A week later she felt somewha stronger and was allowed to get up. She stil complained of the gas distention and equigas tric distress. There was no vomiting at any time. Although we believed that the preg nancy was responsible for some of her symp toms, we hoped to carry her along until th fetus was further along before inducing labor Malignant disease in the mediastinum was con sidered as a source of the venous obstructio but several X-ray pictures of the chest prove negative. The patient continued to lose weigh and her appetite was very poor. We were preparing to induce labor on February 14th when the patient began to have pains spon taneously and delivered herself the next day of a premature baby, which lived. After thi she felt somewhat better but the breast con dition remained the same. The gas disten tion was very marked during the next few days and abdominal palpation was impossible On February 18th, after vigorous catharsis the distention was relieved sufficiently to per mit us to palpate a hard, oblong tumor in th right hypochondrium, which measured abou 8 x 2 cms. It was freely movable and appar ently attached to the intestine and could no be felt before delivery because of the situa

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 24, 1917.

ion of the uterus evidently in front of it. Several weeks previously a small lump was felt near the umbilicus which was movable and apparently in the omentum or abdominal wall. Palpation in the region of the pylorus failed to disclose any mass nor could anything be felt in the region of the gall-bladder. The liver, however, seemed to extend below the usual limits. A diagnosis of carcinoma originating, probably, in the stomach with metastases in the mesentery, the liver, and perhaps in other locations, including the mediastinum was tentatively made. The patient's condition forbade any operative procedure. On February 19th she seemed to grow very much weaker and went into a state of coma during which she died about 2 A. M. on February 20th.

These are the essential features in the history of a rather puzzling case in which the outcome would probably have been the same even if an earlier diagnosis had been possible. Unfortunately, we were unable to obtain consent for an autopsy. The baby weighed 2,050 grams, was put on the bottle and aside from a sudden rise of temperature to 103 degrees F., on the sixth day, presented nothing abnormal.

Photograph of Patient Taken a Few Days Before Delivery, Showing Marked Enlargement of the Breasts and Congested Veins of Arms.

A moment's hesitation may be directed to the laboratory findings in the case. Blood examinations made at intervals showed a moderate anemia, the red cells numbering about 3,700,000 with a hemaglobin of 70 and no leukocytosis. The urine showed a rather high specific gravity with a faint trace of albumen and a few casts at the time of admission. The Wassermann reaction was negative, examination of the sputum showed no tubercle bacilli but an examination of a stool made on February 19th showed occult blood present with a guaiac test. This finding is of some interest.

Pregnanacy associated with neoplasms is not an unusual complication of pregnancy, but in most cases we are dealing with benign tumors derived from one of the pelvic organs which are of interest to the obstetrician largely because they may bring about a dystocia. Post-partum degeneration of fibroids of the uterus may also occur and prove a source of danger from sepsis. Malignant neoplasms which develop during pregnancy are rather uncommon and aside from cases of carcinoma of the cervix we rarely hear of them. DeLee states that among 19,400 consecutive obstetric cases at the Chicago Lying-in Hospital only one was complicated by carcinoma of the cervix. J. W. Markoe in a statistical study of 60,000 labors at the New York Lying-in Hospital reports two deaths from carcinoma of the cervix, one from sarcoma of the ovary and one from visceral sarcoma. Dr. A. B. Davis has also reported a general sarcomatosis complicating pregnancy, but aside from this there are no other cases of malignancy reported from this institution. Malignant neoplasms of the ovary were found in 5 per cent out of a series of 862 cases collected by McKerron. Hirst, in his text-book, mentions sarcoma and carcinoma of the pelvis among malignant growths obstructing labor and also refers to the fact that mammary tumors, especially adenomata, may take on a very rapid growth during pregnancy and become so engorged and painful during lactation as to require removal. He also states that true mammary carcinoma may appear in fulminating form late in pregnancy or the puerperium. New growths originating in the fetal ectoderm, such as chorioepithelioma and hydatid mole, and those arising in the mesoderm, such as placental sarcomata may be mentioned among malignant processes directly connected with pregnancy but obviously need not be considered in this report. The case herewith noted is, therefore, of particular interest on account of its course and rarity, and

it is a matter of regret that fuller confirmation of the diagnosis could not be obtained by autopsy. We were dealing with a pregnant woman admitted to the hospital because she had large, painful, hard breasts that had become so during her pregnancy. Although the most prominent symptom pointed to an obstruction of the venous circulation, careful physical and X-ray examination failed to disclose any clue to the same. Considering for a moment the mammary circulation we find that the arteries are supplied by the axillary, internal mammary and intercostals. The veins end, probably, in the axillary and internal mammary trunks, the others enter into the intercostal veins. These are tributaries of the innominate veins and a mediastinal mass pressing on both would probably constitute a sufficient obstruction, as in our case. The nature of the same can only be guessed at, but in view of the progressive character of the symptoms and the absence of temperature or other evidences of an inflammatory process, a mediastinal abscess could be ruled out. Aneurism was considered but eliminated as the cause of the disturbance. Sarcoma in this region has been reported as coming from the lymphatic glands or the periosteum of the sternum or vertebrae. If deeply situated it may exert pressure on the superior vena cava and the innominate veins sufficient to cause a decided edema of the upper limbs and thorax, but this was not present in this case. The finding of an intra-abdominal mass in the upper abdomen after delivery, as already noted, makes it probable that an intestinal carcinoma may have been the primary focus, especially as we had a previous history of some obscure intestinal disturbance marked by alternating periods of constipation and diarrhoea. A rapid extension of the malignant process marked by a localization in the mediastinal lymph nodes occurred during the pregnancy and produced the prominent symptom; namely, mammary hyperemia. When first seen we thought, among other things, that it might be due to some disturbance in the relations between the internal secretory glands, but the associated progressive emaciation and pain, together with the subsequent findings precluded this.

It seems to the writer that the occurrence of a progressive mammary hyperemia during pregnancy should lead one to consider the possibility of a process similar to that observed in this case and a guarded prognosis given as to its subsidence and recovery. The induction of labor as soon as the child is viable will undoubtedly contribute much to the immediate relief of the mother, but aside from this the condition appears hopeless.

NECESSITY FOR ROUTINE RECTAL EXAMINATIONS IN OBSCURE PELVIC PAIN.*

By DWIGHT H. MURRAY, F.A.C.S.,
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PELVIC disease causing pain, discomfort and semi-invalidism, particularly in women, is frequently due to rectal pathology that is never diagnosed. The cause in many cases is easily discovered, but in others no satisfactory etiology is found. On this account a careful rectal examination should never be omitted as part of the physical examination whether there be pelvic pain or not. I have seen many cases where a rectal examination has made plain the cause of pain and discomfort in the lower abdomen and pelvis. Rectal or pelvic pain may be the deciding symptom that brings the patient to believe they are in need of attention.

The coccyx is often at fault and may give rise to obscure sensations that are difficult to differentiate. Cases of so-called chronic nervous dyspepsia, which were obscure, have been entirely relieved by a comparatively simple rectal operation. Here the anal canal should be examined and its condition carefully noted. If the sphincter is tight and painful, we should have in mind ulcer, diseased crypts of Morgagni, thrombotic or internal hemorrhoids. The type of pain should be learned, whether constant or paroxysmal, and whether worse before, during or after a bowel movement. A proctoscopic examination is of great importance, and many conditions can be diagnosed with a protoscope that cannot be diagnosed without it.

A relaxed sphincter, or any degree of incontinence, may indicate either great debility, paralysis, cancer, large internal hemorrhoids, the sequel of a Whitehead operation, or the result of an over divulsion of the sphincter muscle. When there is a feeling of pressure, fullness, or an indefinite sensation of rectal or pelvic discomfort, a careful investigation should be made, and we should not hastily conclude (as is often done), that all rectal diseases mean internal hemorrhoids, operate upon them, and at a later time be humiliated when the patient returns, saying that they are not relieved; that they still have some passages of blood and mucus, a partial incontinence and the indefinite discomfort and pressure that existed before operation. A more thorough examination in some such instances would disclose a mass high up in the rectum that proves to be a carcinoma in an advanced stage. I have been consulted in such cases, and it is extremely embarrassing to the one who has overlooked the condition on first examination, it being difficult to offer a satisfactory explanation

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 26, 1917.

under such circumstances. The one fact that this has so frequently occurred is a good reason why every physician should become familiar with rectal pathology so that he can not only diagnose the ordinary rectal troubles but the ones serious to life. I can assure you, from considerable experience, that you will often be rewarded for the trouble taken. In fact these examinations should be insisted upon even though the patient disclaims any knowledge of rectal trouble. Perhaps I cannot do better than report three cases coming under my observation that will very well illustrate what can happen as a result of this omission:

In November, 1896, Mr. V. came to me saying his wife had been an invalid for many years, had undergone several operations without benefit, and asked if I could diagnose her trouble by the X-ray, which was then in its infancy. I saw her at her home, and concluded that a radiograph would not help. She was helpless in bed, and gave me the following history: Fifteen years previously, while pregnant, she fell down a cellar areaway, striking on her lower back. She suffered some inconvenience and sacral pain after this, but did not pay much attention to her condition, and the circumstance of the fall was almost forgotten. Her delivery was normal, but there was an increase of the indefinite pain through the lower part of her back and pelvis that gradually grew worse. She consulted a surgeon, who diagnosed a lacerated cervix and perineum. He did a repair operation, and she improved until a Sims speculum was introduced into the vagina, and backward pressure was used to expose the cervix for the removal of the sutures. This started up the old pain with renewed vigor, and no relief from the sacral pain was derived from the operation. After the lapse of some years she consulted a second physician who concluded that the uterus was at fault, and he advised an hysterectomy. At the operation the uterus and ovaries were normal in appearance, but the surgeon feeling that pain must come from some of the pelvic organs, removed the ovaries. Her recovery from this operation was slow, but the original condition was worse than before. After two more years of suffering another surgeon was consulted, who said that the uterus must have been at fault. He did an hysterectomy, the result of which was that she became worse than ever. I saw her about two years after the last operation. Her history and a rectal examination revealed a broken coccyx, the slightest pressure upon which caused the most excruciating pain; all muscular movements produced the same pain. I advised the removal of the coccyx with the hope that she might become comfortable, or at least that she would get no worse. After considering the advice they accepted it, and I did a coccygectomy. The coccyx at the second joint was found to be necrosed. She made a good operative recovery with slow improvement in her general health. She is now a well woman and able to do her own housekeeping.

You will say that a rectal examination should have been made at once, and that a history of a fall, if brought out, should have given the cue. Her surgeon failed to make a rectal examination notwithstanding the fact that the pressure of the Sims speculum, while removing the sutures from the cervix uteri, had again set up the same pain she had before the operation. Without much doubt a rectal operation would have saved the patient two major operations and many years of suffering. You may think a mere tyro would have known better. This is true, but rectal diseases were not taught in our colleges at this time except under the chair of general surgery, and that indifferently, by men who knew less about the subject than they would admit. With all the improved teaching in our colleges the rectum is still a sadly neglected field.

Case No. 2, Mrs. K., age 47. Referred to me by Dr. Marlow. She was blind in the right eye from a detached retina. She did not improve, and learning that she strained excessively at stool, he referred her to me for rectal examination. She gave a history of constipation and cathartics for eighteen years. She was often unable to deliver the stool until she put two fingers in the vagina and forced it out and said that after a stool was passed there remained a feeling of insufficiency and went back to the toilet several times, straining excessively without result. This had been going on for several years, and just before consulting Dr. Marlow she suddenly lost the sight of her right eye and was suffering severe pain in it. It was feared that the left eye would be affected if no relief could be given the rectal condition so that the excessive straining be stopped.

Digital examination showed a very tight sphincter. Speculum disclosed two large hypertrophied papillae; one, one-half inch long, and some diseased crypts that were sensitive. No internal hemorrhoids of any account. Proctoscope showed atrophic proctitis. I advised immediate correction of the rectal pathology by operation, which was accepted, and she made a good recovery. Her excessive straining at stool was relieved, but the sight of the eye was not restored. She has had no further trouble with the left eye, and at last report was in good health.

Case No. 3, Mrs. P., age 61. Extremely emaciated, weak and exhausted so that she could scarcely raise her head. Had been constipated all of her life until six years ago, when she began to have three or four soft or watery stools a day. Thirty years ago, after a hard stool, she

had pain in the rectum which was alternately better and worse for twenty years, since which same attacks have been more frequent. Five weeks before I saw her nausea began and continued most of the time. One week later she took calomel, and then began to vomit. This condition continued with pain in the rectum until I saw her. Examination showed the sphincter very tight and painful, and an ulcer on the posterior anal wall, two diseased crypts of Morgagni in the left and right posterior quadrants, respectively, which were very tender. Proctoscope showed chronic atrophic proctitis. I advised surgical correction of the rectal trouble, which was accepted. She bore the operation well, and after the second day had neither nausea nor vomiting. On the fourth day she developed a ravenous appetite; was given full diet, and digestion seemed perfectly normal. She made a splendid recovery and is now in better health than she has been for many years.

These cases will serve to illustrate the importance of rectal examination as a routine, not only in pelvic conditions but in all obscure symptoms wherever located. They are reported for the purpose of illustrating the variety of troubles that may be caused by pathology of the rectum, which organ is so rich in nerve supply.

Case No. 1 shows what may happen to a patient if a complete examination is not made when there is great trouble somewhere in the pelvic region that has not been located.

Case No. 2 shows what may happen if patients fail to seek proper help when the necessity should be obvious to themselves, and how promptly increasing trouble is relieved when a probable cause is found and followed by appropriate treatment.

Case No. 3 shows the very far-reaching effects of rectal pathology through the sympathetic nerve system, and how prompt the relief is when the source of irritation is removed.

Conclusions.

The inervation of the rectum is so intimately connected with the pelvic and abdominal organs, through the sympathetic nerve system, that it is not safe to ignore the condition of the rectum in the general examination of any chronic case.

It is very important that every medical man should have some experience in rectal pathology if he expects to give the results in either treatment or diagnosis that his patients have a right to expect.

A good working knowledge of the fundamentals of proctology is of greater practical importance to the family physician than much superficial knowledge of major operative work on any other part of the body.

I believe that if more careful diagnoses are made as a result of team work, that scientific medicine would enjoy, in a much greater degree, the confidence of the laity. There would be less room for the multitude of uneducated quacks and charlatans that are treating human ailments under a great variety of names, and it would be impossible for them to get recognition at the hands of our law makers. We would then have a big, broad-minded profession, with a common altruistic aim, and an education having as its fundamental basis for diagnosis, the same high requirements for all.

SOME OF THE GENERAL SKIN DISEASES WITH OCULAR MANIFESTATIONS.*

By WALTER BAER WEIDLER, M.D.,
NEW YORK CITY.

THERE are a number of skin diseases which may affect the eyes or the eyelids in conjunction with the skin surfaces of the face, such as eczema and acne rosacea; or more remote parts of the body, such as pemphigus. There are other types of skin diseases which may be limited to the eyes or the eyelids alone, such as lupus erythematosus and leprosy.

There are still other types of skin diseases which may primarily affect the eyelids without any extension to any other part of the body, such as blepharochalasis.

The various text-books and atlas on ophthalmology that I have reviewed are most deficient in their discussion of the various skin diseases affecting the eyes and eyelids; so a paper on this subject may prove of interest to the ophthalmologist as well as the dermatologist.

The ophthalmologist may treat an ocular manifestation of a skin disease, without much success unless he recognizes the fact that the eye condition is the direct result of a skin disease. This is especially true in the cases of keratitis associated with acne rosacea.

This was the cause for my error of diagnoses in the case of lupus erythematosus, which was treated for a time as a peculiar type of blepharitis.

Skin Diseases with Ocular Manifestations.

Walter Baer Weidler, M.D.
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Acne rosacea—1 case, German.
Blepharochalasis—2 cases.
Eczema—2 cases.
Favus—1 case, Italian.
Leprosy—1 case, Englishman.
Lupus erythematosus—1 case, Russian Jewess.
Solid oedema of the face and eyelids (chronic

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erysipelas or lymphangitis—1 case, Russian Jewess.

Pemphigus—2 cases.

Keratitis Ex Acne Rosacea.

Concerning the various manifestations of acne rosacea affecting the eyes very little has been written.

Acne rosacea is a skin disease with which we are all more or less familiar, usually seen on the face, involving the middle two-thirds.

Fuchs speaks of acne rosacea affecting the conjunctiva, which was first described by Arlt, but makes no mention of it affecting the cornea. Horner was the first one to call attention to the analogy between the chalazion and acne rosacea. In acne rosacea the sebaceous glands play the same part that the meibomian glands do in the chalazion formation.

Keratitis ex acne rosacea is due to the direct extension of the acne first to the conjunctiva thence to the cornea. There is usually seen small granular elevations on the conjunctiva, with engorgement of the vessels, the cornea becomes slightly hazy, with infiltrations into the epithelial layer, and ulceration of the cornea. In more severe cases we may have perforation of the cornea with prolapse of the iris and the formation of leucoma adherans.

There are, as far as I can find, only about eighteen cases of keratitis ex acne rosacea reported in the literature.

The corneal infiltrates have been regarded by some observers as sub-epithelial in character, but from my observations of my own case I should be inclined to regard them as beginning in the epithelial layer of the conjunctiva and the cornea and later involving the deeper layers of the cornea.

Various processes take place in the diseased skin in acne rosacea, which may give rise to the formation of nodes, pustules and a thickening of the skin, that may form the source of large outgrowths.

Report of a Case.—History: Mrs. K. K., aged 42, family history negative. General health usually good. Has had three miscarriages. One son has trachoma. About twenty years ago, after the birth of her child, she began to have an eruption on the nose and face which was diagnosed and treated as acne rosacea. Eight years later the acne began to involve the left eye. She was treated at this time with good results and was referred later to the skin clinic. Seven years ago she had a return of the eye trouble and since then has had frequent attacks of keratitis. The patient presented herself for treatment at the Manhattan Eye and Ear Hospital, on May 12, 1910. At this time the skin eruption was most marked. The edges of the lids were swollen and red, with intense photophobia and lacrimation.

Right Eye: Pronounced injection of bulbar and tarsal conjunctiva. The vessels in the bulbar conjunctiva were dilated and tortuous and extending on the cornea for about 6 or 8 mm., some of the vessels reaching the upper edge of the keratitis and then turning on themselves in small loops. Some of these return loops reached almost to the corneal scleral margin again. These vessels and their looping may be plainly seen at the present time. The portion of the cornea involved by the process gave a reddish-grey reflex. A small chalazion was present at this time in the lower lid of the right eye, which was opened and curetted.

Left Eye: The keratitis was much more severe and the destruction of the corneal tissue greater. This was the eye in which the keratitis had begun twelve years previously. The vessels were much larger and more numerous. The lower half of the cornea was rough and granular in appearance. The pupillary portion of the cornea was being encroached upon. The pathological changes seemed to extend into the deeper portion of the cornea.

Vision: O. D., 14/200; O. S., 15/200. Wearing at the time O^2-3.50 sph., which gave O. D., 15/30, and O. S., 15/70.

Urine negative. A von Pirquet vaccination test was made with the different strengths of tuberculin, using the crude, a 10 per cent, and a 50 per cent solution, the result being negative. Later a Wassermann test was made, but this was also negative. After a month of treatment the patient ceased to report at the clinic. The face and eyes had cleared very nicely. The cornea of each eye was clean and the vessels were much smaller. After an absence of nearly two months she returned on September 15th for treatment, which had been discontinued. The face and eyes were about as they were when first seen in May, the left eye a trifle worse. Near the center of the cornea was a round, smooth, bulging area which looked as if it might perforate. Faint traces of staining about the edge were seen after fluorescin had been instilled into the eye.

The corneal ulceration perforated with a gush of aqueous and when the patient reported to the clinic, the perforation had closed. During the period of two years or more that she was under observation and treatment, there had been three perforations of the cornea.

Treatment. The treatment consisted in the use of large, increasing doses of solium salicylate, epsom salts; before breakfast; tonics and regulation of diet. Patient used "lotio alba" on the face once or twice a day and it seemed to control the acne and whenever she was faith-

ful with the application of this, the eyes were always better. Boric acid wash, hot compresses, atropine, and dionin were used in the eye and this was supplemented with bandage whenever perforation was imminent, or had taken place.

When the cornea had become so thinned and weakened by the perforations and there was a complete pannus, a *peridectomy* was performed. The eye was cocainized and a fold of the conjunctiva about 4 mm. from the edge of the cornea was grasped by a fixation forceps and divided by scissors. The cornea was circumscribed, the same as is done for enucleation, and a flap of conjunctiva was excised about 3 mm. wide, which carried us to the corneal margin.

There was considerable reaction, but the eye cleared up in about a week and the area which was denuded of conjunctiva was bridged across with what appeared to be a new connective tissue formation.

There has not been any recurrence of the keratitis and the eye has been perfectly white and quiet for the past ten months.

This operation was first suggested by Furnaire in 1842, for pannus associated with trachoma and I do not know of it ever having been done before in keratitis due to acne rosacea.

Verhoeff has also operated for the same condition, but he does peritomy and in the following manner: "The conjunctiva is incised at the limbus by means of scissors for a considerable distance beyond the limits of the corneal lesions. The conjunctival flap is then undermined 4 to 5 mm. beyond the limbus, and then the flap is brought up to the corneal margins by means of two sutures one at each end of the incision."—(*A. of O.,* Vol. XIV, p. 153, 1916.)

Blepharochalasis.

This condition should be classified with the dystrophies of the skin, especially affecting the eyelids.

Blepharochalasis was the name first suggested by Fuchs in 1896, for a condition affecting the skin and subcutaneous connective tissues of the eyelids, which was later followed by an atrophy.

The first report of this condition occuring in America was made before the Section of Ophthalmology of the American Medical Association, June, 1913, at which time I reported the histories of two cases. Since that time a number of cases have been reported in this country.

As far as my own observations have gone, it appears that blepharochalasis begins with an oedema of the subcutaneous connective tissues of the upper lids between the skin and the tarsal plate. There is, in consequence, a marked stretching and apparent thinning of the skin of the lids. The veins become very much more prominent and the swelling is entirely limited to the upper lids. Later there is a gradual disappearance of the swelling with a marked relaxation and drooping of the skin of the lids. This continued until there was complete disappearance of all of the swelling and the skin of the lids hanging down in baglike pouches covering the cornea.

Microscopic studies of the tissues removed from the lids, so far, have been negative.

Abstracts of Case Reports.

Case Report No. 1.—Miss F. V., age 16, Bohemian, family and personal history negative. Present trouble began at 14 years of age, when she first noticed swelling, it would come and go, and later became permanent. There was a drooping of the subcellular tissues down to the palpebral margins of the lids. The skin was smooth, pinkish in color and veins slightly prominent.

Wassermann, urine, von Pirquet were all negative. Blood examination normal.

Internal treatment by tonics, the use of Seton through the swelling and the electric current did not seem to have any effect upon the condition.

Operation for removal of the condition was refused and when I last saw the patient, some months ago, the skin in both the upper lids was hanging down below the margin of the lids covering about one-half of the cornea. Operation was suggested, but again refused.

Case Report No. 2.—Miss M. H., age 14, American, family and personal history negative. Present trouble began about two and a half years ago, following a severe sunburn of the face and arms.

Mother noticed a slight swelling of the lids a few days after the blush of the sunburn disappeared. Swelling has gradually increased. When I first saw the patient the skin of the upper lids was pinkish-red, hanging down in a smooth, pouchlike mass, partially covering the eyes. The swelling had the appearance of a true oedema of the subcellular tissues. Superficial veins in the lids more prominent and perhaps slightly engorged.

Operation on the right eyelid was performed for the removal of the condition, and at a later time the left eye was also operated upon.

Eczema.

Eczema may extend to the lids from other parts of the face; or it may affect the lids by direct extension from a conjunctivitis, but should not be regarded as a true eczema, but rather an eczematous condition of the lids.

It may begin in the lids and be limited entirely to this part of the face, this, however, is a rare manifestation of the disease.

There are the two types of eczema, the acute and chronic. The acute form is easy to diagnose and treat, but the chronic eczema affecting the lids, often escapes the opthalmologist and goes untreated for a long time.

The simultaneous occurrence of eczema of the skin and the eye suggests a common diathetic origin, while it may be explained in others as having been transferred directly from the skin to the eye, or from the eye to the skin.

Chronic eczema is most often seen in the adult, more often in women than men; and preferring the brunette type, more or less limited to the upper lids.

The lids are thickened, having a brownish, brawny appearance. The lids feel dense and heavy with a roughness and harshness of the skin surface to the touch, due to the exfoliation of the epidermal layer. There is a great deal of itching, burning, and feeling of heat in the lids at times. There may be, at times, a true hypertrophy of the cellular and subcellular tissues of the lids, in the chronic eczema.

Leprosy.

According to Parsons, leprosy may occur in two forms, the maculo-anaesthetic and the nodular, and both types may involve the eye lids, but the latter is the more frequent variety.

The nodular form of leprosy commences with an infiltration of the eyebrows, and if the conjunctiva is affected it is by direct extension from the lid margins. There may be true papillary enlargements of the conjunctiva, and on the limbus, one may see at times, granulation areas that will show the presence of leprous bacilli on microscopic examination.

When the cornea is involved there is either a superficial punctate or deep parenchymatous keratitis or the formation of small lepromata. The deep parenchymatous keratitis is usually associated with inflammation of the iris and ciliary body, and leaves permanent scarring of the cornea, as was seen in my own case.

Leprosy of the iris has somewhat the same appearance as tuberculosis of this tissue. The iris is very much thickened with nodes that may be single or confluent, usually without any of the active signs of inflammation.

Report of a Case.—Mr. A. G., age 32, clerk, English, personal and family history negative. Has been living in China for past ten years. About five years ago noticed a scaly eruption on hands and face, and has been under treatment intermittently for this condition, but seems to have gotten progressively worse. The eyes began to give trouble about one year after the skin affection began. When I first saw him there was a number of small elevated areas on the bulbar conjunctiva, more numerous about the corneo-scleral margin. There was a well-marked attack of iritis with the external ocular signs. Since the first attack of iritis he has had more or less trouble with his eyes, but has been able to do his work. Patient was on his way home from China to London, when the eye symptoms became so severe that he consulted me.

The skin lesions showed a scaly dryness and there seemed to be a thickening of the external dermal layer, which was of a grayish, mouse color. There were several small, dense, subdermal, tumorlike swellings on the eyebrows and ears.

The conjunctiva was slightly reddened, the cornea of both eyes showed a well-pronounced, deep keratitis, with a great many old nebulae. The iris showed that there had been previous attacks of iritis, which must have been quite severe. There were a number of synechial attachments and the pupils dilated very slightly and irregularly, giving the moth-eaten appearance, often seen after iritis. There were a number of elevated nodes in the iris, and some of these "tubercles" appeared to be new foci of inflammation, but others appeared to be old.

There was considerable pain, photophobia and lacrimation.

Treatment: The general treatment consisted of rest in bed, calomel, tonics, bowels were kept freely active. (Chalmoogra oil was given in increasing doses, which he did not seem to tolerate very kindly.) For the local symptoms, atropine, dionin, warm boric acid, hot compresses and leeches were employed.

Lupus Erythematosus.

Lupus erythematosus, Crocker says, is only half as common as lupus vulgaris, where as Bulkley states that lupus erythematosus is far more common than lupus vulgaris in America. It is most commonly seen on the head and face, more especially the nose, cheeks, the lobes of the ears and the orbits. Occasionally it may be seen affecting the vermilion of the lips, in the mouth, and on the conjunctiva, usually by direct extension from the skin of the lower eyelid. There was no extension to or involvement of the conjunctiva in the case of the patient, whose history report I present.

Culver reported eleven cases of lupus erythematosus affecting the mucous membranes and concludes that this form of lupus erythematosus is the result of a general disease.

In the early stage it usually appears isolated or grouped in small, round spots, about one-

eighth of an inch in diameter, with a yellowish spot in the center and a small, closely-adherent scale. These patches are of a dirty yellowish-white color, and the duration of the disease is generally a matter of many months, and even years. Lupus erythematosus is followed by thin white scarring of the parts affected, and recurrence may take place in the scar.

Fulinberg was one of the first to use carbonic acid snow, and previous to this, good reports were recorded from the use of liquid air. The results so far from the use of carbonic acid snow have been fairly good, and before its introduction all forms of treatment, such as X-ray, Finsen light, and caustics had been used with varying and indifferent results.

Case Report.—Mrs. C. G., age 30, Russian Jewess, came to the Manhattan Eye and Ear Hospital, November the 12th, 1910, on account of inflammation of the eyelids and some headaches.

There was some slight redness of the edges of the lower lids, which was more or less confined to the middle and inner portion, and not so much at the margin of the lids, as on the skin surface adjoining the margin. There was some slight scaling, and underneath the scaling the skin had a curious pinkish-white color. I have never before seen a form of blepharitis just like the condition seen in this patient. She was given an eyewash of zinc sulphate gr. 1 to 2 oz. of aquad stellata and yellow oxide of mercury was used night and morning.

Vision: Her vision at this time was O. D. 20/20; O. S. 20/20. Her refraction under homatropine, which was most carefully worked out on different occasions, gave the following findings: O. D. + 0.75 sph. + 0.25 cy. 180°. O. S. + 1 sph. + 0.25 cy. 180°. Glasses were ordered for constant wear. After a month or more of treatment, the condition did not show any great improvement or change. Various forms of treatment were continued for several months, using yellow oxide ointment and the red oxide of mercury, ichthyol, argyrol and Lessar's Paste at different times without any distinct change in the lids, except the disappearance of the tendency to scabbing and scaling. A microscopic study of the secretion of the conjunctiva revealed nothing but a simple diplococcus. The treatment was interrupted for two months, and on her return there was again some slight scaling and redness of the lids, the same as was present on her first visit to the clinic. This had extended to the inner canthus and to the skin surface immediately adjoining.

Dr. George Crary, Dermatologist to the Manhattan Eye and Ear Hospital, saw her with me and pronounced it to be a case of lupus erythematosus. We then began treatment with carbonic acid snow, and this was applied in the manner suggested by Law, of London, England. This treatment was continued for a period of months and the active signs all disappeared. The patient was seen six months later and there was no recurrence of the active signs of the disease.

Solid Oedema of the Face and Eyelids.

Recurrent and later persistant oedematous swelling involving the whole or limited portions of the face, such as the eyelids, the nose or of the lips, usually the upper, has been described by Fox in "Allbutt and Rollestons Systems of Medicine." It has long been known and described as recurrent erysipelas or lymphatic oedema.

It is characterized by recurring attacks at short, long, or irregular intervals in which the skin swells, sometimes with reddening and other signs of inflammation, but very often these signs of inflammation are absent. The part attacked becomes oedematous and swollen, but does not pit on pressure.

In many cases there is no febrile or constitutional disturbances, but only some local discomfort.

There are usually frequent attacks, the first one being often the most severe. When I first saw the case the condition had existed over a period of about seven years, during which time the oedema would entirely disappear for months.

The etiology has not been settled, but the general impression is that the condition is due to strepto or staphylococcic infection, and that it resembles the recurrent attacks seen in other parts of the body, as the legs, where it induces a form of elephantiasis.

In many cases the nose has been found to be the site of a dermatitis, and a minute search should always be made in the nose, eyes, mouth and gums for any possible source or foci of infection.

Report of a Case.—Miss J. H., age 15, Russian Jewess, with a negative family history, came to the Manhattan Eye and Ear Hospital, January, 1916. She said that her present trouble began about six or seven years before and has had treatment at the Skin and Cancer Hospital for the past six months, but did not get much better and thinks that the condition is about the same. The trouble began without any apparent cause or injury. Patient noticed a slight swelling of the nose with some redness. The swelling gradually increased, extending to the upper lip, cheeks and eyelids of both eyes. There was never any great amount of pain, but some tenderness when swollen parts of the face were pressed upon, espe-

cially the nose. When I first saw the case the condition had existed all this time with little or no change, except at short intervals when the swelling was less. The nose was swollen to about twice its normal size, and there was some redness, and about the nostrils there was a well-marked eczematous condition. The nares almost completely blocked with crusts and scabs. The upper lip was very much swollen and enlarged. The cheeks showed the same type of swelling and both eyelids were swollen and dense, with considerable eczema of the edges. There was present a most violent photophobia and lacrimation. The nose was most sensitive to touch and all of the swollen portions of the face gave a tense and solid feeling to the fingers on palpation, but did not pit.

The urine, Wassermann and von Pirquet were all negative. The report from the rhinologist did not assist us in our diagnosis. A culture from the nose showed a very abundant growth of the staphylococci pyogenous aureus, and it was upon this factor, together with the chronicity and recurrences of the condition; the absence of fever; and the resistance to all treatment, that led me to diagnose this as a case of solid oedema of the face.

Treatment: We had given tonic treatment, employing Fowler's Solution in increasing doses, attention to the bowels and diet with the local use of boric acid and argyrol. Nasal douching twice daily was ordered. There was no improvement in the condition until we started the injection of an autogenous vaccine of staphylococcus pyogenous aureus, and after two injections there was much less photophobia and lacrimation and the swelling of the lids, nose and upper lip was diminished.

This treatment was continued for two months with gradual disappearance of all swelling from the face and the relief of all of the signs of inflammation in the nose, which I regarded as the source of the trouble.

She was last seen on March 10, 1917, and has been free from any recurrence of the trouble.

Pemphigus.

Pemphigus of the conjunctiva is one of the grave diseases of the eye; and was recognized and diagnosed as such, as early as 1858. When this condition affects the eyes it is usually bilateral, although often unequal in the degree of severity.

There does not seem to be any constant relation between the duration of the skin affection and the development of the eye lesions. Pemphigus may affect the conjunctiva primarily, but this is rare, and in some of the cases so reported the lesions of the skin or mucous membranes may have been overlooked. In Case No. 1, the diagnostic lesions were limited to the mucous membranes of the nares and pharynx. Involvement of the mucous surfaces is a very unfavorable manifestation of this disease, and Widenfeld has found, that those cases of pemphigus in which the malady begins in the mouth, the prognosis is very grave.

The course of the disease is usually very slow, extending over a period of years.

In regards to the etiology of the disease, sex and heredity seem to be of little importance.

Just what this disease is due to we are not as yet certain, whether it is due to some disturbance of the vaso-motor centers, or, as Schwimmers concludes, it may be a trophoneurosis. The latest theory that has been advanced is that certain forms of toxins affect the terminal nerve endings.

The various manifestations of pemphigus affecting the conjunctiva may be classified in the following manner:

I. Those cases with blebs or bullae of the skin and conjunctiva.

II. Those cases with blebs or bullae of the mucous membranes and conjunctiva.

III. Those cases where the blebs or bullae may be limited, at first to the conjunctiva.

IV. Those cases described as "essential shrinkage of the conjunctiva."

Kries, of Von Graefe's Clinic pointed out that there may be an essential shrinkage of the conjunctiva, which may not be preceded by hypertrophy of this tissue.

Von Graefe, at a later date, came forward with the statement, that pemphigus and essential shrinkage were one and the same disease.

Patient: L. L., age 70, Russian, said that he had never had any trouble with his eyes until six months ago, and at that time he was able to read the newspaper with glasses. He was first seen by me at the Manhattan Eye and Ear Hospital, October 3, 1910.

Examination.—Right Eye: Vision, patient counted fingers at three feet. The iris was brown and reacted very sluggishly to light, tension normal. The edges of the lids were covered with a dried secretion, yellowish in color, which matted the lids together. The lids were thick and shrunken. There was total symblepharon (the lids united to the eyeball, to their edges). The opening between the lids was about 8 mm. The bulbar conjunctiva was thick and thrown in folds over the cornea. A small portion of the cornea was visible. The eye presented somewhat the appearance of an old trachoma, with atrophy of the conjunctiva.

Left Eye: Vision, 20/200. The pupil was 3 mm. in diameter; the iris was brown and

reacted to light accommodation and convergence; tension was normal. There was the same matting of the edges of the lids. The symblepharon was very slight and deeply placed in the cul-de-sac. At the limbus of the cornea there were several small whitish areas which, when gently rubbed with an applicator, bled freely. The conjunctiva was red and swollen, with the appearance of oedema at places. The corneo-scleral margin showed a number of small, bleblike formations of a pearly-white color. The rest of the cornea was clear.

October 20, 1910: The condition of the right eye was unchanged, except that the symblepharon had contracted more, and the opening between the lids was smaller. The cul-de-sac of the left eye seemed to be more shallow, movement of the lids less free, and it was almost impossible to evert the upper lid. There was always free bleeding of the conjunctiva on the slightest attempt to open the eyelids wide.

The shrinking grew steadily worse in the right eye until it was impossible to separate the lids. The shape of the eyeball seemed to be preserved as far as could be determined by palpation. There was a curious swelling in the upper lid, directly under the skin, which may have been an enlargement of the lacrimal gland. There was also oedema of the upper lid, which lasted for about two weeks. The bulbar conjunctiva presented spots of necrosis in the left eye which were white and bled very easily on the slightest attempt to make any examination of the eye. After bleeding, there was immediate ulceration and formation of synechia between the conjunctiva of the eye and the lids. The bulbar conjunctiva was slowly extending over the cornea. The small areas of necrosis with the ulceration and free bleeding, followed by the formation of synechia, and later by cicatrization and contraction, and finally by symblepharon, which gradually became more and more complete, indicated the steady progress of the disease. The secretion of tears had been absent for about a week. The cornea showed small ulcer formations in the upper half, and the patient had noticed rapid loss of vision during the last week. Two weeks later the ulceration of the cornea was complete in the upper half, and the upper lid was tightly attached to the surface of the cornea. The vision was fingers at six inches. The eye was kept closed nearly all of the time and the patient complained of great pain, which was worse at night.

Frequent examinations of the urine were always negative. A von Pirquet vaccination was made, using the crude tuberculin, and solution of 10 and 50 per cent, but this gave no evidence of tuberculous foci in the body. The Wassermann reaction was also negative. The pain and general discomfort increased with the gradual destruction of the eyes. The condition of the nose and throat was much worse and breathing became difficult. There was free bleeding from the nose whenever the patient blew his nose or tried to remove the crusts and scales. He was unable to get about himself; and his general health and strength had been rapidly failing, and on examination of the body, there were three well-formed bullae found over the abdominal wall. The progress of the disease in the left eye was very rapid, involving twelve weeks in all to complete the destruction.

The patient was examined by Doctor Honathan Wright, who reported as follows: "In the nose the whole of the visible walls of the cavity is covered by what looks to be a dirty, brownish, moist, shining membrane, but which is an exudate evidently closely incorporated with the subjacent mucous. It does not bleed and cannot be stripped off. There is evidently associated with the process a degree of fibrosis, which is manifested first, by the firmness with which the exudate or surface structure is bound to the subjacent parts; second, by the bloodlessness of the surface, and third, by the fact that at the back of the vestibule where the internal nasal chambers proper and their mucous surfaces begin, the introitus is much narrowed by a fibrous contraction. With this fibrosis there is no appreciable amount of deep infiltration, no true ulceration, no necrosis of soft tissue or of bone. There is a somewhat analogous lesion of the conjunctiva. There is no other lesion or history pointing to syphilis. It is not the clinical picture of membranous rhinitis, diphtheria, syphilis, or rhino-scleroma. The eye lesion resembles the blebs one sees in acute herpes or pemphigus of the throat. It resembles such a lesion as I have once seen accompanying a similar one of an acute nature in the nose and throat, which I believed was pemphigus."

Report of a Case, No. 2.—Mrs. A. K., age 71, German, has been having trouble with her right eye for past two months when she presented herself at the Manhattan Eye and Ear Hospital. No previous eye disease, but has been having trouble with her nose and throat for nearly a year. Difficulty in swallowing and painful when she swallows any very hot liquid or solid food.

Vision: O. D. 20/70; O. S. 20/40; pupils 2.5 mm., react to light, accommodation and convergence, and the tension is normal. Right eye reveals some slight swelling of the lower lid with some crusts and scales along the edges of both lids. Extra ocular movements are normal. The cornea is clear, except near the

limbus, where there is a slight dullness noted. At the inner, lower margin there is a peculiar, pale, whitish tissue formation, slightly elevated, with little or no congestion or engorgement of the conjunctival vessels. There is at times increased heat and redness of the lids.

In the lower lid the conjunctiva shows thickening with the formation of three or four cicatrical bandlike formations which are slowly but surely attaching the conjunctiva of the eyelid to that of the eyeball, and which may ultimately cause a complete symblepharon. These bandlike formations are more marked down and in, and down and out. They are slightly pale and have a peculiar lusterless appearance, looking dry, as does the rest of the conjunctiva of the eyeball, that is affected by the disease. The conjunctiva of the inner half of the eyeball is beginning to extend and attach itself to the corneal epithelium layer. The inner surface of the upper lid shows a thickening and some increased redness with the same dead, dull, lusterless appearance, already described, in the lower cul-de-sac. There is now a slight tendency to entropion of the lower lid when the patient makes an a spastic effort to close the eye.

One month later the general appearance of the eye was about the same, except that the lower cul-de-sac was reduced to about one-half of its normal depth. There was no marked encroachment of the tissue upon the cornea.

The examination of the nose revealed a great quantity of crusts, scabs and a dried, bloody exudate on the anterior portion of the septum on both sides of the nose, which caused great difficulty in breathing. On the posterior wall of the pharynx was seen a large, elevated brownish-white area which has all of the appearances of a bullae. The mucous membrance of the rest of the pharynx was dull red in color, dry and glazed.

Treatment: The local use of boric acid wash, atropine, argyrol for a time, which was later discontinued and liquid albolene used.

Radium was recommended, but the patient refused to have it used. Liquor potassie arsenitis was given in increasing doses.

The nose was cleaned up and freed of the scabbing and ulceration by the daily use of a nasal douche and the application of a 40 per cent ichthyol ointment.

The pharynx, when the patient was last seen was smooth and clean, but showed a white cicatrix at the site of the bullae.

* * * * * *

It was my intention to include in this paper a report of a case of "Favus Affecting the Eyes." The paper embodying the report of this case will appear in the *New York Medical Journal* in one of its early issues.

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Discussion.

Dr. Percy Fridenberg, New York City: The affections of the skin may, any of them, become manifest in the lids. In addition we must bear in mind that the conjunctiva and the superficial layers of the cornea are biologically related to the skin and show similar morbid manifestations. In addition to the varieties mentioned by Dr. Weidler I might cite vaccinia pustules of the lid caused by autoinoculation from the vaccination on the arm. This is not, or was not, so uncommon in children formerly when the site of vaccination was often left uncovered. The condition of the skin of the lids, particularly of the lid-margin is often an indication of the state of constitutional health, especially as to the condition of the intestinal tract. Before tuberculin was introduced, phylyctenular conjunctivitis and keratitis were brought into association with eczema from gastro-intestinal affections, and there is no doubt that the little patients did well on strict diet, baths, and tonics. Of pemphigus we know very little as to etiology and, consequently, as to treatment. The most unpleasant symptom is the shrinking and drying of the conjunctiva with the threatened anchoring of the globe or symblepharon to the point of interfering with sight. In a case seen recently I performed the operation recommended for the restoration of the conjunctival cul-de-sac in shrunken socket, taking a Wolfe graft from the thigh. The result, so far has been encouraging.

Dr. Malcolm C. Rose, New York City: It has been my privilege to see a number of Dr. Weidler's cases.

My experience has been more with cases of acne and eczema, and when one sees cases of acne going on to perforation of the cornea and loss of aqueous we realize how thorough we must be in our treatment of these cases.

Start in the morning and correct such a diet as coffee and hot rolls. Coffee with milk or cream is indigestible for more than 50 per cent of the people who drink it, the same for fresh rolls and cakes. Overloading with protein food causes putrefaction in the intestines with autointoxication by absorption.

The following prescriptions have been of

real help to me in managing some of these cases:

℞
Potass acetas ℥ii.
Tr. nucis vomicis ℥iii.
Fl. ext. rumicisgsad ℥iv.
Mftsol.
Sig. ℥i in aq. ½ hour before meals.

℞
Mist rhei et soda ℥iii.
Sig. ℥i in aq. immediately after meals.

℞
Ung. hyd. ammon ℥v.
Ung. zinci ox ℥iv.
Ung. aq. rosalgsad ℥ii.
Sig. apply twice a day.

MASS VOLUNTEERING BY THE MEDICAL PROFESSION.

The Principles of Universal Service Practically Applied in a Selective Draft.

By F. T. VAN BEUREN, Jr.

IN this national emergency two facts stand out pre-eminently for the consideration of the medical profession: First, that we have an army many times larger than we have had since '64; an army that is in present progress and future expectation of expansion. Second, that there must be a sufficient number of medical officers provided for that army. It is no question of choice; it is a national necessity. For, upon the efficiency of its medical department, the efficiency of the army must depend. It is not necessary to turn to historical accounts of armies beaten by disease rather than by the enemy to understand this. Anyone who is able to imagine a million men gathered together, without selection for physical fitness, upon a few square miles of ground; without sanitary supervision of their food supply or diet; without any proper selection or supervision of their water; without any sewage system and without any scientific instruction in its substitution; without carefully arranged and supervised means of waste disposal, human, animal and general; without carefully considered plans of housing and clothing; without skilled means of anticipating, recognizing, guarding against and treating the hundred potentialities of disease that always exist even among the most carefully selected group of human beings; without provision for the care and treatment of the wounded and the disposal of the dead; without detailed record of the losses by wounds or disease to justify the returned soldiers in claims for injury in their country's service, or to protect the Nation against such claims as were unjust. Can you imagine a million men under such conditions, men that are fighting for you and for every other individual in their Nation? Can you imagine their unnecessary suffering and destruction, present and future? No! You cannot imagine it; not in these enlightened days of prophylasis. It staggers the mind. But that is what an army would be, lacking medical and sanitary provision for its selection, care and protection.

Granted, then, that the army must have medical officers. How will it get them? Why, if necessary, it will take them, whether they are willing or not. Let us be logical: We are a part of the Nation, and, although there may be a thousand other definitions of the word, a Nation in war-time is an aggregation of individuals banded together for self-defense. Now, suppose that you, as an individual, were attacked by a large enemy with a club. Would you not put up your arm to shield your head even though it might mean injury to your right hand? Why, of course, you would put up your arm in defense of your head, and just so will the Nation, when it becomes necessary, put up its medical members to protect the integrity of its combatant troops.

BUT, and this should be spelled in capital letters, would the selection that must be made in such an emergency be the best selection of its medical members, best either from the army's or from the profession's point of view? One has to admit that it does not appear probable. And there is another aspect of the affair that must be considered when selection is mentioned. Armies come and armies go, battles are won or lost, and campaigns are successful or disastrous, but the life of the Nation must go on, whether conquering, subject or enslaved. This is only a high-sounding way of saying that the folk back home must be cared for, too. Now, which body, Congress or the Medical Profession, is better prepared to select the physicians who ought to serve the army and the physicians who ought to serve the communities at home? A good deal depends upon the answer to that question, for with it lies all the difference between a draft-as-such and a selective draft such as we propose. Granted two things, now, that the army must have enough medical officers of the right sort, and that the communities at home must be taken care of. How shall these two things best be accomplished?

If this were only a little war, with a small army that needed only a few medical officers, that would be a different matter. In that case it might be well enough to allow the best and the worst of our profession to volunteer indiscriminately for military service, with perfect confidence that the Medical Department would choose the best and return the remainder with thanks. No great harm would be done, for the medical profession of the United States is so far, proportionately as well as actually, larger than that of other countries, that it could, so to speak, spare a considerable number of its members without injustice to the public whom they serve. But this is not a little war. One doubts if that can be too often or too clearly emphasized. And there is and will be need for enormous numbers of medical officers to care for our own soldiers

and to help care for the soldiers of our Allies. They need our help and we are all fighting for the same cause, side by side.

Estimates may vary, of course, with the information or the imagination of the estimator, but the Medical Section of the Council of National Defense, which has sources of information not readily accessible to the private individual, and whose conservatism is well recognized, estimates that at least 20,000 physicians, and perhaps eventually 40,000, will be needed as medical officers. In the middle of August, 1917, all the State Committees of National Defense, Medical Section, were informed that the Medical Department had only about one-half the number of officers that would be needed for an army of 2,000,000. And yet 16,000 physicians have already been accepted for commission by the examining boards.

Now, so far as we have been able to ascertain the facts, 40,000 is the total number of physicians in the whole of England and France, just before war broke out. In the United States we have a trifle more than three and one-half times that number at present. We *do* need 20,000 of them *now*, and we *may* need 40,000 of them later, as medical officers. That will be from one-seventh to one-third of them all. Can our profession, can the public which it serves, afford to allow so many to go indiscriminately and leave unprotected, even for six months or a year or two years, the important public and private positions which so many of them now occupy, important to the public and to the community equally as to themselves? Well, what do you think? *This is the problem that confronts the Medical Profession of the United States to-day: To furnish to the service of the National Defense those physicians best fitted for its uses, and to retain at home those physicians most needed by the communities. And it is no little problem!*

Of the fourteen thousand and odd physicians in the State of New York on the first day of May, 1917, about one-half were found to be, from a professional, individual or public point of view, not available and desirable for military service. Some were over 55 years of age, some had disqualifying injuries or ailments, and some had large families of dependents relying upon their professional income. Others held important positions in Health Departments, hospitals, clinics or medical schools, and others again were serving communities where there was no medical assistance but theirs within a radius of ten miles. A little over seven thousand of them, on the other hand, were found to have none of these disqualifications and were, therefore, classified as available and desirable for military service. "This classification was based, it should be known, upon the statements of the individual physicians taken from the blanks of a special medical census made under the direction of the Adjutant-General by order of the Governor of New York State, and the individual's statements were corroborated or corrected by a responsible and representative body of his fellow physicians, the Auxiliary Medical Committee of the county, in which each individual resides. Thus, it was based upon each man's opinion of himself as checked up by the opinion of his fellows, and that is about as fair a basis as it is humanly possible to devise.

Reasoning by analogy (so the statisticians of the New York Life Insurance Company tell us) is fairly safe, provided that we have examined a sufficiently large number of individuals to determine a fair average. Therefore, since approximately one-tenth of the medical profession resides in this State, and since one-half of that tenth is proven available and desirable, it seems fair to believe that, of the hundred and forty-odd thousand physicians in the United States, seventy or eighty thousand physicians must be fit for military service without undue injury to the individual, to the community or to the public.

How can they be reached and determined for selection? Just as has been done here:

(1) A Federal Census of Physicians can be taken by the United States Census Bureau. (2) The information returned can be coded by that Bureau. (3) The physicians of each county can then be separately listed with serial number, age and code letters indicating that the individual is available and desirable, or that he is not available by reason of many dependents, health disability, medical school, public health service, hospital or community needs (by the Census Bureau). (4) County lists thus coded will then be returned to the Auxiliary Medical Committees of the various counties by the Council of National Defense, *through* the State Committees, and County Committees will then select those on their lists best fitted for military service by corroborating or correcting the statements of the individual (as coded by the Census Bureau) and by indicating in writing which individuals ought to be retained at home, for the welfare of the community, in hospitals, medical schools and clinics. (5) Selected county lists will then be returned, through the State Committees, to the Council of National Defense, after the State Committee has reviewed the county lists. (6) The number of physicians available and desirable in every county for military service will thus be known and allotments of required quota can be made to each county (on a basis of the number of available and desirable in that county) by the Surgeon General's Office, through the Council of National Defense and the State Committees. (7) From the total number of available and desirables in the United States the required number can then be drawn by lot by the Surgeon General's Office, thus establishing the "order of liability" of the men on each county list of available and desirables. (8) Such individuals as are thus rendered liable can be called, whenever and in

whatever number needed, by the Surgeon General, through the Adjutant General, or by direct notice, to present themselves for examination and commission.

The details are by no means complicated and the principles are extremely simple.

The Medical Profession, as a whole, offers its services in the cause of National defense. Those of its members best fitted for military service go to the Army, for the period of the emergency. Those of its members most needed in the communities serve the Nation, just as honorably and effectively, at home.

Shall we unite in asking the Congress of the United States to give us authority to make and enforce this choice *ourselves?*

I cannot get away from the cold logic of the proposition. The termination of our Civil War found nineteen physicians per thousand men in the Army of the United States. Is it likely we shall need fewer in this war wherein the science and art of destruction have reached a far greater efficiency? Nineteen per thousand means nineteen thousand per million of men. For any army of two millions we may require the services of thirty-eight thousand medical officers.

There are, roughly, about 145,000 physicians in the United States. Of these there are approximately seventy-five thousand physically fit, between the ages of 21 and 55 years, whose occupations at home do not make their services more valuable there than they would be in the army. In other words, there are seventy-five thousand physicians in the United States available and desirable for military service, and half of them probably will be needed in the army. Is it not the part of mere common sense to desire some orderly means and adequate authority for the selection of that half of the available physicians? And is it not in the interest and self-protection of the Nation to try to obviate the possibility that any portion of the needed medical officers be supplied from among the physicians who, for individual or community reasons, ought not to be removed from their home duties. Again, because we have plenty of material, is that a good reason for wasting any of it? Or because we may not need as many physicians as we think we shall, is that sufficient cause for refraining from preparations to furnish them with the least waste and at the lowest cost of individual or community or national dangers or discomforts?

If we can secure authority for this plan for the conservation of army medical efficiency, of civilian medical service and of community interests, in the case that worse comes and more physicians than we expect should be required for the army, shall we not have done well in preparing for that contingency in advance. Or if the happier possibility eventuates and the army service requires fewer than we anticipate, shall we not at the least have accomplished another of those intelligent successes in a preventative way that our profession is so justly proud of?

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

OBSTETRICS, A Text-Book for the Use of Students and Practitioners. By J. WHITRIDGE WILLIAMS, Professor Obstetrics, Johns Hopkins University; Obstetrician-in-Chief, Johns Hopkins Hospital. Fourth enlarged and revised edition. Seventeen plates and six hundred illustrations in the text. New York and London. D. Appleton & Co., 1917.

CLINICAL CARDIOLOGY. By SELIAN NEUHOF, B.S., M.D., Visiting Physician, Central and Neurological Hospital, Adjunct Attending Physician Lebanon Hospital. The Macmillan Co. New York, 1917. Price, $4.00.

AMMUNITION FOR FINAL DRIVE ON BOOZE. By LOUIS ALBERT BANKS, D.D. 402 pages. Price, $1.50 net. By mail, $1.62. Funk & Wagnalls Co., 354-360 Fourth Avenue, New York City.

Book Reviews

THE BELOVED PHYSICIAN, EDWARD LIVINGSTON TRUDEAU. By STEPHEN CHALMERS. With illustrations. Boston and New York, Houghton, Mifflin Co., 1916. Price, $1.00 net.

A friend wrote these few pages. That is why the reader gets such a simple and wholesome glimpse of a quiet yet great life. Dr. Trudeau suffered yet served; he met despondency with a brave optimism, and when confronted by poverty and despair gave unstintedly out of his own meagre resources and stimulated others to be generous also. The author tells the story in an unassuming fashion but cannot hide his own adoration and love; the title alone plainly indicates this. The book can be read in twenty minutes—it will take a lifetime to forget. A. F. E.

CHRISTIANITY AND SEX PROBLEMS. By HUGH NORTHCOTE, M.A. Second edition, revised and enlarged. Phila., F. A. Davis Co., 1916. 478 pp., 8vo. Cloth.

The author has somewhat befogged the subject by his verbosity, yet the book may be read by the young physician with profit, especially if he aims to do any social work. L. M. C.

VENESECTION. A Brief Summary of the Practical Value of Venesection in Disease. For Students and Practitioners of Medicine. By WALTON FOREST DUTTON, M.D. Illustrated. Phila., F. A. Davis Co., 1916. 220 pp., 8vo. Cloth.

This pleasing little work is much more than a mere dry description of the technic and indications for bloodletting, as it gives a concise and scientific résumé of the treatment of the conditions in which this procedure may be of service.

Chapters are presented on the history of bloodletting, on the blood and lymph, on hematology, and on blood pressure, before going on to the actual consideration of the technic and indications for the removal of blood from the system either with or without the replacing thereof by saline or other solutions.

Cupping in its various forms is taken up, with a description of the apparatus required for its practice.

Many of the statements made are supported by the opinion of authorities, a bibliography of whom is appended; and further, a commendable feature of the index is the inclusion therein of the names of the writers quoted in the text.

On the whole, it may be said that this volume is much more than is to be inferred from its title and it is really a valuable little handbook of medicine which may be read with benefit by any general practitioner. W. H. D.

Tobacco Habit Easily Conquered. How to do it agreeably and without drugs, with appendix: "Tobacco the Destroyer," by M. MacLevy, New York, Albro Society, Inc., 181 Lexington Avenue.

In this little book Mr. MacLevy discusses his treatment and cure of the tobacco habit under twenty heads, called "Dictums," which the patient is to read systematically and put in practice conscientiously—having, of course, first of all determined that he wants to give up the use of tobacco.

The dictums contain, in short space, most excellent rules of living without the weed, and hold up the greater manhood of all who abstain.

The tone of the book is high and the object commendable. About a third of the volume is devoted to miscellaneous articles upon tobacco, arguments against its use, its use by women, etc. W. S. H.

Lymphatic Glands in Meat-Producing Animals. By P. Godbille, Section Chief of the Sanitary Veterinary Inspection of Paris. Translated by Alexander F. Liautard, M.D., V.M., F.R.C.V.S. (Hon.), editor of the American Veterinary Review; author of Manual of Operative Veterinary Surgery, and D. Arthur Hughes, Litt.M., Ph.D., D.V.M., Veterinary Inspector of Meat-Producing Animals, Meats and Meat-Food Products, Quartermaster Corps, United States Army, Chicago; Cloth, 176 pages, sixteen illustrations. Price, $2.00. William R. Jenkins Co., Sixth Avenue at 48th Street, New York.

This small volume, translated from the French, is the only book of its kind written in English, and is inscribed to all veterinary inspectors working in America whose duty it is to pass upon meat.

Meat inspection consists essentially of the inspection of the lymphatic glands of the meat-producing animals, such as sheep, cattle, and swine. Tuberculosis, hog-cholera, and caseous lymphadenitis are always detected through certain pathological changes in the lymphatic glands. Meat inspectors must, therefore, be familiar with the topographic normal anatomy of the lymphatic system and the morbid anatomy of the lymphatic glands.

The book, though short, is complete and should prove of service to those whose duty it is to examine for disease the carcasses of the meat-producing animals.

H. B. M.

Theory and Practice of Bloodletting. By Heinrich Stern, M.D., LL.D. Visiting Physician St. Mark's Hosp., Consulting Physician Methodist-Episcopal, Central Islip, Port Chester and Glens Falls Hosps. Rebman & Co., New York. 1915.

If one may judge by the number of articles and treatises which have recently appeared on the subject, the ancient practice of bloodletting must be experiencing what might be rightly called a resurrection. Stern is careful in his preface to make clear that he does not consider this measure a panacea but that he is impressed with its value when it is used with discretion in many varied conditions.

The work is divided into two parts, of which the first is devoted to the general fundaments of bloodletting with chapters on its historical retrospect; on the functional changes following its employment; and on the present status of the technic including the so-called "bloodless" methods.

The second part is entitled "Special Clinic of Local and General Bloodletting," and contains chapters on diseases of the respiratory organs, circulatory disturbances, uremia, puerperal eclampsia, narcomania, affections of the blood, and miscellaneous diseases, concluding with a discussion of venesection in children and the prophylactic possibilities of the procedure.

W. H. D.

Surgery, with Special Reference to Podiatry. By Maximilian Stern, M.D., and Edward Adams, M.D., Professor of Surgery at the School of Chiropody of New York. Edited by Maurice J. Lewi, M.D., President of the School of Chiropody of New York.

This little book of 253 pages attempts to make a very superficial stab at surgery. The contents include surgical bacteriology, asepsis, inflammations, wounds, contusions, hemorrhage, burns, frost-bites, fissures, fistulæ, sinuses, diseases of the joints, diseases of bones, diseases of veins, tumors, cysts, fractures, dislocations, sprains, deformities, dressings, bandaging, skin grafting, local anesthesia, etc. Any one of these subjects alone could fill this small volume.

The definitions are accurate and the information, what there is of it, is correct.

The book is published "with special reference to podiatry." In all probability there is about as much surgery in this volume as the average student in podiatry can absorb. Harry A. Tarbox.

A Manual of Hygiene and Sanitation. By Seneca Egbert, M.D., Professor of Hygiene and Dean of the Medico-Chirurgical College, Philadelphia. New (6th) edition, thoroughly revised. 12mo, 525 pages, with 141 figures and five plates. Cloth, $2.25 net. Lea & Febiger, Philadelphia and New York. 1916.

The author frankly admits this work "to be a text book and manual and as such, necessitates an exposition of fundamental principles not to be too readily cast aside, and a conservatism regarding new ideas so that they may be subject to the test of time before they are set forth with positiveness and authority."

In view of the tremendous advances in public health in the past ten or fifteen years, the recognition of this purpose of the author is necessary to understand why there is such little change in the subject-matter presented in 1916 as compared, for instance, with the second edition published in 1900. The value of basic principles, however, would not be impaired by their presentation in a manner which would recognize to a greater degree the modern view-point. With little exception, the chapters of the latest edition are similar to those found in the volume published in 1900. When it has been found necessary to describe new features on any particular subject, they have been presented as an appendix to the appropriate chapter; however, new ideas in so many instances have so changed the entire thought of certain phases of public health as to demand complete reconstruction of chapters rather than presentation as a mere supplement to subject matter of previous editions.

The prevailing thought on subjects, such as, ventilation, food, school hygiene, public welfare, disinfection, venereal diseases, contact infection, vital statistics and public health education, requires their exposition in a way which is not apparent in this volume.

The primary divisions of this book as a text book for the student in hygiene and sanitation are excellent and it is to be hoped that ultra conservatism will not prevent future editions of this valuable standard book from being brought strictly up to date.

Infant Mortality. By Hugh T. Ashby, B.A., M.D., B.C. (Camb.), M.R.C.P. (London), Visiting Physician Manchester Children's Hospital. Pendlebury. Cambridge University Press, Fetter Lane, E. C., London, G. P. Putnam's Sons, New York, 1915. Price, $3.25.

This book is beautifully written and is most complete. The author goes deeply into the subject, tracing the relative importance of poverty, ignorance and intemperance in the causation of infant mortality. He discusses the care of the mother before and after delivery, the great importance of maternal nursing, and in the

few cases where this is impossible the choice of a proper food and the care of the same. He also takes up the prevention of the contagious and infectious diseases. The book is full of meat and is well worth reading by anyone who has the welfare of the child at heart.

P. L. P.

A MANUAL OF PRACTICAL NURSING, Prepared for the Washington University Training School for Nurses in the Barnes and St. Louis Children's Hospital. Edited by Helen Lillian Bridge, B.S., R.N., Assistant Superintendent and Instructor of Nurses, Washington University Training School for Nurses, St. Louis. C. V. Mosby Company, St. Louis, 1916. Price, $1.00.

This book of eighty pages is designed by the Supervisor of Washington University Training School to supplement the text-book teaching used, and it covers most minutely every detail in the care of patients and the recording of all procedures and happenings which the nurse should chart.

There are special departments devoted to the routine care of surgical, gynecological, abdominal and obstetrical cases.

The book is compact and has blank interleaves for notes, and a full index. An excellent little book.

W. S. H.

THE MORTALITY FROM CANCER THROUGHOUT THE WORLD: By FREDERICK L. HOFFMAN, LL.D., F.S.S., F.A.S.A. Chairman, Committee on Statistics, American Society for Control of Cancer; Member American Association Cancer Research; Associate Fellow American Medical Association and American Academy of Medicine, etc., etc. Newark, N. J. The Prudential Press, 1915.

The Author, a statistician widely known for his painstaking work, has gathered together and incorporated in a volume of nearly 800 pages the world's statistical data in reference to the cancer problem. As is stated in the preface, "the work is primarily intended to facilitate the statistical study of the cancer problem throughout the world;" and to further stimulate interest in this stupendous work the publishers have distributed gratuitously many copies of the book to medical libraries, to members of the medical profession, and to many others especially interested in the study of the cause and control of cancer.

The volume is divided into nine chapters, twenty-one charts, eight appendices, and a lengthy bibliography. The reading matter proper deals with the following subjects: The statistical method in medicine; the statistical basis of cancer research; the increase in cancer; mortality from cancer in different occupations; cancer as a problem in life insurance medicine; the geographical incidence of cancer throughout the world; the statistical data of cancer frequency in American states and cities; in foreign countries; and, finally, some general observations and conclusions on the cancer problem.

The remainder of the volume is given over to the charts and appendices, containing innumerable tables, which give the statistical data gathered from all parts of the world, but particularly from continental United States, and lastly, a very long, though not complete, bibliography.

The work is very interesting and readable and should render substantial assistance to all those interested in the cancer problem, especially statisticians, lecturers and teachers.

HARVEY B. MATTHEWS.

PUBLIC HEALTH NURSING, by MARY SEWALL GARDNER, R.N., Superintendent Providence District Nursing Association. With an introduction by M. Adelaide Nutting, Prof. Nursing and Health, and Director Department Teachers' College, Columbia University. The Macmillan Co., New York, 1916. Price, $1.75.

The nurse as a priestess of prophylaxis has come to stay. Her importance is ever on the increase and the extension of public health nursing within the last decade has made giant strides. Miss Gardner shows that, whereas in 1902 there were only 136 nurses in public health work, in 1916 there are more than 5,000 engaged in this important work.

With the increase of public health nursing and the number of nurses, there has also been a quickening interest in the functions and rôle of the public health nurse, and this volume presents a very lucid account of the work of public health nurses, the history of the movement, the fundamental principles, the modern problems of public health nursing, the methods of organization and other kindred important subjects. The book also goes into great details as to the various phases of public health nursing, such as, tuberculosis. child welfare, school, mental hygiene, industrial, and medical social nursing service.

The book will be indispensable for nurses and will be useful to physicians and others interested in public health work.

The appendices give details as to the National Organization for Public Health Nursing and also give a valuable historical review of nursing since the year 1050 A. D.

G. M. P.

THE SURGICAL CLINICS OF CHICAGO, Vol. I, No. 1, (February, 1917). Octavo of 221 pages, 83 illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Published Bi-monthly. Price per year: Paper, $10; cloth, $14.

The first number of "The Surgical Clinics of Chicago" is a splendid tribute to the surgeons of Chicago and a valuable acquisition to American surgical literature.

After the death of Dr. John M. Murphy many surgeons felt that it would be quite impossible to fill the place of this original and ideal teacher of surgery. This February number of the "Clinics" conclusively demonstrates that there are still many excellent teachers and clinicians in Chicago capable of carrying on the teachings as expounded by the great Murphy.

The compilation consists of 221 pages, with 83 illustrations. There are a dozen contributors, and the subjects covered include gallstones, hernias, goiter, fracture of the patella, plastic surgery, gastric surgery, congenital pyloric stenosis, nerve suture, carcinoma of the breast, bone and joint infections, empyema, genito-urinary subjects, head injuries, etc. In all of their articles the authors present their cases with clearness and brevity. This feature adds greatly to the value of the publication. Would that more medical writers possessed and ultilized this gift.

Every man interested in general surgery should be a subscriber to these "Clinics."

HARRY R. TARBOX.

Deaths

AUGUST GEORGE HORSTMAN, M.D., Brooklyn, died September 24, 1917.

PHILIP WILFRID TRAVIS MOXOM, M.D., Brooklyn, died September 6, 1917.

HENRY N. READ, M.D., Brooklyn, died September 2, 1917.

LEWIS A. STIMSON, M.D., New York City, died September 17, 1917.

J. FRANCIS WOUTERS, M.D., New York City, died September 30, 1917.

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ORIGINAL ARTICLES

HOW CAN WE SAFEGUARD THE CHILD AGAINST MENTAL DISEASE?*

By JESSIE TAFT, Ph.D.,

Committee on Mental Hygiene, State Charities Aid Association.

NEW YORK CITY.

IN considering on what basis a lay person like myself could approach a body of physicians on a topic within their own particular field, I came to the conclusion that it might be a legitimate undertaking on this ground! The physician, particularly if he be a specialist, is always in danger of becoming so absorbed in the pressing and complicated problems of his own science that he may lose sight of the relation of his way of seeing life, to life itself. He may easily become so wrapped up in the study of diseased individuals as to overlook the bearing which his knowledge of disease may have upon the lives of those who are ordinarily healthy.

To one who works in mental hygiene, standing as it does, half way between the medical and the lay world, there sometimes seems to be the need not only to translate the knowledge of the mental specialist into a form which will mean something to the layman but also to carry over to the medical world the sense of the appalling ignorance on the part of the ordinary man of even the simplest laws of mental life and the crying need for enlightenment and guidance by those who have that knowledge.

Physicians have long since assumed social responsibility for the field of physical hygiene, so thoroughly and successfully that for all practical purposes there is complete contact on that level between the medical and the lay world. You will recall the theorems in the old-fashioned formal logic and the circles that were used to demonstrate them—each circle representing all the individuals of a given class. Then these circles were pictured as overlapping wherever they had a common group. I think of the medical world as a circle overlapping the circle of the lay world almost completely on the level of physical hygiene—the uncovered areas representing on the one hand the strictly scientific, highly specialized work of the medical world which has not yet been translated into habitual use, and on the other, the lowest levels of humanity as yet quite beyond the reach of any kind of enlightenment.

On the level of mental life, however, and the laws of mental hygiene resulting from the study of diseased minds, we have quite a different picture. Here there is, at the present moment, almost complete separation between the medical and the lay world. When we come to the level of consciousness—that for which all else exists; that which is above all important and in need of the most expert guidance science can afford—we find the area of contact so small as to be almost negligible as far as its influence on the

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 26, 1917.

mental life of society as a whole is concerned. Here the portion of the lay world which overlaps the circle of medical science includes only those diseased individuals actually under medical care and a small body of the most enlightened and progressive spirits who are seeking the way toward a control of mental life, both individual and social, which shall be comparable to our present control of physical life. The mental hygiene movement exists solely for the purpose of enlarging this field of contact and thus far its activities have consisted on the one hand in trying, through aid of the mental clinic, to get at those milder cases of mental disorder which seldom reach the hospital, as well as those individuals who are just beginning to show symptoms of a coming mental breakdown and, on the other, in educating the general public through mental hygiene organizations and publicity of every kind.

With this method of attack, as I see it, our ideal goal of a fairly complete contact between the lay and medical worlds in the field of mental science is discouragingly distant, if not altogether impossible. The ignorance of the ordinary layman is so great in the mental field and his want of background so complete that educating him along this line except in the most superficial way, seems rather a hopeless task. To make mental hygiene a vital factor in social life we shall have to get another approach, and the machinery for that approach is already in existence, waiting to be used.

The public school offers not only the possibility of an immensely enlarged contact between the two worlds, but it also offers a growing and developing contact which may look forward to an approximately complete union of science and life in the mental as well as in the physical realm. Once the insight of the mental specialist is allowed to work through the school system, nothing remains to check the gradual growth of a mental hygiene which shall include all our world. You see the school is really the growing nucleus of our society—once get mental hygiene into the school system and it is bound to grow with it.

This is not such an Utopian idea as one might think at first, nor is it without precedent. We have grown so accustomed to seeing the schools take the responsibility for the physical health of children that we forget it has not always been so. We forget what a revolutionary idea it once was to expect schools to look after eyes, ears, noses and throats as well as reading, writing and arithmetic. We now accept, placidly, as a fact the obligation of the school to equip its children with as healthy bodies as possible but we are startled and sceptical when the perfectly logical next step is taken—requiring the school to be as interested in making minds healthy as it has been in making bodies healthy.

Human nature is always slow to reach the most important things. It has to conquer the world of physical objects and living bodies before it can get at mind. And it has on that account only now reached the point where it is in a position to say: "Of what use is an education which provides a healthy body and plenty of information but takes no account of the delicate instrument which has to use that body and that knowledge?" If there is any meaning in the assertions of mental hygiene—that the functional disorders of mind develop gradually, a logical outcome of the character which the individual is building up as his bad mental habits become more and more fixed and more and more dominant, then we are merely playing with the fringe of prevention of mental disorders as long as we still deal chiefly with adults whose tendencies and habit reactions are hardened, and fail to reach children whose ways of reacting and mental trends are still in process of being formed.

If the physicians, as a class, could only realize, as we who are nearer the school realize, the infinite need for the insight into mental life and the method of its growth which the mental specialist now possesses, they would put the full weight of their influence back of a movement to make mental hygiene as much a part of school life as physical hygiene.

It would be hard to recall a time when a sore throat in the school room had significance chiefly from its effect on the attendance; when it was not recognized as a possible symptom of certain unhygienic conditions demanding attention both for the sake of the child and for the sake of the entire school, rather than as a bare fact, likely to spoil the attendance record of the child or the class for that month. Yet that is just the condition in which certain mental phenomena stand today in the school room. Persistent unexplained tardiness or truancy, unusual obstinacy, extreme unsociability or shyness, unaccountable failure in class work on the part of a bright child, all of these are recognized it is true, but they are recognized for the most part as bare facts affecting the discipline, attendance or scholarship of the class, not as symptoms of a condition in the child's inner life which demands attention. This ignoring of the mental life of the child, except that attenuated, intellectual phase of it which is involved in the learning and reciting of lessons and failing to see any meaning in unusual reactions to school life except their disturbing effect on school routine is the most discouraging feature of the school situation at the present moment, particularly in our large cities.

That it is possible for a child to commit suicide because it fails of promotion as occurred a year ago in New York City may be an indication of the neurotic character of that child, but it is

equally an indication of the utter failure of the school to understand the kind of child it was dealing with or to attempt to give that child a more reasonable estimate of the relative value of promotions. The school evidently had not had the slightest comprehension of what failure in school work meant in that child's life, a meaning dependent perhaps on an unusual sensitiveness to social approval, perhaps to undue pressure at home. But that does not alter the fact that the school failed in helping that child to solve its most vital problem, because it had never regarded guiding the instinctive and emotional development of children as part of its duty.

I recall another child who showed a peculiar negative reaction to many commands. Frequently when told to sit down she would persist in standing. She had been known to stand for half an hour rather than obey. This conduct was considered purely a matter for discipline. The child was naughty and obstinate. The problem was how to force her to behave. The teacher was quite aware that she had an unusually difficult child and would have been glad of some assistance but neither she nor the school as a whole had ever learned to approach such a condition from the mental side. They did not see the child's obstinancy as a symptom and made no effort to find out what meaning it had for the child, what factors in her life were producing such an outward result and how they could be modified. Conduct as disturbing as marked stubbornness, truancy, violent outbursts of temper, inability to give attention in the school room, and the like, is sure to come to the attention of the teacher even when it is not recognized as a symptom of an underlying unhealthy mental condition. But other more subtle and unobtrusive manifestations unusually escape observation entirely, and no attempt whatever is made to deal with them on any plane. Children who suffer from an intense self-consciousness, and shyness, who are fearful and apprehensive, who are markedly unsocial and do not mix with other children, who show tendency to depression, who are dreamy and unpractical, or who are apathetic and passive with little active interest in anything, are not recognized as problems because they give little or no trouble. They are frequently excellent in school work and are models of good behavior. They are, nevertheless, quite as badly adjusted as the more spectacular group and in need of a training which will get at the root of their difficulties and help them to overcome their unhealthy tendencies.

Psychiatry tells us that it is just such inability on the part of individuals to adapt their own desires to the ordinary conditions of social life that leads eventually to the functional mental disorders. Psychiatry tells us that the only way to reduce materially mental disease of the functional type, is to get at maladjusted individuals early, before the results of their failures have overwhelmed them completely, and teach them how to make a better adjustment.

There is only one way to do this, and that is, to get the children when the symptoms of failure of one kind or another are just beginning to appear. Only the school can do this in any thorough-going way.

The objections to such a scheme are quite likely to group themselves under these heads: First, there are too few children in any one school who show distinctly psychopathic or neurotic symptoms to warrant making mental hygiene an organic part of the school, like physical hygiene. Second, there is no assurance that the child with neurotic tendencies is surely destined for mental disease. Many persons with distinctly unhealthy mental traits go through life without a breakdown; and, finally, one could not expect the ordinary teacher to be able to detect signs of future mental disturbance, particularly in childhood where even an expert might be uncertain as to whether certain unhealthy traits would ever lead to a definitely diseased condition.

These objections might hold good if we had not in mind a broader concept of the meaning of mental hygiene than that which they imply. The kind of mental hygiene which deals only with definite mental disease has perhaps not sufficient warrant for claiming a place in the school system, but the mental hygiene which has for its object the use of the psychiatrist's knowledge of *diseased* minds to guide the mind which is not diseased to the healthiest possible development, needs no justification. If one could know that not a single child in a given school would ever develop a mental disease there would still be the obligation to give each child in that school the healthiest mind possible, to see to it that each child is being fitted to make the most efficient and happy adjustment of which he is capable to the social organization in which he must live.

In other words, the so-called normal child is just as much in need of mental hygiene as the neurotic child. Is there any reason why we should all grope blindly in the dark, perhaps ultimately overcoming our internal difficulties, conquering quite as much by chance or bulldog determination as by any insight into the real nature of our problems, when science already knows enough about mental life and its mechanisms to give us light? Why should most of us stumble on salvation by accident when we might work our way to it knowingly?

The chance method is too costly and means too much waste. Only the most normal or most fortunate get through without accident. The constitutionally handicapped come to grief almost inevitably, and much of our finest material, because of its extraordinary sensitiveness and

delicacy, is not able to endure the rough and tumble, irrational, trial and error method of reaching a satisfactory adjustment to life. How many of us, no matter how happy and efficient we may have become, cannot look back upon years and years of our lives spent in a weary, agonizing effort to straighten out the meaning of sex in the world? How many of us can say that our development from the dependency and protection of childhood in the family to a free and independent existence without that shelter and protection, was an easy matter and without the need of special understanding and guidance.

Our chief problems are not intellectual but instinctive and emotional. The deepest conflicts in life are not primarily of intellect with physical environment but of impulse and desire with a complex civilization which imposes all kinds of restrictions and inhibitions upon individual expression. If this be true, no school is really educating the children as long as it deals only with the intellectual and physical life and ignores the great body of instinctive and emotional needs which are growing up along with the intellectual; more fundamental in every way, and left chiefly to chance influences for guidance. It is on this basis, the needs of every child, normal or neurotic, that we have the right to urge mental hygiene in the public schools.

The objection that we could not expect teachers to recognize early symptoms of mental disease has already been answered in part, when we declare prevention of actual mental disease to be only a part of the purpose of mental hygiene. Mental hygiene in the school would not require that any teacher be able to recognize the premonitory symptoms of dementia praecox or manic depressive insanity, or even the psychoneuroses. It would involve, however, a change of attitude on the part of the school, a new direction of emphasis and attention on the part of the teacher and an understanding of the significance of persistent failure on the part of a child in any direction. If the teacher once got the idea that such failures were an indication of mental difficulties and to be met on that plane, she would be only too glad to refer problematic children to persons equipped to help them if she herself were unable to deal with the case. Many of these children are already genuine problems for the teacher. She does notice them but she does not know what to do. There is no question that she would welcome assistance in solving such problems.

Before mental hygiene can work effectively in the school, as it must some day, our teachers will have to be equipped with a better psychology based on what the psychiatrist has contributed to our knowledge of mental life. They will have to know more than they do now about minds and will have to have their attention directed to the child, his behavior in general, both in school and out, and his way of adjusting to difficulties, rather than just his success or failure in school work, before they will be able to pick out the maladjusted children who are not obvious schoolroom problems. But they can already pick out for us the conspicuous cases and, as a beginning, can learn to change their attitude towards these children at least, if we provide a place where such children can be taken for examination and advice.

This necessary change of attitude on the part of school and teachers is not at all impossible or unheard of. In fact, the entering wedge for mental hygiene has already been made in many of our city school systems. Feeblemindedness, which all these years has been a stumbling block in the way of efficient teaching, has finally forced us to take steps to control it. The school has come to recognize this kind of fact on the mental level as mental. Mental defect is seen to require special conditions, if the child is to adapt himself at all. In the special or ungraded classes of the city schools we now find teachers whose business it is to teach defective minds to make the best adaptation within their limited possibilities. They are interested in the child, his needs, his way of responding to various kinds of treatment, and not primarily in the subjects taught. They are intent upon finding a level on which that child can be truly happy and efficient, can make the very best of his native equipment, poor though it be.

Now, if it be possible to bring to pass such a change of attitude toward one group—and that the least interesting and the least valuable—surely it is possible to take the next step and carry over that same special class-attitude to the neurotic child. When that has been accomplished it will not be long before that mythical normal child who has made us so slow and stupid in arriving at mental hygiene for all children, will fade away, and all classes will become special classes and all teachers special teachers.

Before that happy day, however, the medical schools of the country will have to produce more psychiatrists and give mental clinics to which the teacher may refer the neurotic child, who is even now a problem. There are scores of children in the schools today whom the teacher knows to be queer and different, but not feebleminded and not, strictly speaking, suitable for the ungraded class. Sometimes they do get there, just because of the pressing need to do something. Sometimes the visiting teacher or the school nurse attempts to work with them constructively, but to no purpose. All would welcome, only too gladly, the psychiatrist and the mental clinic who would say, "Bring your problematic children here. We will help you to understand them. We will show you where the difficulty lies, and what you can do to help adjust it."

If you physicians will give us the psychiatrists and the clinics; if you will put your influence back of mental hygiene in the medical schools, as well as in the public school system you will find the school not only ready but crying out for the kind of help that only you can give.

PSYCHOLOGY VS. PSYCHIATRY IN DIAGNOSING FEEBLE-MINDEDNESS.*

By WILLIAM BURGESS CORNELL, M.D.,

Medical Director, New York City Children's Hospital and School.
NEW YORK CITY.

A REVIEW of the eight years or less in which the Binet-Simon scale for measuring intelligence has been in use in the United States shows that the psychologists were the first to apply it in the diagnostic and determination of feeble-mindedness. Henry H. Goddard, working at the Training School at Vineland, N. J., was the first to use the scale to any extent. From Vineland, where a great many examiners with more or less psychological training, have been taught the proper application of the scale its use has spread widely over the country. The result has been that these workers, who were almost without exception laymen, have gone into schools, reformatories, workhouses, jails, prisons, institutions for the mentally defective and even into hospitals for the insane, applying the scale and on almost no other basis have made diagnoses of feeble-mindedness.

It is not my intention to minimize the value of the results of all this inquiry. There has resulted a remarkable public interest in the mental defective and one hears, as a consequence, on all sides, loud clamor for the solution of the so-called problem of the feeble-minded. The mere drawing of public attention to certain social-economic conditions has undoubtedly been a progressive step, but that there has developed some very erroneous conclusions, bad diagnoses, and bad statistics, must also be admitted. Let us refer, for example, to the special report of the Virginia State Board of Charities and Corrections, dated 1915: The survey, which is the basis of this communication, was done entirely by laymen with no psychiatric experience, but who knew, no doubt, how to use the Binet Scale. These examiners went through the Central State Hospital for Colored Insane and found, of 197 tested, that 87 to 100 per cent were feeble-minded, and they further amplified their startling discovery by the conclusion that feeble-mindedness was the cause of insanity!

The original use of the Binet Scale was to provide a ready method of classifying the intelligence of the Paris school children. There was no intention expressed that it should be used on adults or even adolescent adults, but, soon after its introduction in this country, we beheld its use on a wide range of ages and conditions, such as outlined above, and we also beheld its expansion from the realm of pedagogical psychology to that of pathological psychology, and the latter, if it is not psychiatry, approaches it with infinite closeness.

In other words, we have a lay person examining diseased or abnormal mental states, and making diagnoses thereon. This is quite a departure from the legitimate field of psychology, so much so that these testers themselves appreciate it and have called themselves clinical psychologists. So self-satisfied have some members of this new hybrid genus become that, clinging to the Binet Scale as a fetish, they have grown intolerant and have declared that no one shall use the scale except the *delecti,* and many of these self-anointed. In one of the mental clinics of New York, the psychologist went to the Medical Director in great indignation because one of the physicians of the clinic had dared to use the Binet Scale on a patient. The sanctum of the clinical psychologist had been violated! In some cities, particularly in New York, these clinical psychologists have private practices, are carrying on treatments and it almost seems as if we would soon have a new cult, if indeed such is not already established. Many of the psychologists are doctors of philosophy and they dearly love to be called "doctor" on all occasions, and especially to be taken for doctors of medicine. Personally, I see no excuse or reason for calling any one with the Ph.D. degree "doctor." If so, to be consistent, why not call the M.A.'s "master" and the B.A.'s "bachelor," etc. As long as the term "doctor" is commonly used to indicate a person who treats diseased conditions with medicinal or surgical measures, we should avoid its use as a title for others not so engaged.

Possibly, I seem captious in my criticism, but a year's experience in New York City has clearly demonstrated to me that someone should endeavor to call a halt on the tendencies of the clinical psychologist to invade the work of the physician, or more properly, the psychiatrist. Medical men have no one to blame for present conditions but themselves. Binet was a physician and most of the work carried on along similar lines in France and England has been done by physicians. Here in America, however, the medical profession has been very slow to take up this new branch of psychiatry, and, consequently, the clinical psychologist found himself alone in the field. So well entrenched has he (or usually she) become in some localities that they aspire to control and direct institutions for the feeble-minded in which physicians would only find an incidental use, such as signing death certificates and prescribing for stomach ache.

As a rule, the clinical psychologist is not concerned with the causes of feeble-mindedness. The whole matter is very simple! The scale is

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 26, 1917.

applied, the child is feeble-minded—and should be segregated—nothing easier!

In this whole matter, there is much need of common sense. The medical profession is waking up, and is realizing that it has been losing opportunities. It is being more appreciated that feeble-mindedness is not the simple affair our psychologists would have us believe, to be measured with the Binet Scale, like a yard stick, nor is its immutable transmission as a unit characteristic quite so frequent as Goddard would have us believe.

We are beginning to know that feeble-mindedness may arise from a large number of causes, and that the study and determination of these belongs to medicine, or rather to psychiatry.

The field is new, really even the best institutions in this country have done little or nothing more than house and train the feeble-minded, in brief the majority have offered nothing but custodial care, and many states have not even provided that. We are in our medical development about where the mental hospitals were twenty-five years ago. There is great need for organization of the institutions for the defective along the lines of the best psychiatric hospitals. The combined efforts of the clinicist and the pathologist will at no distant date throw new light in dark corners and the group of so-called "primary aments," now a very large one, will become progressively smaller as real etiologies become known.

In the organization of the new hospital for the mental defective, I would not have you believe there is no place for the psychologist. The legitimate function of the latter is the development of psychological methods,—applied psychology, in the study and also in the testing of the mental processes. But there is no reason why a properly trained psychiatrist cannot correctly give any of the present-day intelligence scales as part of his routine work. The real psychologist finds an ample field in devising new methods, correlating psychological findings and educational work, checking up the testing work, and indeed training the testers in the institution, besides the opportunities for pure psychological investigation and research, and does not get completely out of his sphere by making physical examinations, passing on tonsils, eye grounds, etc., making diagnoses, and even suggesting treatment. In fact, the psychologist should not make a diagnosis at all; scales and other tests may be applied, and observations and results recorded, but diagnoses or interpretations should be left for the psychiatrist. We recently received a case which had passed through one of the well-known clinics dominated by psychologists; this boy of ten was diagnosed a "hopeless mental defective," this in spite of the fact that their own rating gave the boy a mental age of 7.6. Our examination showed the little patient very much undersized, and that his whole condition was probably due to some endocranial cause. Far from labeling this boy hopelessly feeble-minded, we even ventured a relatively good prognosis, particularly since he was less than three years retarded, and our first therapeutic efforts seem to bear us out.

The diagnosing of feeble-mindedness is becoming more and more a serious and difficult matter,—it is not so easy as we once thought it was. With legal commitments and registrations coming more and more into use, we pause and consider before placing a life-long label of such consequence to all parties concerned.

A case of defective mentality or retardation, or a "primary ament" that we formerly felt so sure about must be considered from all angles of family and personal history, and then, besides the actual mental testing and psychiatric examination, there should be a thorough clinico-pathological inquiry, including Wassermann, spinal fluid and other procedures, all with the purpose of discovering a cause for the mental defect. We are fast getting beyond the stage where we have been content with the simple diagnosis of feeble-mindedness, but we will make better progress when more physicians interest themselves in the subject than we find at present. Certainly the work must be done by the psychiatrists, and the psychologist is only qualified to inquire into certain phases thereof.

MENTALITY AND INTELLIGENCE TESTS.*

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THERE is one thought that impresses me most forcibly in the study of mentality and that is that the animal kingdom, only once removed, received special attention in pedigree, habitat and classification years before we awoke to the reality of the need of the study of the mind in its various reactions.

Did you ever stop to think how adequately the fruit and forests are cared for and what a furor is created when one case of foot and mouth disease is found even in the remotest corner of the state! At once the Health Department gets busy, experts are sent on from Albany, the newspapers herald the dread disease among cattle. Yet the state fosters within its midst physical disease and mental defectiveness—both of which are controllable and we doubt not, in the light of present scientific knowledge, largely preventable. I refer to venereal diseases and feeble-mindedness.

These disintegrating factors of society have always been with us. In 1914, owing to the overcrowding of institutions for the delinquent, the

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insane, the criminal and the feeble-minded, pressure was brought to bear on the "powers that be." And at the close of Governor Glynn's administration, a commission was appointed to make a rapid survey of the state for the purpose of determining the amount of mental deficiency. A survey of this kind is the entering wedge in the study of a people.

We visited almshouses, hospitals. orphans' homes, public schools, etc., talked with superintendents of poor, county agents, police officers, magistrates and teachers; those who come in contact with groups of people and thus consciously or unconsciously study "human nature."

The speaker visited every hospital, having an ambulance service, in New York City from The Bronx to The Battery, and carded 2,000 diagnosed cases of epilepsy. Altogether, we rolled up 21,000 individuals at large believed to be mentally deficient. Throughout the state, 8 to 15 per cent of the children cared for in institutions are feeble-minded.

During one year five children only among the forty-one admitted to Randolph Home for delinquents proved, on examination, to have normal mentality.

The public schools have their quota also. The educational body should possess means whereby a closer study could be made of each child who applies for admission, in order that she may be given a fair chance to grow physically strong and mentally as efficient as her capacity will allow.

Some one has said "formal education counts for little if the blood is good." A subnormal, if poor stock and left alone, will never produce much, if any, in excess of his own actual needs. But poorer still are the feeble-minded, allowed to reproduce their kind, while organized society sits calmly by and makes the best (?) of the situation, receiving their offspring and passing them on to the public schools to be taught, while the teacher is trained to teach the normal child only.

Our schools have not hithertofore grasped this great opportunity to catch the "different child" before its physical age and mental needs get beyond their reach.

We should know the body first—its perfectness, its growth and deviations; know the mind through a series of mental analyses, to determine how far it has or is capable of developing.

This appears to be pre-eminently a field for physicians, because, as Dr. Healy states in "The Individual Delinquent," "The physician has a knowledge of physiological norms and pathological conditions." In this way only can we estimate the personal evaluation to society.

How can we measure the mind through mental analyses, you may ask.

We do not know what electrical power is, yet we estimate it with surpassing accuracy and are able to say what it can or cannot do under given conditions.

The best way to become acquainted with a flower is to break it up into its component parts, study each, find out the family name or heredity. Later on, we recognize similar ones and soon we are able to classify. That is what we are beginning to do today with the children in our midst. We are examining their physical, mental and moral make-up—going back to heredity and environment, to clarify our judgment and make a clinical picture.

Therefore, all children and adults as well, fall into one of three mental groups. The normal, supernormal or subnormal.

Mental endowment, sometimes called "native ability," has come down to each one through the germ plasm of her ancestry and, according to Dr. Davenport, "forms the reacting substance upon which the stimulus of environment plays, with its resultant known as *behavior*."

This end product, often called "brains," we analyze by using a number of tests, the standardization of which results in a test norm.

Anything that calls forth a reaction can be standardized, a story, game or puzzle. *Analyses* of the reactions are more important than the result, requiring patience, skill and experience on the part of the investigator.

We next select a number of persons whom we believe possess normal mentality and the best place to find them is in the graded school, because the grade schedule is made to fit the normal child. For example, a child of the psysical age of seven years is placed in the first grade, 8 years in the second grade, etc. Therefore, in order to pass from the first grade into the second; the second into the third, the mind *must* have developed each year, as well as the body, and at the end of each year the mental and physical ages are the same, and we speak of a child as having normal mentality.

Allow me to illustrate the actual method with its results in detail:

The speaker, wishing to standardize some tests, the Peg Board and also the "Story of the Three Men and the Boat," called at Public School No. —— and asked that fifteen children be selected from each grade, beginning with the third, physical age equal to grade age, each one having actually passed into the grade. These groups for the Boat Test to be kept separate and in no way be allowed to communicate.

We began the Peg Board Test with first grade pupils whose physical ages were seven years and from one to six months. The examiner sat at a table in a quiet, cheerful room; and as a child entered, she was given a peg and the board was placed in front of her.

"Stick this peg in every hole in the board as fast as you can and I will time you."

Peg handed to child, stop-watch set and simultaneously she started off. As the last hole was pegged the watch was stopped and the time noted. This program was, with extreme exactness, carried out in each grade. Later, the *average* time for each physical age was reckoned, resulting as follows:

Age	7	years	Time	88.7	seconds
"	8	"	"	78.1	"
"	9	"	"	65.4	"
"	10	"	"	62.5	"
"	11	"	"	64.9	"
"	12	"	"	62.9	"
"	13	"	"	60.1	"

Therefore, we argue that the normal child of seven years, should be able to peg the board in 88.7 seconds; ten years in 62.5 seconds, etc., the standard norm for each age.

The Story of Three Men and a Boat was carried on with the same pupils. The story told and objects laid on the table, stop-watch started as pupil proceeded to get the three men across the river. We began with the fifth grade, but finding it to be wonderfully easy, the fourth and third were tested out. Three pupils were discovered in the third grade who did the test in less than three minutes, age nine years respectively. The three children by the way, were poorly graded. They were capable of doing two or three grades in advance.

Let me state just here that the average teacher does not recognize the supernormal pupil but speaks of her as a "bright child."

Our school system should be elastic enough to allow these children to go on as far as they can mentally; or better still, form supernormal classes. Under a good supervision of medical inspection, there would be no danger to the child; while the value to the community could not be estimated.

It is the grade repeaters who cost the taxpayers. It has been estimated that ten per cent of the money actually expended annually in the United States for school instruction is devoted to teaching the grade repeaters.

Let us next discuss the psychological reactions of these tests insofar as the examiner is able to interpret the mind of the child in action:

First, the Peg Board Test.

(a) Begins at the corner hole and pegs evenly, jumps across to beginning of next line and repeats in like manner to the finish.

(b) Starts at corner, skips a hole now and then, may go back and correct mistakes.

(c) Begins at corner, pegs across, takes next line below and so on, without a change to the end.

(d) Begins on middle of board, pegs diagonally across, or in any direction; may not know when he is through. Often looks up or glances around.

When a child begins this last kind of a performance one instantly takes a closer notice and says to herself: "What's the trouble here?" After a number have been given this test, these different ways of pegging the board begin to show like groupings, although the physical ages of the examined may be widely different.

The *value* of the reactions are translated as—

(a) Concentration good, can hold to a plan.

(b) Some mental confusion.

(c) Motor co-ordination good, normal.

(d) Co-ordination poor, association poor, fails to plan. The latter may be due to mental defectiveness.

A physical examination, and environmental conditions are also considered in summing up each case.

The Boat Test is much more complicated. The story runs as follows:

Let us suppose this is a river (designating a part of the table with a sweep of the hand); here are three men who want to cross it, and a rowboat which won't hold them all at once. It will hold the fat man, but no more; and it will hold the two little men together. There must always be a man in the boat to row it, for if there was no one it would drift down the river and get lost. You may make as many trips back and forth across the river as you need to. The problem is to land the three men safely across the river. It can be done. Remember the story. Now go ahead. The best way is to carry out the plan as you make it and actually take the men across in the boat. Time limit for this test is five minutes.

The examiner notes the number of moves, protests necessary, questions asked and periods of thoughtfulness. Your first thought is that this is an adult test, because it involves reasoning. It probably belongs in the eleventh year group, although you may recall that three children nine years respectively, did this in less than three minutes.

Construction Tests A and B are standardized. Ninety per cent are successful at ten years of age (A), and in the latter test eleven year old children succeed in 1 minute 44 seconds, making 22 moves. These bring out perception of form and ability to plan a bit of work.

The Story of the Hares and the Frogs to test auditory memory, or the ability to hold, visualize and correlate ideas was given by the speaker last fall to 200 women individually. The following method was used: "I am going to tell you a story and when I have finished you may tell it to me." Scoring was according to the number of details the person was able to recall. There were 15.

We have found that—

Age 10 could give 7 details
Age 11 could give 8 details
Age 12 could give 9 details

The majority of these women, with physical ages ranging from 18 to 30 years, could only give 1 to 3 details—33 reproduced the story because they had normal mentality.

A verbatim report of this examination is here appended:

This study of 200 women in one of the state institutions was made to determine whether they were mentally capable of being substantially benefited by the training there given.

In this rather intensive examination, we sought to find out, first, the physical condition existing and the state of health during childhood. Secondly, the mental; whether sane or insane. Thirdly, the mental content independent of special education, termed, "native ability," and, lastly, the intelligence level.

The examinations were conducted in a large, homelike, cheerful room.

This was probably the first examination of any kind these "girls" were ever called upon to undergo. Their attitude, therefore, was of great interest. As each one walked down the long room toward the examiner, the latter gained an impression of the general appearance, size, gait, carriage and facial expression.

They were slow to adjust themselves. The first glimpse of a new environment at once threw them back into the old spirit of distrust and antagonism.

A happy greeting or the interest in the games, psychological tests, on the table would occasionally dispel this uneasiness; but the favor of the majority was gained only inch by inch.

Sometimes the face was turned aside, the eyes averted, the expression sullen. This was especially true of cases with low intelligence, and advanced physical ages. The sullenness coming and going, acting as a bluff to hide the ignorance of an answer to a question, as much as to say—"I know but I won't tell."

They seemed much older than their physical ages, heavy, sodden, with a forlorn, dragged-out appearance; physical bouyancy gone.

This might be accounted for when we consider the fact that all but eleven admitted immorality, beginning in early adolescence—15 to 17 years; and as a result 32 per cent had positive Wasserman reactions when admitted. They had also experienced great poverty in childhood, attended school for short periods, and gone to work at 14 years with inexperience and lack of moral training; causing them to follow the lines of least resistance. Their mentality, therefore, was equally as important as their physical examination.

By the use of the tests, I have shown you it was sought to discover not only the mental age but to note their ability to image, associate, memorize and reason; all of which are necessary to getting on in the world.

Certain failures with the tests were characteristic with these young women. Auditory memory (The Story of the Frogs and Hares) you recall, was below that of the normal child of 10 years.

Construction Test B. About one-fourth succeeded, because their ability to plan or look ahead was deficient. Motor co-ordination was poor. Nearly all failed to follow the fifth line—Knox Cube Test—this being a 14-year mentality test. They lacked ability to visualize and project an idea from what had gone before. This was brought out by the use of the Ball and Field Test of Dr. Terman. A large circle with an opening representing a gate was drawn on paper. Pencil placed at one side. The test intends to bring out comprehension, imagination, order of procedure and ability to follow up a self-imposed plan, in order to do a piece of work.

The examiner begins the test by saying: Let us suppose that your baseball has been lost somewhere in this round field and you don't know where it is. You do not know how it got there, what direction it came from or with what force it came. All you know is that it's lost somewhere in this field, and you don't know where it is. Take this pencil and trace the path you would take to find your baseball, being sure not to miss it.

After being told this story very distinctly, many would pick up the pencil, look at the circle, and say, "There haint no ball there." That is true; we imagine there is one; we make believe. And again, the same remark would follow, "There aint no ball there."

Their sordid experiences seemed to have removed them far from childhood days of ball playing and imagination, if they ever had any.

Definitions in the vocabulary test were poor in the extreme; their knowledge of the meaning of words was so deficient that much of the talking or teaching passes entirely over their heads. They could not define by the use of synonyms; but explained a word by using it in a sentence, as—roar, what does roar mean? Answer: "The wind roars." The first 37 examined, 36 gave a similar answer. Only one said "To make a noise."

The following list of words that were and were not in their vocabulary are of interest: They knew the meaning of health, lecture, hysteria, curse, dungeon, snip (street definition), juggler and revenge. Did not know repose, forfeit, mellow, regard, skill, civil, charity or justice. Their past experiences make their world and influence the present. Have lived in vice and dwelt on bodily emotions and passions, inhibited little,

idealized nothing. All the processes of ideation were weak. Therefore, they had no ideals.

Seventeen per cent only had normal mentality. Forty-eight and four-tenths per cent were subnormal, and 34.5 per cent were distinctly feeble-minded.

Unfortunately, these young women, after two or three years at the most, will again be a part of our future citizenry, spreading their physical infections and mental defectiveness to succeeding generations.

These women once were children, and might have been apprehended in the school room, if the measures we are now instituting to determine physical condition and mental content had been a part of the school curriculum, "in those good old days."

In closing, it seems fitting that we should dwell a few moments on the classification of children.

We speak of a child as possessing normal or super-normal mentality. We mean that she possesses certain capabilities plus the ability to acquire more, not only by expansion but through upward growth or development.

The defective mind stops at a certain age level, the brain cells or association fibres do not correlate, something being wrong before birth or possibly after. The intellectual level reached she comprehends within the range of that level only, while the normal child, barring accident or disease, grows (I like that term best) steadily, until dissolution of the body and mind takes place.

Below these two extreme groups there are many types, although they are often spoken of as subnormals. These are the ones upon whom we are leveling the larger part of our diagnostic skill, because here we find anatomical deviations, history of disease and interesting heredities. They are the "problem children," ungrouped, variously known as backward, morons, psychopaths, neurotics, feeble-minded. They defy class grading, raise havoc with the monthly reports of the teacher, and are out of tune with systematized work and organized society in general.

Each child should be individualized. A special study made of his physical, scientific mental examinations in order to know his various lines of retardation or difference; in fact a full case history is necessary in order to know from whence he came, how he is freighted, and whither he is going.

The task is a large one, reminding me of Tennyson's

"Little flower in the crannied wall
I pluck you out of your cranny
I hold you here in my hand,
root and all, little flower.
If I could but know what you are,
Root and all, and all in all
Then I might know what God and man—is.

TESTS.

Peg Board.
Three Men and a Boat.
Story—The Hares and the Frogs.
Construction Test A.
Construction Test B.
Knox Cube Test.

THE VARIOUS PHASES OF FEEBLE-MINDEDNESS AND THE STIGMATA OF DEGENERATION, PHYSICAL TYPES, ETC.*

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OUR problem today is different from that of ten years ago. Formerly we thought in terms of idiocy and imbecility, and we knew very little that would enable us to differentiate conditions of feeble-mindedness. We formerly classified about 80 per cent of these individuals as idiots and imbeciles and only about 20 per cent as borderline cases. But now since the Binet-Simon tests have been introduced we have learned that there are a large number of individuals in the community with a mentality differing from normal persons. This has perhaps been best shown by our public school system. Here it has been found that there are a certain number of children who do not make their grades, and we found that this could be explained in very many instances by the fact that such children were not just normal. These psychological tests showed that this class of children were below normal mentally. They could not keep up to their grades, and they could not get along in the public schools. That brought a demand for a different system for teaching such individuals. The institutions had to find a different method of dealing with those under their custodial care when these cases appeared. Formerly when 80 per cent of the population of these institutions were idiots or imbeciles it was simply a matter of custodial care, but when the conditions were reversed and we found that we were dealing with a population, 80 per cent of which were morons and only 20 per cent were idiots and imbeciles, we had the problem not merely of custodial care but of developing some plan of industrial and vocational training that would make these feeble-minded individuals self-supporting.

There are at present, according to the most accurate statistics obtainable, about 30,000 feeble-minded persons in the state, and of these it is possible to provide institutional care for only five or six thousand. Thus, a vast problem presents itself, and the question arises: How are we going to handle it to the best advantage of all concerned?

The first institution was founded in Syracuse in 1853-54, and Dr. Wilbur was placed in charge.

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Very little had been done in the care of these people up to that time. Massachusetts, New York and Pennsylvania started in this work about the same time. It has been interesting to see how this work has grown. Dr. Wilbur worked at the problem for three decades, and it is most interesting to watch the development of this work during those three decades. Dr. Wilbur at first thought that he was able to return about 80 per cent of those who came into his hands to society. Later he thought that he could return only about 20 per cent.

It was found that there were a number of women of child-bearing age in the schools and other institutions that needed segregation, and so the branch for women was started at Newark, N. Y. Step by step we are blazing the way, and we are finding that we can do a great deal in the way of manual training with these people. One trouble we have is that the parents do not like the manual training idea; they want their children taught reading, writing, geography, and arithmetic, like other children. It has been our experience, however, that the majority of these mental defectives cannot be taught except through their hands; they cannot be taught through the eye or the ear.

Up until 1892 no sharp distinction was made between the insane and the feeble-minded, and there were many feeble-minded in the hospitals for the insane. At this time the State Care Act was passed, and the attempt was made to separate the insane and the feeble-minded, and many feeble-minded and insane in county poorhouses were given over to the care of the state. It was at this time that the Rome State Custodial Asylum for Feeble-minded was established. Many cripples and paralytics were also collected at this time, and thus gradually brought the population of the institution up to 1,600. Dealing with a comparatively small number of dependents the cost of building and the cost of maintenance was not very great, and their care was not a big problem, but when the number so multiplied and the cost of building increased from $500 a bed to $800, and the cost of maintenance from $150 to $250 a year, a much more serious problem presented itself. We then set about trying to find a way of making these people more or less self-supporting. We had the same problem to deal with that has been met with in large industries. When competition and the cost of production increased and the waste products began to pile up they set about trying to find ways of utilizing these by-products. We were confronted with the same problem. These by-products of humanity had greatly increased in number and their maintenance offered a problem. We must find a way of utilizing this waste product, and now I am going to show you how we are solving this problem to-day.

I am going to show you microcephalics, hydrocephalics, paralytics, mongols, idiots, imbeciles. As a preliminary I will review the classification of these defectives based on the various psychological tests that have been perfected. According to these tests we have classified the feeble-minded into three groups, idiots, imbeciles and moron is that of a normal child of seven to classified into low, medium and high grade groups. According to the psychological tests the intelligence of a low grade idiot corresponds to that of a child of from one to two years of age; a medium grade idiot to two to three years of age, and a high grade idiot has the intelligence of a child of three to four years of age. The intelligence of a low grade imbecile corresponds to that of a normal child of four to five years, a medium grade imbecile to one of five to six years, and a high grade imbecile to one of six to seven years. The intelligence of a low grade moron is that of a normal child of seven to eight years, a medium grade moron eight to nine years, and a high grade moron ten to twelve years. In other words, the idiots have an intelligence, according to the tests, ranging from one to four years; the imbeciles from four to seven years, and the morons from seven to twelve years. We will now show some of the types:

The Microcephalic Type.—This boy is one of four brothers who show this condition. There are ten children in this family; five of them are normal. The youngest brother is in the hospital with tuberculosis. It is unusual to find so many showing this defect in one family. These microcephalics are always small in stature, and the mental tests show that they have low intelligence; they act about like monkeys in a cage. It was formerly thought that by doing an operation on the skull the brain might be given more room to grow. I have never seen one of these individuals helped by this procedure, but I have seen some develop Jacksonian epilepsy after it. However, this procedure has been abandoned. They all have a poor circulation, and it has been observed that they often have abnormally long arms; this has been considered an anthropoid manifestation. As to their ability to be trained, they cannot be taught to read. We have two such patients who work in the dining room. They cannot count, but get the places right simply by location. One of the nurses by very persistent effort succeeded in teaching one of these patients to say "Ma" and "Nothing in it," but with that much expenditure of effort one could probably have taught a monkey as much. Though they cannot be trained to count or read they can be trained to do common labor.

Hydrocephalics.—In contrast with these microcephalics are the hydrocephalics or macrocephalics. The former condition is due to distention of the ventricles. In the latter the brains of those coming to autopsy show a proliferation and hypertrophy of low grade tissues. I have

yet to see a hydrocephalic who was not paralyzed. They sometimes use their hands a little more than their lower extremities, but this I attribute to the greater effort to use their hands; they will keep working and working trying to use their hands, but they do not make this effort to use their feet. This is probably the reason they have more use of their upper extremities than their lower ones. There is usually a spastic condition that indicates cerebral complications. Operative work on this class of individuals to be of any use must be done when they are young children.

Mongols.—These are called Mongols because they assume the characteristics of the Mongolian race. They are small in stature and have the eyes obliquely set. They also show the fissured tongue, rough, scaly skin, coarse hair, etc. While they are imitative, they imitate actions but not language. They do not as a rule live to be very old, but usually die of tuberculosis or some intercurrent disease. They do not all show the characteristics of the class in typical form but shade off in various ways. I have seen Mongols with epileptic seizures, but I think on due consideration that it was a spurious form of epilepsy. As to the cause of this form of defectiveness, we hear some say that it is the first-born child that is most frequently affected, others, again, say it is the last-born child, and still others think that some disturbance of the functions of the ductless glands is responsible. Dr. McCord, who has studied some eight hundred cases, was able to influence some twenty per cent of his cases by ductless gland therapy according to his report, but we shall have to wait and see what happens to these patients five or six years later.

Cretins.—One of these is 18 years of age. He has the intelligence of a child of 10 years. You are all familiar with the characteristics of this class of individuals. They are capable of being educated to a certain extent, but not very much. This boy can read stories, but that is about all a cretin can do. They are benefited by thyroid treatment but thyroid cannot be given continuously as it has a tendency to soften the bones. We administer thyroid for a while and then stop it for a time until the tongue again begins to protrude and the hair grow stiff. Here is a boy of 20 who has improved remarkably under thyroid treatment. Though they improve with the thyroid treatment for a time, we can never make normal people out of them. So far as the intelligence tests show they rank about with the Mongol type. I have been interested in seeing how early these cases could be recognized. I know of one instance in which the condition could be recognized at six months, and I have wondered if it was possible to recognize a Mongol at birth.

The cretins show other signs of degeneration. They show the fissured tongue in common with the Mongol. However, one cannot state positively in all instances that a fissured tongue is a stigma of degeneration of serious import. I know a distinguished minister who presents this defect. This man married and has three children all of whom are very normal. If that man had been examined when he was a child he might have been ranked as defective.

5. *Other Stigmata of Degeneration.*—There are also some examples of cleft palate and the highly arched or Gothic palate. These are usually associated with other defects. Some of these rank with the medium grade imbeciles. We had one boy who told us that he belonged to the crab-toe tribe, and we looked this tribe up and found that there was a family in the Western part of the state many of whose members showed the deformity of crab-toe or webbed foot. This deformity seemed to be a sex-link affair. It is transmitted only to males, and the female, while not transmitted to females. It seemed to be transmitted only to males, and the female, while she does not have the deformity, transmits it to her male offspring. Upon investigating the history of this family it was traced to an English woman, who came to this country in 1807, and to whom 250 offspring could be traced. It was also found that there was a similar family in Virginia. The circumstances were reported to an English student of heredity, and the investigation showed that possibly both came from the same stock originally. This family included among its numbers many prostitutes, criminals and alcoholics. It was difficult to get complete histories so that one could not be sure of the connection with the Virginia family in this instance.

Another stigmata of degeneration is the Darwinian tubercle, a retroversion to an ancestral type, first described by Darwin and later called the Darwinian tubercle. In connection with this question of physical degeneracy it is interesting to recall the work of Lombroso, who fifty or sixty years ago studied the criminal class and was convinced that he found physical signs of degeneracy in a large percentage of those studied, and Nordau later thought he found among his class certain nervous stigmata, and later the English schools made further studies of these stigmata. Some studies have also been made in America, and some believe in the physical signs of degeneracy as evidence of mental degeneracy. Another type show a flat back of the head. There is no place for a full cerebellum, and they have poor co-ordination and no social adaptability. Their parents cannot get along with them and are forced to place them in an institution. They do little work and are inclined to be very scrappy and hot tempered. A few of them are monoplegics. In interpreting signs of physical degeneracy good judgment should be used or else we may make ourselves ridiculous. This is espe-

cially true of the ear deformities. One finds a good many of these in the insane, but if it is remembered that the insane have frequently had their ears boxed in a good many instances, and that if they get an injury sufficient to produce a hemorrhage and a little cicatricial contraction the result will be a deformity, and such a thing is very apt to happen in the insane, because they usually have a low grade physical constitution and get more abnormal effect from a small injury than would a normal individual.

Several boys and men showed the webbed toes or supernumary toes. We do not so often find webbed fingers; it is the toes that are usually webbed.

One man, said to be 37 years of age, is a lightning calculator, similar to those seen on the vaudeville stage. You may ask him on what dates the Mondays in July of 1917 fall, and he can give you the correct answer immediately. You may ask him on what dates of the month any day in the week falls, either this year or in any past year, and he gives the correct answer. (Boy was asked a number of such questions, and each time gave the correct answer.) Nobody knows how he does it. We are not able to account for it. There are not many of these cases. Before the days of calculating machines such a boy was found in Albany, and Mr. McCall of the New York Life Insurance Company learned of him and took him into his office. He could multiply and divide any numbers, and he was used as a human calculating machine. When these individuals are forced to concentrate on their mental peculiarity they soon degenerate and become demented. That is what happened in this case.

One of the most marked forms of stigmata is assymetry. Where it is not due to lying on one side and not on the other, and where there is a marked difference in the bony structure of the two sides of the face, I have yet to see, in a marked case, a normal mentality.

We are using mostly manual training and industrial training. As we have found that these people are capable of taking very little book knowledge and that we cannot educate them as normal children are educated in the schools, but we can train them to do something with their hands. We can teach them to do something that occupies them and is worth something to the institution. We have in our industrial school methods of teaching them to sew and weave, by which they gain knowledge of form and color and learn to co-ordinate. When the boys have learned to co-ordinate so that they can wheel a wheelbarrow and handle a hoe, when they can tell a weed from a plant and advance far enough to know where to put a hoe in the ground we put them out on the farm. Our object is to get them working on the farm as fast as we can. These men and boys work in groups of twenty-five to forty under a foreman. We must have intelligent foremen. We are working 1,500 acres. Last year this brought in $90,000 and cost $46,000. With the products of the farm the maintenance of the inmates costs very much less. Some of these men as they make progress are able to be hired out to farmers in the vicinity for ten cents an hour. We sometimes send groups of boys under a foreman. Some of those who prove themselves truthful and reliable are hired out to farmers for $100 a year and they live with the farmers. When the girls are trained to do domestic work and have shown themselves reliable, they, too, are hired out. Some go out for fifty cents a day. We now have 100 girls out. We prefer to place them in families of the medium class in which the women have been accustomed to doing their own work and for some reason need a little additional help. The fact of living in a normal family also does a great deal for these girls; we are institutionalizing too many people today. We have also established what we call colony homes. We have one on Staten Island, at New Brighton and three in Rome. The girls board and room at these colony homes and go out by the day and in this way are kept under supervision. They are allowed to keep fifty cents for spending money per week and to have fifty cents to put in the savings bank; the rest of their earnings go to the home. These colony homes are thus almost self-supporting though we have the salaries of the matrons and a social worker to pay. This will give you some idea of how we are handling this problem industrially, and of what can be done with these mentally defectives. I might also tell you that we manufacture all the clothing for the inmates and we make some of our own shoes and repair them all.

Discussion.

Dr. Helen MacMurchy, Ontario, Canada: It is always a pleasure to visit south of the line that divides us. The pleasure that this visit gives me, at a time when great history is being made, is even more than usual. The great advantage of these meetings is the stimulation that we receive.

In England last December a conference was held to consider Educational Reform. This body came together with the feeling that the time when the iron was hot in the oven of affliction was the time to strike. One of the observations made in the document presented by this body was that the classes in the elementary schools are too large; that the pupils should not be more than fifteen in number. Our experience with special classes has taught us many lessons and this is one of them. This is going to mean

something like adequate instruction in the early classes, the kindergarten and the elementary classes. We shall then be able to study each child individually and this study will be made the basis of physical and mental training.

I have listened with great interest to Dr. Herrick's paper particularly in what she has said with reference to the supernormal child. Children of this class ought to be considered. No one troubles about the supernormal child because he or she always "gets through" all right. We are obsessed with the idea of the normal child and this is really a sad position for a democracy to place itself in, for a democracy is always in need of leaders. Under present conditions we see these children mislaid, strangled or overlaid under our school system. Children when little are clever and original, but this sometimes disappears after they are in school a while. The following story is told by a head master of Eton: A younger brother of one of his pupils came to enter the school. The younger brother was clever and the head master commented on it and asked the older brother how it was that his younger brother seemed brighter than he. The boy replied "You forgot how much longer I have been here!" Every child above the average should have the opportunity to progress as fast as he is able.

School instructors should know more psychology and more psychiatry. Then when there is something wrong with a child the medical school inspector and the teacher can confer and decide what is best to be done.

Miss Taft has reminded us that we have a very important work in recognition of insanity in childhood. In Toronto we had two children not more than five years old in whom a diagnosis of insanity was made. These children were just beginning to go to school.

In walking through this institution and seeing what Dr. Bernstein has done with what he has called the waste products I have thought again that the principles he has applied with such success are also applicable to normal children. There are "islands" in the brain and if we "land" on one of these "islands" our problem is largely solved.

DR. W. W. MILLIAS, Rome: In order to make my point I must tell you a little about feeblemindedness and insanity. There is a small group that present the characteristics of both feeblemindedness and insanity. The definition of insanity is "Those without mind" which is really begging the question. The defective is also without mind. If we study the feebleminded we find that it is characteristic of them to follow a routine. For instance we have in the drug room a boy who helps by washing bottles, scrubbing and polishing floors, etc. He is tireless and every day does exactly the same things. If we put him to work at a task he works until he is stopped. It is characteristic of the feebleminded that they work with great regularity and follow a routine. The insane feebleminded present a great many changes from day to day. They will not follow a routine, but wander from one thing to another. They commit lawless acts. They like to set fire to things. These two boys that I am going to show you are of this latter type. The one shot a man, the other took his father's automobile and ran it down the street, ran it up against something and smashed it. He said he did it because he did not want the "Tin Lizzie," he wanted a Reo. This boy tested normal. The boy who shot the man was two years retarded. The first case I have been in doubt about as to whether he is insane or feebleminded. There is one characteristic thing about insanity in children; they do not have delusions, hallucinations, etc. but they are very motile; they are always on the move. They just go from one thing to another as fast as they can.

Here is "Floyd." He can think of more pure cussedness than any one I have ever seen. He makes a disturbance wherever he is and is just from one piece of mischief into another. He lies, steals, curses and likes to tease and stick pins into animals. He is eleven years old and tests seven. Usually with the feebleminded that test seven years we have no trouble. One person can care for sixty feebleminded children of that grade but one person with sixty like Floyd would have his hands full.

DR. BERNSTEIN: The feebleminded have no incentive to play. This boy plays with the boys, gets them started at one thing and then immediately goes off and starts something else, and keeps it up from one thing to another.

DR. JESSIE L. HERRICK, Albany: At what age was the abnormality first recognized?

DR. MILLIAS, Rome: At about four years of age. He then showed an ungovernable temper and we took him in under the name of Floyd Wilkinson. He was then away for a time and when he came back his name was given as "Eddie". He shows a bad heredity.

DR. A. W. HURD, Buffalo: Did he have any physical defects?

DR. MILLIAS: He had some mastoid trouble when he came in.

DR. BERNSTEIN: This boy was hopeless in his family; they could do absolutely nothing with him. This may not be a psychosis as accepted by the state hospitals, but it certainly is different from feeblemindedness. If it is not a psychosis, what is it? The boy shows a lack of control and changes every day. The feeble-

minded are true to themselves and they do not change from day to day. I feel that this condition is insanity whether we consider it as due to meningeal irritation or whether to lack of control.

Dr. W. B. Cornell, New York: I would hesitate to express an opinion in this case. Conduct disorder such as has been described is a phase often seen in borderline cases. He seems to be more abnormal in that direction than in any other. I do not know just where to place him, but I think he possibly belongs in that variety of abnormality known as defective delinquency, a class of cases that are giving us a great deal of difficulty at the present time.

Dr. Millias, Rome: If you take a case just like Floyd in a man thirty years of age and you find him active, foolish and doing little things and going from one thing to another, if you did not call that maniec depressive insanity, I should be surprised. A condition such as this certainly ends in maniec depressive insanity. The condition is just the same except that the Binet-Simon test shows that he tests feebleminded, and that does not cover everything in this instance.

This other patient from Letchworth Village took a shot gun and stole up behind a man and shot him. He was put in jail, but showed absolutely no concern for what he had done. On admission to the institution he was very stubborn and difficult to control in every way and showed abnormality in the way he reacted to his environment. He minds very well now and does what he is told. He may not be insane but he is truly different from the ordinary case of feeblemindedness. He tests 6.2.

Question: Has he been to school?

Dr. Millias: He went to school for two years and was still in the first grade, and he has not progressed any since. He cannot read or write. He has been here about four months and has become more tractable. It may be a case of defective control; he is likely to go off at a tangent at any time.

Mr. James P. Heaton, Secretary of the New York Committee on Feeblemindedness, I feel that I am quite an interloper. Dr. Cornell has spoken of the two factions, the psychologists and the psychiatrists, and I am neither; so I do not know where I stand. I stand where both the phychologist and the physician come to me and express the fear that the other one is usurping his field. The psychologists come and tell me that they have created the interest in feeblemindedness while the physicians neglected the field, and that the psychologists should have the credit for this work. The next day a physician will come to me and say "Now, Mr. Heaton, you must remember that it is really a pretty serious thing. I do not know what is going to happen if this work for the feebleminded is left in the hands of the psychologist, for he naturally cannot know anything about the relation of physical defects to feeblemindedness. We must be careful to realize that there is more to this subject of the diagnosis of feeblemindedness than merely to apply fixed tests".

So you see I can speak specifically from both sides and I am not prejudiced one way or the other. When I became secretary of the Committee on Feeblemindedness, I was warned that the physicians of the State were not responsive and were not interested, because feeblemindedness did not lend itself readily to treatment. It is not like typhoid fever or pneumonia, which can be treated and cured, but is a permanent condition that does not respond readily to treatment. I was gratified to find that lack of interest has not been true during this last year, at least. Our Committee feels that it has had the earnest support of the medical profession, and we want not only the support of the medical profession but of everybody.

One of the things we tried to do was to interest the county medical societies. More than one-half of these societies throughout the state have given entire meetings or parts of meetings to the subject of feeblemindedness. Two dozen have framed resolutions that aided in getting a larger appropriation for Letchworth Village and for the State Custodial Institution for Feebleminded Women at Newark. These appropriations were much larger than were suggested by the Governor in his annual message. So it is with real pleasure that I can state that the doctors of the state are loyally falling in with this work that needs the co-operation of both physicians and laymen.

In speaking to a lay audience I tell them that I have great hesitancy in subscribing to all that has been said about feeblemindedness. When it comes down to rock bottom, people do not like to have their children called feebleminded without a very thorough investigation. They have much more confidence and are more willing to send a child to a school for the feebleminded if the diagnosis has been made by both a psychologist and a physician. Several times this afternoon the fact has been brought out that it is difficult to tell when a person is feebleminded and that the Binet-Simon test is inadequate when used exclusively without the knowledge possessed by the physician. Of this fact I am a good illustration. If I had been examined at the age of three years and asked whether I was a boy or a girl, I could not have told. If I had been examined at the age of four and asked to count pennies, I could not have done it; if I had been asked at the age of five to pick up a book and put it on the table, I could not have done it. I was six years old before I could talk. At the age of eight I entered the first

class at school. Yet a reputable physician was able to say and did assert that I was not feeble-minded, for in some ways I showed a fair intelligence. When examining me the physician rolled an orange under a bookcase and told me to get it. I looked around, found a broom, and pried the case from the wall. He then told my parents that they need not worry about me.

We have a lay committee with only one physician because in this way we have been able to excite a wide interest in feeblemindedness. A physician may say that a child has something wrong with its brain; a school teacher says there is something wrong with the child's mind; a social worker from a charitable society finds a family with a child that cannot be managed and wants to help them. All these we can reach and in this way arouse a wide public interest. This problem hits society in so many ways that in order to handle it in an intelligent manner we need such support as only physicians can give.

Dr. Ethan A. Nevin, Newark, N. Y.: There are just one or two points I want to emphasize. There seems to be some difficulty with the law dealing with insane and defectives. One hundred years ago this was brought before the public, and acts dealing with the insane were passed. The physician should long ago have taken an interest in this subject. He deserves to be scored by the psychologist. He seems to think the distribution of remedies and the writing of prescriptions is the limit of his sphere. If one talks to him on this subject he steers away from it, or he feels very uncertain about it. We ought to have a better course in our medical schools in psychology and psychiatry, for the most important part of an individual after all is his mind. I recently talked to a medical school inspector and was surprised to find that he had nothing particular to say on the subject of mental conditions.

We must handle this problem from the standpoint of the child and not wait until the child reaches adolescence before giving attention to his mental condition. We should look after the child very early and not wait until he has failed grade after grade in school. This controversy between the psychologist and the psychiatrist is very petty. Let us forget it whether we are psychologists, psychiatrists or physicians or what not. I recently had a controversy as to who is responsible for the psychiatrical clinics. Now we want to forget these personal questions. The main point is that we do not want to lose sight of the child. We need the psychologists and the psychiatrists and the physicians, and the physicians should know more about psychology and psychiatry. We have heard a great deal about mental defectiveness, but we do not know how to deal with it in the community. At Newark we have a very low death rate, and this is true of a large number of institutions, because we look after the inmates well. Had we learned to look after the general community in just that way the general death rate would be lower. About mental defectiveness many people feel a little touchy, it is true. If the family physician recognizes that something is wrong with a child and takes it up in the right way, a great deal could be done. He need not necessarily send the child to the psychiatrist but can do a great deal in an indirect way, because he sees these children early in life. He could often do something for them in the way of remedying physical defects and regulating their lives that would save many more than could otherwise be done.

Dr. F. W. Barrows, Buffalo: We thank Dr. Bernstein for the opportunity of looking over this institution today. One cannot come too often to receive inspiration from the spirit of the place and to learn what may be accomplished in the training of subnormal minds and bodies. I am the better also for having listened to these papers and this discussion.

We often hear of the "stigma" that attaches to a child who goes to an institution for the feebleminded. We here realize that no one has been stigmatized by entering this asylum. On the contrary, we realize how serviceable the institution is to the community, and how much better off the child is in such an institution than when trusted to the tender mercies of a home where his condition and special needs are not understood, or even when placed under the care of a nurse or governess. With the facilities that this institution offers for the care of subnormal children, the institutional life is the life for a child of this kind. If we do nothing more than spread this news among the people we will have accomplished much.

I was pleased to hear the reference to the medical clinics given in this place every year. Much good can be done by having proper instruction in all our medical schools on the subject of mental defects.

Our educators can also bring a great deal of useful knowledge to bear on the work of mental hygiene by seeing that we have a better understanding of psychology in the schools.

Professor Piez, Oswego Normal School: I have been interested in mentally defectives so short a time that it seems presumptive for me to speak in this gathering. I may, however, add some facts from the teacher's point of view.

The schools number among the great mass of normal children three classes of backward or deficient children. First—Those that have not developed normally because of environmental causes. While they require different instruction from that given to normal children they can none the less be educated to conform to the standards established for normal pupils. Second—Physically defective children who become the charge of our medical brethren and need physical handicaps removed before they can participate on equal

terms with normal children. Third—Mentally defective children of which idiots and imbeciles do not properly belong in our schools, since they cannot be reached by methods of instruction followed with normal children. Remains that class of mentally defectives known as the morons. These also are not benefited adequately by the present-day aims and methods of instruction in our schools. They are, however, capable of being trained to be useful members of society—witness Dr. Charles Bernstein, a success in converting numbers of morons from social liabilities to social assets. The time is not far distant when every school system will include a special class in which morons will receive such training as will fit them to become self-supporting and to learn such crafts as their peculiar mental limitation will permit. Moreover, I believe that the attention directed at the present time to the problem of training mentally defective children will ultimately react on our methods of teaching normal children.

I deplore any controversy between psychologist and psychiatrist and endorse the sentiment already stated that the child is, after all, the important object of our study and solicitude anl that we welcome the efforts of medical men, psychologists and psychiatrists in solving the problems which confront us teachers.

Dr. Charles S. Little, Letchworth Village: When I was given this program and saw Dr. Nevin's name and mine as here by invitation I thought it was a special honor, but I have learned that it was just to fill out the program and that Dr. Bernstein hoped we would resign. I think we are all saturated with feebleminded-ness at this time of the day. Only one word about the Binet-Simon tests. They have a place, but certainly they should not be used to diagnose borderline cases and these are the cases that bother us. We do not know whether they should go to the Bedford or to the Letchworth Institution. These tests can only be taken along with the family history, the school history and the social history. The history should be very carefully corelated with the tests and then it is very difficult to diagnose these borderline cases.

In regard to training these children I do not know a great deal, but it seems to me the school has its place. I realize that the training of the feebleminded must be along industrial lines, but I think that in examining into the conduct of a child we must take into consideration the personality of the teacher. The discipline the child receives is of great importance. People do not like to have their children deprived of the kind of education other children are getting; they want them to have all the education they are capable of receiving. The medical profession must look to ways of teaching the public better than is being done at present. The beginning has been made in the State Hospitals and some of the institutions for the feeble-minded, but they are not yet equipped to do that work. They go out to various centers to examine children brought to them. They give examinations and advice and have the children brought back and thus keep them under observation. By going out and having clinics of this kind we can teach the public much more successfully. We must have the co-operation of the public if we are going to solve this problem at all. We cannot keep all the feeble-minded in institutions and every case that can be trained and helped should be trained and turned back into the world under supervision. It is better to turn them back to a minister, or social worker or some social organization that will look after their conduct, and in that way they are not so likely to get into trouble. A closer co-operation between all those interested in this subject is to be hoped for.

Dr. William T. Shanahan, Sonyea: In determining whether an individual is epileptic we must not only have the history and the mental tests but we must know whether there is any acute or subacute disturbance of consciousness. Epilepsy does not always consist in a grand mal attack, there are many other phases of epilepsy that must be given consideration in determining the mentality of a particular child. The epileptic child often has a mentality capable of receiving an education and he ought not to be deprived of the opportunity of getting an education. However, he may have a seizure in school and the teacher does not want that distraction in the school room. I have had many patients who, if given time, developed very satisfactorily as far as ordinary education is concerned. There is one class of epileptics that comes between the insane and the feeble-minded. Many epileptics if placed in a suitable environment do not need institutional care, but the securing of such an environment is oftentimes difficult. This movement which Dr. Little has spoken of, of founding out patient clinics for the feeble-minded is also specially suitable for epileptics. The sending out to such centers of physicians trained in institutions is a method by which much knowledge can be scattered through the state and the opportunities for the epileptic can thus be increased.

Dr. O. H. Cobb, Syracuse: We have had such a long and interesting program that there is very little left to say on the subject of feeble-mindedness. The Syracuse State Institution is exclusively a school for six hundred feeble-minded children from seven to fourteen years of age, whom we are training to the extent of their capability.

Dr. F. M. Stephenson, Syracuse: We are getting more of these cases under observation earlier than formerly. Speaking of the school teachers, they are profiting very much by going to the institution which Dr. Cobb represents and seeing how the work there is carried out. The work the teachers are doing is very gratifying. In several families here the children have improved greatly because the school teachers have been interested in this work. I wish to congratulate Dr. Bernstein on this wonderful and interesting meeting.

Dr. Arthur Lee Shaw, Sonyea: I will begin by the discussion of Dr. Cornell's paper. He does not want the psychologists to exercise their inefficiency in medical fields. I would not consider this discussion complete without a rap at the Binet-Simon test for intelligence. I have abandoned using this scale. It starts with a false premise: That the mental development parallels the physical development. It is based on the assumption that we can measure a curved surface with a straight rule. I will just cite one instance where the Binet-Simon test worked an injustice: An epileptic boy was tested by this scale and tested nine years. He was put in a special class but did not do his work and was punished for it. This boy was decidedly defective mentally. There are a number of defectives who are always misjudged and maltreated and of these the epileptic comes in for the principal share.

It is recognized that epilepsy affects two classes of people, those high up and those low down. For those high up it is easier to provide a proper environment, but if they do not have a proper environment they soon go low down. The epileptic has not a clear intelligence; he may be unconscious for a few seconds only but this may be followed by days or weeks of cloudy mentality and thus his entire intelligence is retarded. When his intelligence clears up he may act decidedly normal. By choosing the proper environment we can often space the seizures further apart.

Mr. Heaton: The legislative efforts that were made this year in behalf of the feebleminded naturally fall under two heads. First, appropriation. I think I did refer to the appropriations when I spoke before. This year the Governor recommended that appropriation be made for the erection of four dormitories at Letchworth Village, and he also recommended certain minor improvements. Many people did not think these were adequate and so they went to work with the aid of Senator Sage and as a result of their efforts the appropriations were increased so as to provide for eight dormitories at Letchworth Village. The institution will house 600 inmates when buildings now provided for are finished, but when these additional dormitories are completed it will accommodate 1,182. An appropriation has also been made for a special cottage at Newark for ungovernable types of women who interfere with the placid administration of the institution.

There are also two measures in the Legislature, introduced by Senator Lockwood, providing that in any community where ten children are found, who are three years retarded, special rooms shall be set aside where they can be helped more intensively than in the ordinary grades. The way in which the children are to be picked out is still somewhat of a mooted question.

According to the Compulsory Education Law, children are compelled to attend school unless they are not able to profit by school instruction, but it does allow for special classes where it can be shown that many will be helped. The Goodman Bill, which does this, by giving school authorities more power, has reached a second reading.

Many people want a Code more nearly comparable to the law in reference to the commitment of the insane for the control of the feebleminded. It would be more convincing to the public if we had definite rules for the commitment of the feeble-minded similar to the one they now have in England. There should be a closer affiliation between hospitals for the insane and institutions for the care of the feebleminded, but there are certain legal questions that come up in this connection which will have to be taken into consideration.

Institutions for the feeble-minded should have the power to establish out-patient departments such as have been described this afternoon, and they should also have power to admit people for observation and to accept contributions of money from private individuals. These are some of the simple and obvious things that should be done. Senator Walters of Syracuse has introduced a bill providing for the matters just mentioned.

A bill has also been introduced for the establishment of a custodial institution near Buffalo which I hope you will all support, though Dr. Bernstein thinks that by the extension of the colony system it may not be necessary to have this institution. In addition, an institution near New York City is needed.

THE ASSISTANCE OF THE X-RAY IN THE DIAGNOSIS OF PULMONARY TUBERCULOSIS.*

By FRED. H. HEISE, M.D.,
and
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IN the diagnosis of tuberculosis by means of the X-ray there are certain essentials which must not be overlooked, for without them diagnosis is most unsatisfactory and very apt to be wrong. The first essential is that of technique. There must be available for the diagnosis a pair of well-taken stereoscopic views, for the shadows seen in the single plate are very often misleading and cannot be properly interpreted. The two stereoscopic plates must show proper perspective of the organs within the chest. The next essential for the diagnosis is a knowledge of the macroscopic pathology and the clinical course of pulmonary tuberculosis.

All of you at this time and day are perhaps familiar with the markings or shadows seen in the picture of a normal adult chest. There is no difficulty in recognizing the heart, diaphragm and ribs, for these cast dense shadows and are so situated as to be easily identified. Extending from approximately the second to fourth rib in front and to the right or left of the mediastinal border for approximately one-half to one inch are the two roots of the lungs, more commonly called hiluses or hili. These are identified as shadows of medium density, somewhat oblong in shape and running more or less parallel to the sternal border. Extending from the roots into the lung fields, much as a fan, are the pulmonary ramifications of blood-vessels and bronchi. These ramifications are seen to branch at various intervals and occasionally there is seen a blood-vessel or bronchus in cross-section view. Normally, with the exception of the larger blood-vessels and around the roots of the lungs, the pulmonary ramifications are not dense shadows, though they are readily recognizable.

In pulmonary tuberculosis of the adult we have a disease whose characteristic is the formation of tubercles or nodules. Essentially there are two types, the indurative and the exudative. When the disease is in progress, tubercles are formed which later conglomerate to form larger tubercles, and these in turn conglomerate to form still larger areas of tubercles. The tubercle, at first microscopic, grows by conglomeration or union to macroscopic size, and as such it is seen on the X-ray plate. The tendency of all tubercle formation is to go on to caseation, ulceration and cavity formation, or to fibrosis or calcification. Perhaps some tubercles are disintegrated and carried off or absorbed.

It must be borne in mind that tuberculin tests have shown that the greater proportion of people have at some time in their life been infected with the tubercle bacillus. When this has taken place, small or large foci of infection—tubercles—were formed, but the system has overcome the infection and the focus, or foci, been healed, walled off, fibrosed or calcified. It is not improbable that the earlier foci were in a fair percentage of cases situated in the lung, perhaps in all of the cases. Consequently, upon section of the lungs at autopsy of persons dying from causes other than tuberculosis, obsolete or old foci of tuberculosis can be, and very frequently are, found. X-ray pictures of people in good health and suffering from no disease whatever will show evidences of an infection which has long since been recovered from. In other words, in these instances the X-ray will show evidences of tuberculous infection but not of disease.

There are several ways by which tubercle bacilli taken into the respiratory or digestive tracts could gain entrance into the lung. These are: by way of direct inhalation, by way of the blood stream and by way of the lymphatics. Which of these three paths of entrance is the most common and most important has by no means been determined as yet, though the respiratory method is perhaps the most believed in at the present time.

At the roots of the lungs are the larger bronchi, blood-vessels, and connective tissue. Surrounding and accompanying the larger bronchi and blood-vessels are lymphatic glands which are in communication with the lymph tissue of the lungs and also with the mediastinal and paratracheal lymph glands. One or more of these glands are fairly often seen to be enlarged and denser than usual in X-ray pictures of the chests of some people who are not ill. They are also seen in the X-ray pictures of some people who are suffering from clinical pulmonary tuberculosis. Commonly in the adult, enlarged glands at the roots of the lungs are due to deposits of foreign material carried to the glands by the lymphatics—coal dust, soot, marble dust, brick dust, etc. So that with no other evidence seen in the plates but enlarged glands at the roots tuberculosis cannot be diagnosed in the adult with any degree of certainty. There are, however, at times, shadows seen at and around the root which make one feel there must be some tuberculous involvement, although this latter cannot be determined except by close correlation of history and symptomatology. I speak of the root shadow which is enlarged, more dense than usual, and in which the usual clear spaces between the larger bronchi and blood-vessels have been obliterated. The larger bronchi and blood-

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 24, 1917.

vessels leaving the root at the same time seem to be accentuated in density. This is not, however, a common occurrence without other evidence of tuberculosis within the lung fields. It could be explained probably by the belief of some that tuberculosis affects first the larger lymph glands at the roots and by a retrograde flow of lymph, due to blockage of the flow, finally invades the lungs by means of the lymphatics.

Within the lung fields proper there are changes to be seen which readily tell the experienced observer that some form of pathology exists. These changes are essentially of two distinct physical characters, distinct as to distribution and shape. The first of these changes is characterized by the linear arrangement along the course of the bronchi and blood-vessels of small nodules or somewhat circular shadows. In size they may vary from one millimeter upwards. They appear separate and distinct and give rise to the impression of beading along the ramifications. At times they appear with rather clean-cut margins, but at other times their margins as well as the margins of the pulmonary ramifications appear hazy and fuzzy. They may occur anywhere along the course of the blood-vessels and bronchi, which appear to be accentuated in density. To be of use in diagnosis they should not be considered when in the immediate vicinity of the roots. Often these changes are the only noteworthy ones seen in the plates of those suffering or having suffered with the symptoms of pulmonary tuberculosis. Usually in this type of case the symptoms have not been very marked, nor does the sputum contain tubercle bacilli.

Another change, commonly associated with more advanced disease, a greater severity of symptoms and tubercle bacilli present in the sputum, is the condition termed "mottling." In this type of change the tubercles are not arranged linearly, and follow no definite outline. Their outlines appear to be less distinct, and between the individual tubercles there appears to be a haze of lesser density. The whole appearance approaches one of patchiness rather than of linear beading. Of this second type of change there are many modifications seen. Sometimes the patchiness is more or less even in density, without individual tubercle formation. The density itself in these areas varies considerably, as well as the characteristics of the margins bordering on the patches. In other cases of more advanced diseases we see the annular high-light of cavity formation, surrounded by increased density, and in addition we may encounter evidences of nearly all of the pathologic changes such as pleurisies, misplacements, fibroses, etc., which are concomitant with an acute or chronic pulmonary tuberculosis but which need no mention here.

In addition to the linear, beaded type and the patchy or mottled type there is yet another characteristic mentioned by Doctor Dunham and which is based upon microscopic pathology, namely the fan-shaped density in the periphery of the lung, with its angle toward the root.

We have stated before that adults have very largely been infected in early life with the tubercle bacillus and that probably a large proportion of them had infections within the lungs. Recovery from these latter infections may have left behind evidences of the former disease, which may be disclosed by X-ray examination. Thus we see in the X-ray pictures of many healthy adults isolated, dense, clean-cut tubercles here and there in the lung fields. We may also see isolated, clean-cut tubercles along the ramifications, and we may see these ramifications much more accentuated in density than usual. Such evidences as these cannot be taken as indications of disease, but must be looked upon merely as evidences of tuberculous infection.

How then are we to judge, if possible, the presence of disease. For this we must of necessity correlate our physical signs and symptomatology, because with the X-ray plates alone one cannot positively diagnose pulmonary tuberculosis with any degree of assurance. There are, however, certain manifestations seen in the plates which would lead one to suspect that the pulmonary focus has been recently active or has ceased to be active some time past. Again we must return to pathology and consider what takes place in active and in healing foci. According to Tendeloo and others, there is surrounding the tubercle in the active focus an area of inflammation which he terms collateral inflammation. This area of inflammation is shown on the plates by areas of faint density surrounding the tubercles and causing their margins to appear fuzzy or hazy. When the tubercles have become more confluent, and caseous broncho-pneumonia is present, an exudative type of active lesion, this is seen as a more or less dense shadow with irregular fuzzy outline and in which there are no individual tubercles visible.

In the healing lesion collateral inflammation disappears. The margins become more definite and the tubercle more dense, since it becomes fibrotic or calcareous. The area of patchiness of the caseous broncho-pneumonia loses in density, individual tubercles appear, hazy outlines are lost, and the individual tubercles undergo fibrosis or calcification, while the pulmonary ramifications in the vicinity become more definite and distinct as they become more fibrous. However, these do not represent all the changes taking place in active or in healing disease, and we must also remember that there are almost invariably present in advanced disease foci in all stages of development. The constitutional disease also very often remains in a state of mere

quiescence, with the likelihood of a fresh awakening or relapse occurring at any time.

So then, although there are certain indications in the X-ray plate which would lead us to believe that a focus is active or healed, it would be quite unwarranted and unsafe as a general thing to make a corresponding diagnosis from the plates alone. However, when serial plates are taken at various intervals much knowledge can be gained as to the progress of the disease in the individual.

The locations of shadows seen in the plates may lead us to suspect the etiology of the pathology underlying them. Thus in pulmonary tuberculosis of the adult we know from long experience that that portion of the lung above the root is most often the first involved, unless miliary tuberculosis is present. So, too, the disease is apt to be unilateral. And, when the characteristics of tuberculosis are borne in mind, namely tubercle formation, ulceration, caseation, cavitation, fibrosis and calcification, much knowledge as regards etiology can be gained from the nature of the densities. However, from all that has been said before it can readily be seen that a diagnosis of pulmonary tuberculosis from the plates alone cannot always be made with positive assurance. There should be coöperation between the clinician and the radiologist and the clinician should be prepared to understand the densities he sees in the plate. Furthermore, the clinician must have accurate knowledge of the disease, pulmonary tuberculosis, and its pathology, for without it errors in diagnosis are very apt to be made and mistakes in treatment and prognosis most sure to follow.

The X-ray does afford most valuable assistance in the diagnosis of tuberculosis, for it not only tells us of the location and extent of the lesion, but to the experienced observer it also shows the character or type of the lesion much more accurately than can be told by physical signs or symptoms alone. It affords the most exact information as to the actual pathology that can today be gotten short of autopsy. But it must nevertheless not be looked upon as infallible; nor must it be taken as the final word in diagnosis. Its use should rather be for aid and corroboration in diagnosis and for better knowledge of extent and pathology. In pulmonary tuberculosis, as in all diseases, the use of the X-ray for diagnosis must be based upon a good knowledge of the pathology and course of the disease, an orientation in it, so to speak.

THE SERUM DIAGNOSIS OF TUBERCULOSIS.* †

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THE phenomenon of complement fixation probably depends upon the fact that when an inciting organism invades the living body a reaction takes place between the serum of the host and the organism itself. In nearly all bacterial diseases this invasion is marked by a struggle the clinical manifestations of which constitute the picture of the disease and by a production of immune bodies or so-called antibodies. These antibodies can be detected or measured in the blood of the subject by a number of methods which depend upon the reaction occurring between the host's serum and the antigen or its constituents. In tuberculosis a consideration of what has been accomplished by most methods in the way of demonstrating antibodies in the circulating blood of tuberculous patients, for a long time, has yielded little of value or encouragement. Thus, the work of Arloing and Courmont failed to establish the agglutination reaction as a useful procedure; studies on the opsonins and the precipitins were likewise unfruitful, while investigations along the line of complement fixing bodies remained for the most part unpractical. The early literature on this latter subject discloses a number of workers who demonstrated complement fixing antibodies, and, in a limited measure, successfully applied this observation to the diagnosis and prognosis of tuberculous disease. Obviously, in a disease so chronic as tuberculosis it would be too much to expect to find these antibodies circulating in all forms and in all stages of its many clinical pictures, and for this reason it is not difficult to understand why, in a number of instances, the condition of tuberculosis was not detected from an examination of the serum by complement fixation. The test remained, therefore, of limited clinical value in indicating the presence of the disease, tuberculosis, and, moreover, in the hands of many investigators, it proved a source of difficulty and error since it gave positive results in normal, non-tuberculous and luetic patients. It became apparent, however, that the test possessed distinct value and that the percentage of cases of positive fixation might be increased if better antigens were available. Beginning with Bordet and Gengou, then Wassermann and Bruck, later Citron, enough was accomplished to show that the complement fixation reaction would be available for the diagnosis and control of tuberculosis in its prognosis and treatment, only with decided improvement in the methods of fixation and in

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the preparation of antigens. The study of this subject received attention, on and off, during the past decade or two but was quickened into fresh interest by the work of Besredka and his followers, Calmette, Petroff, and a number of Englishmen who employed bacillary emulsions. The general method used by all workers varied but little from the technique of the Wassermann reaction but the antigens differed greatly and were numerous. Almost all the tried antigens fall into four general groups:

* Group one: Antigens in which the whole tubercle bacillus was used. Here are included antigens prepared from all the tubercle bacillus strains as well as from the allied acid fast bacilli, i. e., smegma, butter bacillus, (Rabinowitsch), lepra bacillus, Grassburger's milk bacillus and the Timothy hay bacillus. The bacteria were used in suspensions living or after treatment by heat, cold, etc.

Good results have been obtained with these bacillary emulsions. The English workers particularly found them very useful but unfortunately reported a rather high percentage of binding in clinically arrested cases.

In group two we have antigens which consist of tuberculins. Nearly all tuberculins have been used as antigens. They appear to be of great value. Of special interest are the preparations of Besredka and its modifications by his followers, and of Petroff.

Group three comprises a large series of antigens which may be termed tubercle bacilli derivatives or extracts. Von Deycke and Much endeavored to separate a particular portion of the bacillus for antigen. They obtained split-off products or partial antigens. Calmette found a peptone extraction of bacilli produced good antigen.

In group four are placed the antigens prepared from normal or tubercular tissues.

It appears that fair and even good results have been obtained by a number of methods, but many of these antigens did not seem to fulfill the necessary requirements for a wholly satisfactory antigen. We believed it essential that a reaction of specific diagnostic value should occur with great regularity; that it should differentiate between arrested and active cases of tuberculosis or should at least give practically constantly negative results in other diseases and in normal cases. It seemed reasonable also to hope that the laboratory findings should agree more fully with clinical data. We considered it remote and directly opposed to clinical experience to maintain that clinically non-tuberculous patients harbored the disease because a serological test alone gave a positive result. In this connection it was felt that positive fixation should be present only in those cases where there was absorption from an active focus of the disease and that in denoting the mere presence of the disease a serum test would offer no advantage over the tuberculin tests, these indicating a hypersusceptibility of the patients to the tubercle bacillus. The serum test, therefore, was to serve as an indicator of the activity of the disease and not merely to point out its presence.

It is obvious that for the clinician a test of this kind would be of great value and it is therefore, not surprising that much work has been done along this line. Numerous laboratory methods have been proposed as helpful measures for the diagnosis of active tuberculosis. Among these are the urochromogen test, the albumen estimations of the sputum by various processes, the interpretation of the Arneth leucocyte count, and others. These have proved inadequate but the serum test has remained a subject of much research and considerable hope.

In February, 1916, Miller and Zinsser published results with a simple antigen made by grinding live or killed tubercle bacilli with ordinary table salt, and then adding distilled water up to isotonicity. This preparation may be used as it is or killed. Its description in detail has been published elsewhere; here it need only be stated that its manufacture is very simple and requires but little time. It has given and still gives good results. There seems to be practically no false fixation of leutic or normal serum.

It is not essential at this time to dwell upon the possibility of strain specificity of various types of tubercle bacilli as antigen. The problem stimulated by this phase of the subject would deal with immunity and serologic studies of the types of tubercle bacilli strains, the investigation of those strains found in active cases with negative blood findings, in tubercle bacillus carriers and in the body exudates and transudates of the tuberculous host actively or quiescently involved. It is, however, important to stress the variability of many human and bovine strains as antigen and to point out that polyvalent antigens, as a rule, are desirable though at times a single strain may prove to be quite satisfactory. Cultures should be grown upon any good nutritive medium and they should be scraped for use within one month of seeding.

The technique of the test is the regular Wasserman technique. One quarter of the original volumes is used and the incubation carried out in the water bath at 37° C. for one hour. Red corpuscle emulsion is then added, the tubes incubated again for ten minutes to determine if any natural hemolysin is present and finally two units of rabbit's anti-sheep hemolysin poured into each tube before the final incubation. Fresh complement is titrated carefully and two hemolytic units used. Frequently two antigens are em-

* For more complete discussion and review of these groups of antigens, "A Review of the Complement Fixation in Tuberculosis," H. R. Miller, *J. of Lab. and Clin. Med.*, August, 1916.

ployed, one consisting of mixed polyvalent human and bovine strains, the other of a single human strain.

The test is positive in the early stages of tuberculosis. When the toxic and, probably, cumulative effects of the diseased focus begin to incite local and systemic pictures. In Stage 1, 2, and 3 (Turban classification) the test is positive in the largest proportion of cases, yet in a number of instances when clinical findings are beyond dispute, and even bacteriological proof of the disease at hand the test remains negative. It may be perhaps, that the antibody content, in vivo, of a tuberculous serum fluctuates. In this sense we designate the antibodies as diagnostic bodies rather than agents of a protective character. Besredka has shown how labile a factor the antibody contents of an experimentally tuberculous guinea pig can be; how the presence or absence and intensity of the complement fixation reaction shift from period to period; and furthermore how readily the reaction may be modified. Thus, according to him, if into a tuberculous guinea pig, the serum of which shows inhibition, tuberculin is injected the serum reaction will become negative. It seems safe to say that the intensity of the reaction varies with the course of the disease, so that patients whose sera originally gave complete binding during the full process of their illness gradually develop partial and negative fixation as the disease runs its course to quiescence or arrest. Conversely, the sera of patients that were not at all or partially fixed developed complete fixation as the physical signs and symptoms advanced and indicated more and more toxic absorption. And finally, if the disease continued to a terminal issue the reaction often became very weak or absent.

Perhaps the interpretation of the variations of the antibody content of a tuberculous serum may lie in the conception that tuberculosis represents a conflict between the forces of host and invading organism. The measure of antibody content in the circulating blood is therefore a fairly accurate gauge of the amount of absorption of toxic products of the disease as directly influenced by any disturbance of balance between the protective powers of the body and the activity of the inciting bacillus.

The failure often to obtain a positive reaction in so many quiescent patients or in cases of old tuberculous sinuses, or slow chronic adenopathies, or in so widely different pictures as acute tuberculous meningitis and advanced phthisis, or in tubercle bacilli carriers may be an expression of the inability of the forces of so-called resistance and infection to continue the struggle.

Much remains to be investigated, nevertheless, the complement fixation test for tuberculosis, as it is, may be offered as an aid in diagnosis and prognosis. The reaction for all practical purposes is not positive in non-tuberculous persons; it is positive in a high percentage of all active tuberculous patients while it is almost always negative in arrested or quiescent tuberculous cases and in syphilitic patients as well. It does not parallel the tuberculin test, since it serves in the main to indicate the activity of the disease only. It seems fair to maintain that a positive fixation reaction implies absorption from active disease. In general a negative result in a serum except in those comparatively few instances where active tuberculosis is already present, signifies the absence of an active tuberculous process in the body.

THE BACTERIOLOGY OF PARATYPHOID FEVER.*†

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PARATYPHOID fever is a sympton complex, resembling typhoid fever, due to an infection by bacilli of the paratyphoid group. This group of bacilli, however, has a pathological significance much wider than the production of paratyphoid fever alone. Besides this disease, members of the group cause acute gastro-enteric types of disease, characterized by a relatively short period of incubation, occurring most commonly in epidemic form (and proportions). These latter infections are usually due to the ingestion of contaminated meat, or meat-containing foods. The acuteness and severity of the gastro-enteric symptoms in this type of disease depend on the content of toxin produced during the growth of the bacilli as well as on the number of live bacilli ingested, and the proportion of toxin to bacilli. The whole symptom complex of the acute cases can be produced by food containing the toxin alone, and as this toxin is characterized by marked resistance to heat, it is obvious that an amount of cooking which will sterilize the food, so far as the bacteria themselves are concerned, may still leave it a source of illness. In some cases of food-infection, the bacilli invade the body, as is evidenced by positive cultures from the blood or urine. Fever may also follow for several days, a week, or longer, and in exceptional instances, it may run a typhoidal course. In spite of these facts, the disease does not essentially resemble true paratyphoid fever, with its longer period of incubation, and typhoidal onset and course. The probable reason for this is that the two diseases are etiologically distinct.

It will be well, therefore, to survey briefly the more important members of the group which have a relation to animal or human disease, as well as the pathogenicity of the former for man,

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† From the Bureau of Laboratories, Department of Health.

and the types of human disease which they produce.

The main group are: B. paratyphosus "A," B. paratyphosus "B," B. paratyphosus "C," and B. enteritidies. Not included in these groups are the avian types: B. sanguinarium (fowl typhoid bacillus) and B. pullorum. Of these groups, B. paratyphosus "A" is the most sharply demarcated, by a cultural characteristic: inability to produce acid from xylose (a carbohydrate), whereas all other groups exhibit constant power to ferment.[1,2] Nearly all strains of B. paratyphosus "A" are serologically identical, but some, forming an apparent sub-group,[2] differ from the type in this regard. B. paratyphosus "A" is only found in infections in man running a typhoidal course, and the epidemiology of infections by this organism is the same as for typhoid fever.

B. paratyphosus "B" is applied to a group of bacilli of which the representative is the organism producing paratyphoid fever in man. Other members of the group are such types as B. suis (hog-cholera bacillus), which is found in infections of animals whose meat is used for human food. B. psittacosis, which produces enteritis in parrots, with which pneumonic infections in man, with typhoidal symptoms, have been associated, is more rarely encountered. There are other types common in infections in rodents: the bacillus of mouse typhoid, the bacillus causing guinea-pig infections, etc. The former of these two is used in viruses for mouse eradication.

The B. enteritidis group contains the type (Gaertner's bacillus) which is found in infections of animals producing meat for human consumption. Other types are those from rodents, such as Danysz's bacillus, the organisms used in the commercial rat viruses. Some of the strains from mice or guinea-pigs belong to this group.

The question immediately arises: what relation do the types of these two groups bear to true paratyphoid fever, especially those types associated with meat-poisoning? The growing evidence tends to prove that the meat poisoning types of the former group (B. suis), are separable culturally[3,4] and by serological reactions[4,5] from the type of B. paratyphosus "B" found in paratyphoid fever. This, as well as the different clinical pictures, usually presented in infections by these types, is strong presumptive evidence that true paratyphoid fever caused by the "B" type is primarily a human disease, with infection from man to man, either directly or indirectly, as with typhoid fever.*

B. enteritidis is associated only with meat-poisoning, although cases of infection with a longer febrile period are exceptionally seen.† The types of rodent origin in this group, as well as those in the "B" group, are apparently fixed in their virulence for their respective hosts, through prolonged adaptation, and are not truly pathogenic for man. These rodent types, however, as well as the types from fowls, must be considered possible etiological factors in food-poisoning, as all the members of the paratyphoid group have a similar ability to produce toxic substances in the course of growth on protein-containing media. Because of this common ability to produce toxin, B. paratyphosus "B," as found in paratyphoid true fever in man, is able to cause more acute dysenteric or gastro-enteric types of disease, which raises the possibility of food poisoning through human contamination of foods. If more data were available on the strains isolated in the past from food-poisoning epidemics, the contradictory opinions on the relation of animal strains to paratyphoid fever in man would probably be settled.[7]

The paratyphoid "C" group contains B. abortus equi, the etiological factor in contagious abortion in mares, which, as far as is known, has not been encountered in human disease. In this group also fall various types producing disease in man: exceptional strains, isolated from cases resembling paratyphoid fever, or types encountered in urinary, biliary, or in terminal infections. Similar types are very common in normal feces, and are frequently given etiological significance on very insufficient grounds.

To summarize, B. paratyphosus "A" and "B" normally encountered in true paratyphoid fever are apparently fixed human pathogens. The types encountered in infections in meat-producing animals belonging to the "B" group, or to the B. enteritidis group, are the etiological agents in meat-poisoning, and are not a factor in the production of paratyphoid fever. All the types of animal origin, as well as the "B" types, normally producing paratyphoid fever in man, are potential agents in food-poisoning due to their common ability to produce toxins.

If this conception is well founded, the bacteriology of true paratyphoid fever in relation to diagnosis and to sources and modes of infection, as well as the carrier problem, is in general the same as for typhoid fever.

The diagnostic methods applicable are the same as for typhoid. Because of the relatively few cases completely studied, we cannot, however, definitely assign the correct value to each procedure in relation to the various periods of the disease as can be done with typhoid fever.

* Bearing on the point is the usual absence of secondary cases due to personal contact with those directly infected by food containing B. suis. It is possible that these organisms may undergo adaptation during human infection which will subsequently render them directly pathogenic for man. Direct evidence on this point has so far not been furnished.

† A case has been recorded in which a human was found to be a carrier of B. enteritidis for some time.[6] It is also possible that, subsequent to meat-poisoning infections, the carrier state may develop among those who have ingested the bacilli as well as the toxin.

The diagnostic method of choice is the blood culture. This is most likely to be positive in the first week of the disease, that is, during the bacteraemic stage. The exact percentage of positive results obtainable according to the period of the disease cannot be stated on the data available, but a large proportion of early cases will give positive results. Some observers have considered the duration of the bacteraemia to be longer than with typhoid fever. Others, however, have often failed to obtain positive results in paratyphoid "A" infections.

The Widal or agglutination reaction, usually not positive before the second week, is difficult of application, as this method entails a differential diagnosis between infections due to B. typhosus, B. paratyphosus "A" and B. paratyphosus "B." The titration of the relative content of agglutinin for these three related strains is difficult in itself, and the difficulty is further increased by the development, in an infection by any one, of common agglutinins active against all three, and by the presence of normal agglutinins. When vaccination against any or all of the types has been carried out, as is likely to be the case in military units, the application and interpretation of the results of the Widal reaction become extremely difficult. Recent English observations indicate that the macroscopic reaction and the use of standardized killed broth cultures are preferable in making a differential diagnosis.[8 9] The results of these workers also indicate that the agglutinins resulting from vaccination are more or less constant in titre over short periods of time, whereas those developing from infection are more susceptible to rise or fall; in other words, that a rising or falling titre indicates an active infection. Such changes, however, which may be slight, are only elicited with accuracy by the use of standardized cultures. One drawback of the method is that whole serum must be obtained, as dried blood, such as is employed for the routine microscopic Widal for typhoid fever is not applicable. The agglutinin titre in infections due to B. paratyphosus "A" is usually relatively low, and slow in developing.

Bacteriological examination of the stool yields a relatively high percentage of positive results. There is a possibility of error, however, in the case of carriers suffering from a pyrexia due to other causes. In examining the stools of a militia regiment[10] badly infected with B. paratyphosus "A" we obtained the following results, according to the period of the disease:

Period of incubation	15%	Positive.
At onset, or during first week	83%	"
Second week	50%	"
Third week	35%	"
Fourth week	20%	"
Fifth week	15%	"
Sixth and seventh weeks	20%	"

This series was small, and based on only a single examination in each case, and does not, therefore, establish the incidence of positive results obtainable.* No similar figures for "B" infections are available at present, but based on the positive findings during the whole period of the disease, more positive results have been obtained. Because of the greater resistance of the paratyphoid bacilli to brilliant green, their isolation is much more easily accomplished than with B. typhosus. With a brilliant green plating medium and a potent serum for identification of suspicious colonies by direct slide agglutination, the method is extremely simple and expedient.[11]

The bacilli are probably found in the urine at some period of the disease in about 30 per cent or more of the total cases.

In carrying out any of the diagnostic procedures one should be on the alert for evidences of a combined infection by two of the enteric-disease producing types. Such double infections have not been infrequent in the Allied armies during the present war. Triple infections have also been encountered.

The carrier problem is the same as for typhoid fever. It embraces, therefore, both normal contact—that is, healthy—carriers, without evidence of disease, and convalescent carriers, who may become chronic through localization in the gall-bladder and bile ducts and capillaries. There are no exact figures available to show how many convalescents become chronic carriers. During outbreaks of the disease, the incidence of normal carriers is probably high. Such persons, usually excreting bacilli for a short time only, but giving no evidence of the disease on which to base suspicions, are an important factor in spreading infection, as are also the mild ambulatory cases. They can be detected only by general stool examinations. In the regiment mentioned above, a general fecal examination showed 4 per cent of such normal carriers. Had the examinations been made during the earlier and more explosive stage of the outbreak in this regiment, the percentage would probably have been higher.

Naturally the Widal reaction is valueless in searching for such carriers. Even in the search for chronic carriers, little reliance should be placed on a negative agglutination reaction.

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LABORATORY SERVICE IN AN EPIDEMIC OF PARATYPHOID FEVER AMONG THE TROOPS.* †

By AUGUSTUS B. WADSWORTH, M.D.,

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IN view of the present crisis in our relations to the war in Europe, it seems to me that our experience in the organization of a laboratory service for the troops during an epidemic of paratyphoid fever would be of more general interest to physicians and health officers than an analysis of the results obtained in the large number of examinations which were made of cases and contacts.

The work comprised a laboratory service during mobilization of the militia in June, 1916, with a view to detecting carriers of the enteric diseases among the cooks and food-handlers of each regiment before they went into active service on the Texas border. This work, thus, was largely preventive in scope. Later, when the four regiments returned from Texas, on account of an outbreak of paratyphoid fever, the laboratory service was established to aid in the conduct of an intelligent quarantine which would control effectively the further spread of the disease among the troops and in communities to which the troops were to return.

Although the work was divided into these two phases, the organization was similar and equally effective in both. A representative of the laboratory, experienced in laboratory diagnosis and in epidemiology, was assigned to Camp Whitman. His duty was to instruct camp surgeons in the collection of specimens and to offer any advice that might be necessary. He was also responsible for the records which were sent with the specimens to Poughkeepsie. At Poughkeepsie, in the city laboratory, a branch laboratory of the Department was established under the supervision of a competent bacteriologist who, with assistants, examined the specimens, recorded, and reported the results of the examination to the camp surgeon.

This work had only just been begun when the troops were ordered to Texas. In less than three weeks, however, 200 cooks and food-handlers were examined in the search for carriers of typhoid, paratyphoid, and dysentery bacilli. It is interesting to note that no cases were found in which paratyphoid bacilli were discharged in the feces. Only one dysentery and one typhoid carrier were discovered. The federal authorities were notified and these men were withdrawn from the regiment before they went into active service on the border.

In this work it was difficult to secure complete co-operation of all the camp surgeons of the militia. In the absence of any epidemic or of much illness the practical value of these preventive measures was not fully appreciated. Progress in the work was much delayed by the failure of camp surgeons to collect specimens from their regiments. On the return of the troops later, however, after the epidemic of paratyphoid fever had broken out, and under the efficient administration of Colonel Page of the United States Army, co-operation between the laboratory and the federal troops was complete and efficient. There was no difficulty whatever in carrying out the plan agreed upon at a conference between Colonel Page, Lieutenant Zinsser of the Reserve Corps, and Dr. Youland who was assigned to Camp Whitman from the laboratory.

So many cases were found in the different regiments, and there were so many vague histories of cases on the border, that a complete survey was considered necessary, as it was utterly impossible to examine all the men in the four regiments. From this survey a list of all known cases of enteric disease and of all cases giving a history of fever or enteric disease was compiled, and from this a second list of contacts with these cases was made out. Tentmates were considered contacts, and when cases or carriers were found among the food-handlers in a company the entire company was considered as contacts and quarantined. A quarantine of two weeks was considered sufficient, and as soon as this period had elapsed and no new cases had developed the men were taken out of quarantine to avoid the possibility of subsequent infection.

One of the four regiments did not return to Camp Whitman, but was distributed among the various armories at Troy, Schenectady, Saratoga and other places in the vicinity, and it was necessary to close Camp Whitman on account of the cold weather and inadequate equipment. From the survey it was found that the 71st and 3rd Regiments could be examined and released before arrangements could be made for them to entrain. The 14th Regiment, however, had to be examined completely, so no attempt was made to do this at Camp Whitman. Men were given paratyphoid vaccines, and sent to their armory in Brooklyn.

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 25, 1917.

† From the Division of Laboratories and Research, New York State Department of Health.

The routine examination was similar for the 2nd Regiment and the 14th Regiment. The men were not mustered out, but were required to report daily at their armories, sleeping at home. To guard against spread of the disease to their families careful instructions were given to the men and a quarantine was maintained until the examinations were complete, and the cases and carriers discovered and isolated. The 2nd Regiment was examined by the Albany laboratory; the 14th by the New York City Laboratory and the Branch Laboratory of the State Department of Health in New York City. Specimens of feces from all members of the 14th Regiment were collected and examined. No examination of the blood for agglutination was attempted because the men had had paratyphoid vaccine. In the examination of the 2nd Regiment, however, at the Albany laboratory, it was possible to follow out carefully the above outline. From the survey of the regiment lists were compiled of the men it was necessary to examine from each company. Specimens of blood were collected before the administration of paratyphoid vaccine, so that the Widal test could be studied. Then specimens of feces were collected and examined, and also blood cultures from the cases which were acutely ill.

In the branch laboratory at Poughkeepsie and in the central laboratory at Albany, clerks entered the specimens in the accession book as soon as they were received. Then technicians immediately prepared them for study and examination by bacteriologists and diagnosticians. After the diagnosis had been made a group of workers sterilized all the infective material, and cleaned, prepared and sterilized all the glassware for further use. On the information blanks which were sent with each specimen the diagnosis was recorded and initialed by the examiner. The clerks and stenographers copied these records into the accession book, and made out the reports. At the branch laboratory at Poughkeepsie the staff was increased by assignments from the central laboratory at Albany, according to the number of specimens examined daily. Three members of the New York City laboratory volunteered for special work. During one period the staff comprised five bacteriologists, seven laboratory assistants, six stenographers and clerks, and eight cleaners. At Poughkeepsie 1,632 specimens of blood were examined for agglutination, 632 specimens of feces were examined culturally for the typhoid, paratyphoid, and dysentery bacilli, besides 23 blood cultures. In addition 22 cultures from suspected cases of diphtheria and 73 miscellaneous specimens were examined.

In the City of Poughkeepsie dysentery had apparently been endemic for some time, but an outbreak or epidemic occurred while the branch laboratory was engaged in this work. From these cases of dysentery 139 specimens of blood for the Widal test against the dysentery bacillus, 111 specimens of feces, 3 blood cultures, and 33 diphtheria cultures, and 30 miscellaneous specimens were examined. The laboratory at Albany confirmed by complete identification all cultures which were obtained in the examination at Poughkeepsie, in order to check against error.

At the same time the examination of the 2nd Regiment by the Albany laboratory was carried on. From this regiment 1,403 specimens of blood were examined for the agglutination reaction, 626 specimens of feces, and 36 blood cultures. The amount of work required in the investigation was therefore considerable, but the observation and treatment of all cases of illness and suspected carriers proceeded as intelligently and as carefully as in the best equipped hospitals in the large cities. At the same time the quarantine necessary to control the epidemic was made effective without unnecessary hardship or expense. This investigation, carried out so completely and on such a large scale, afforded exceptional opportunities for both clinical and laboratory study and comparison.

It is utterly impossible in the time allotted to discuss fully the technical procedures used in the examinations, or the results of the examinations. It may be of interest, however, to note that the agglutination reaction of specimens from the 3rd and 71st Regiments were tested in a dilution of 1-30, whereas examination of the 2nd Regiment at Albany were made in a dilution of 1-20. The comparatively few agglutinations which were obtained in a dilution of 1-30 show clearly that this was too great a dilution to be of definite diagnostic value. The greater number of agglutinations obtained in the examinations of the 2nd Regiment with a dilution of 1-20 indicated that this was much the better dilution, but the number of known cases of paratyphoid fever which failed to react with this dilution suggested that a further control of a dilution of 1-10 might be of greater diagnostic value. In general, the development of the agglutination reaction among these cases was not marked in the early stages of the disease, in fact, it seemed to follow the development of agglutinations in typhoid fever. Owing to the large number of mild infections many cases in which paratyphoid bacilli were found failed to agglutinate.

The examination of feces proved to be of the greatest practical value not only in recognizing carriers, but in making an accurate bacterial diagnosis of the disease. The organisms were found early and late in the course of the infection. In some instances they were present during the first days, and even before onset, although this of course is rare. The examinations thus clearly showed that paratyphoid fever differs from typhoid fever in that the organisms are present in the feces earlier in the disease. Finally, the examination of feces during convalescence for

release from quarantine showed that, although organisms may persist for a long time unnoticed in the feces of persons who have had only a very slight illness, they do not persist after convalescence but usually disappear promptly. Permanent carriers were not found.

Previous clinical observers have described different clinical types of the disease just as bacteriologists have recognized two distinct types of bacilli and a number of variants linking the species to other members of the group to which they all belong. A few claim that the clinical types correspond to the bacterial types and that paratyphoid "A" fever resembles typhoid fever, whereas paratyphoid "B" fever is more like food poisoning such as that of the enteritidis group. In the former gastroenteritis is not a marked feature of the disease; in the latter it is characteristic of it. Similarly clinical observers of the cases of this epidemic on the border and here on the return of the troops have recognized three or more distinct clinical entities, although all the cases were paratyphoid "A" infection. I know of only one instance of paratyphoid "B" infection that occurred on the border. But many of these observations lacked the support of definite laboratory diagnosis. An unsuccessful attempt was made to group the cases of this epidemic according to their clinical signs as soon as sufficient laboratory diagnostic examinations were made to confirm the clinical diagnosis. As a result of this study it was evident that paratyphoid "A" in this severe and typical form simulated typhoid fever. So closely did the two diseases resemble one another that clinicians frequently insisted that cases of paratyphoid fever were typhoid, and in one instance at Camp Whitman a case of typhoid fever was diagnosed in the field hospital as paratyphoid until typhoid bacilli were found in the feces and also in the circulating blood.

Time does not permit of further discussion of the failure to classify distinct clinical types of the disease. Apparently in paratyphoid fever all degrees of infection occur, and the different forms gradate one into the other. An accurate diagnosis cannot be made without laboratory examination.

Attempts to trace the sources of the epidemic were made by the sanitary officers on the border, and by an analysis of the results of the investigation of the troops after their return it was hoped that some light might be thrown on the manner in which the epidemic had spread among the troops. Such conflicting statements regarding conditions on the border have been received that in the absence of an authoritative and complete report it is difficult to draw any accurate conclusions. For example, in the 14th New York Infantry one of the sanitary supervisors of the Department, Dr. C. W. Berry, was enrolled. Serving a short time in Texas, he was recalled, but on the return of the regiment he co-operated in the investigation of the epidemic. From the vantage point of personal observations of sanitary conditions at the beginning of the epidemic and again at the end of it, his account, as published in the *Medical Record,* is of considerable interest. His description of the sanitary conditions is confirmed by nearly everyone. His description is so vivid that it is not difficult to understand how the troops, none of whom had been vaccinated against paratyphoid fever, came down with the disease once the infective agents became disseminated among them. Since so many modes of transfer were open for consideration—contaminated water and food, personal contact, flies and filth—it is extremely difficult to fasten on any one of them as an important factor in the spread of the epidemic. Doubtless all of these conditions were important factors. The original source of the infective material, however, could not be accurately traced.

It is evident that laboratory service is an essential integral part of a modern military organization. Not only does it provide facilities for ministering to the troops according to the approved standards of medical science, but economically considered it is also an equally important factor.

Despite all our knowledge of preventive medicine, experience in the European War and especially the object lesson of this epidemic, shows that camp sanitation is still today inadequate, as it has always been in previous wars, and cannot protect troops against enteric disease. Vaccination alone is effective. Had it not been that the troops were all vaccinated with the typhoid bacillus this disease would have developed in the camps last summer just as it did in the camps of the Cuban war.

FRACTURES OF THE NECK OF THE FEMUR IN CHILDREN.*

By HENRY LING TAYLOR, M.D.,

NEW YORK CITY.

FRACTURES of the neck of the femur have always attracted a great deal of attention from surgeons, but it is stated that it was not until 1890 that a case was reported in a child by Dr. Royal Whitman.† In the last few years, in studying the material at his disposal, particularly at the Hospital for the Ruptured and Crippled, the writer has noted several different types of this injury in children, each rather characteristic of the age at which it occurred.

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 25, 1917.

† Dr. B. H. Whitbeck, *American Journal of Orthopedic Surgery,* January, 1917.

In young adults of eighteen to twenty, the type of fracture does not differ from the one usually found in advanced life. It is usually a break through the neck near the middle, or near the head, with upward displacement and outward rotation of the distal fragment, and complete disability. Such cases often fail to unite and the neck becomes much shortened, with or without the usual treatment with rest, traction, or splints. They come helpless on crutches to the bone surgeon months later, with non-union, pain, and inability to bear weight. Into one such case in a young woman, the writer put a bone dowel four months after the fracture and got firm union. Six months later she walked without pain and without assistance. In another case, in a young man of twenty-one, who was completely disabled, thirteen months after the fracture there was no union, the neck had almost completely disappeared, and the head was much atrophied. For this reason, the writer did not place a dowel, but excised the head instead. The patient made an excellent recovery and walked firmly and without pain, the stump of the neck resting below the upper rim of the acetebulum.

If all hip injuries were carefully examined and Roentgenograms taken at once, the surgeon would often be spared the mortification of an erroneous diagnosis, and many patients would be saved from serious and sometimes life-long disability. When seen early, the deformity should be completely reduced at once under ether, with the help of special apparatus, such as Hawley's fracture table, if possible, and a long plaster spica applied in abduction, as advised by Whitman.

In adolescents, the usual injury is the slipped epiphysis, or epiphyseal separation, in which the history, clinical picture, and Roentgenogram are characteristic. The typical age for this injury is twelve to sixteen inclusive. Cases outside of these limits are often physiologically within them, though there are exceptions. The neck and shaft of the femur may slip slowly upward at the epiphyseal line without trauma in rapidly growing adolescents of overgrown, obese, and flabby type, and in such cases the deformity is often bilateral. Many of these cases are suffering from hypopituitarism or other glandular dystrophy. In the traumatic cases, this same type may be found especially in those instances where both hips are involved in succession. The injury causing the displacement and disability is almost regularly preceded by a moderate fall, which apparently starts the epiphyseal junction and makes subsequent separation easy. Two injuries with a few weeks' interval, and little or moderate disability after the first, are the rule. The leg is flexed and everted and may be adducted. The patient is often able to walk, limping badly, even after the second injury. The displacement should be carefully reduced at once under ether, and this is often difficult. Cases seen after three or four weeks may be impossible to reduce without an open operation.

My material includes one case of impacted fracture through the middle of the neck, with very slight displacement, occurring in a girl of thirteen. When seen three and a half weeks after a short fall, the patient was practically symptomless, but did not walk on account of a knee long ankylosed inflexion. She was kept in bed and afterwards walked on crutches, as she had before the fall.

The characteristic injury in children under thirteen is a fracture at the base of the neck, at its junction with the shaft and trochanter. It is a transverse fracture without displacement, or with only an angular displacement in adduction, to which outward rotation is added in some cases. I venture to propose for this injury the name of "hinge fracture," as the periosteum under the neck acts as a hinge, permitting angular displacement in adduction, but preventing displacement *en masse*. If there is no displacement, there is no shortening or deformity and the symptoms may be mild; the treatment is a plaster spica and crutches. The line of fracture may be gaped open at the top by the original injury—probably an adducting force—or by walking on the injured limb; if this occurs, the proximal fragment is brought into the coxa vara position which, if not corrected, will be permanent. The treatment is correction of the deformity which, in recent cases, may often be done without ether, and fixation in abduction by a plaster of Paris spica from the chest to the toes. My material comprises six cases of the juvenile hinge fracture type—three boys and three girls.* The ages are four, five, eight, twelve and thirteen—the sixth being an obstetric fracture, due to pushing back the leg in a breech case. This case was seen and X-rayed when three weeks old and made an excellent recovery without shortening.

Hinge fractures in children all make excellent recoveries under plaster spica treatment in abduction where necessary. I have never seen non-union. They should not walk without support inside of three months.

My last case of fracture of the neck was a boy of six who had fallen off a wood pile on to his left side, four weeks before. He was able to walk directly after the fall, but limped considerably for two weeks. His limp when seen was very slight and he made no complaint. There was no shortening, and active and passive motions were normal, but the slight wasting of the limb led an excellent diagnostician to

* The day after reading this paper I found another case in a boy six years old.

class it as a mild case of poliomyelitis. The X-ray, however, showed a crack extending from the lower border of the neck to the middle of the epiphyseal line. Avoidance of strenuous exercise was the only therapeutic measure taken, and he made a perfect recovery.

HINGE FRACTURES.

CASE I.—Boy, thirteen; July 20, 1913; hinge fracture, right. Fell and injured hip six weeks before; carried to bed; one-quarter inch shortening, could not lift leg, much pain below Poupart's ligament. Put to bed with thigh flexed on pillows; no pain after two days; small ecchymosis below trochanter, and of scrotum, two weeks later. After two weeks, up on crutches. Four weeks after accident, trochanter was seen to be prominent, and shortening had increased. Examination, July 20th: Flexion and extension normal; rotation about one-half, and abduction limited; right leg three-quarter inch short. X-ray shows a fracture at junction of neck with shaft, and considerable coxa vara. Short plaster spica and crutches, eight weeks.

FIG. I—CASE I.

February 16, 1917. Walks well, good motion, one inch shortening. X-ray shows coxa vara is somewhat less.

CASE II.—Girl, twelve; June 23, 1916; hinge fracture, right. This patient has a much atrophied leg from an attack of poliomyelitis several years before, and wears a supporting brace. She fell ten days ago and had a hinge fracture of the neck of the right femur. The X-ray showed a fracture at the junction of the neck and shaft, with hinge displacement into the coxa vara position and rotation of the leg outward. The deformity was reduced under ether and a long plaster spica was applied in abduction. The patient made a good recovery.

CASE III.—Boy, eight; June 29, 1914; hinge fracture, left. Fell on roller skates five months before; in bed twenty-seven days; no traction or splint. Then doctors said the hip was not broken. Is still slightly lame and has some pain.

FIG. II—CASE III.

Examination shows trochanter prominent but not high; no shortening; leg everted; motion limited in all directions—20 degrees anteroposterior motion. X-ray shows fracture at junction of neck and shaft, with slight hinge displacement. A spur from upper border of neck remains attached to shaft.

CASE IV.—Girl, five; July 20, 1913; right hinge fracture. Fell one week before and could not walk. Legs are equal; some tenderness base

FIG. III—CASE IV.

of neck. Roentgenogram shows fracture at junction of neck and shaft below and including a piece of the great trochanter above.

Case V.—Girl, four; September 6, 1916; right hinge fracture. Fell two stories eight days before. Right trochanter prominent and leg everted; one-quarter inch shortening; will not walk. Had been examined by several doctors and told nothing was wrong.

Roentgenogram shows fracture at junction of neck and shaft, with angular displacement and V-shaped gap. Reduction by Dr. E. L. Barnett

Fig. IV—Case V.

of the staff of the Hospital for Ruptured and Crippled, without ether, and long plaster spica applied in abduction. A Roentgenogram showed complete reduction of the deformity. Three months later there was one-quarter inch shortening, considerable eversion, and a moderate limp—probably due to leaving spica off too soon.

Case VI.—Boy, three weeks; January 15, 1917; right hinge fracture. The birth was a breech presentation, and the mother states that the leg was pushed back three times. For two weeks the baby did not kick with the right leg nor move the right leg so freely as left. Some enlargement about hip, and motion somewhat restricted. Roentgenogram shows very large callus about upper end of femur. Baby was kept under observation. Six weeks later, another Roentgenogram showed much less callus and a crack across base of neck.

I also have a case of oblique fracture through the trochanter in a boy of five.

Case VII.—Boy five; June 23, 1916; fracture through right trochanter. Fell off roof, one story, the day before; one-quarter inch shortening. Roentgenogram shows oblique fracture through upper end of shaft and great trochanter. Though this fracture is not a fracture of the neck, it is the next thing to it, and it is interesting to note that it may occur in children as in adults.

Fig. V—Case VIII.

Conclusions.

1. Fracture of the neck of the femur may occur at any age.

2. The typical fracture of the neck of the femur in children up to thirteen is a hinge fracture at the junction of the neck and shaft. This fracture is one cause of coxa vara.

3. From thirteen to sixteen, the typical injury is a fracture at or near the epiphyseal line, with marked displacement.

4. Above sixteen, the type of fracture of the femoral neck does not differ from that in adults.

Discussion.

Dr. Roland Meisenbach, Buffalo: Dr. Taylor has covered the ground so well that there is very little for me to add. I think that we should all be impressed with the accuracy of his diagnosis. In those cases in fracture of the neck of femur which do not show a marked displacement but which have a tearing of the epiphysis, I have found that the surgical procedure is quite different as a rule. It must be remembered that in children we have to deal with an epiphyseal line, often an unossified or cartilaginous head. Whereas, in the adults we have more sclerotic bone to deal with, then again in children we so frequently find a complication of rickets. All these have a direct bearing upon the surgical procedure, because as in the case of children, we frequently have a fracture take the form of separation of the epiphysis, or fracture through the neck without very much overriding. In the adult again, we find that the overriding is almost constant except in the impacted cases. I wish to emphasize the type of case which Dr. Taylor has mentioned, that is, where the fracture occurs in the epiphyseal line. This usually occurs in heavy children.

A great care must be taken to correct the fracture as early as possible, otherwise, arrested growth of head and neck may be the consequence. I have made it a rule to reduce these fractures without operation whenever possible, whereas in the adult I prefer to operate and then spike with a beef bone or silver spike. I have given up the use of the autogenous graft for several reasons. In dealing with the fracture of the neck of the femur, the physiological condition of the bone should be considered rather than the age. I think as a whole abduction treatment in children is the better, because the leverage which it affords is very desirable. The last winter I have had many cases of fracture of the neck of the femur. Almost all of the cases in the adults had overriding. There are several points which I wish to emphasize relative to the fractured neck of the femur whether it occurs in old or young. First, the condition should be recognized and diagnosis made as soon as possible. Second, active and proper treatment should be instituted immediately, and that if overriding occurs, it should be corrected as early as possible.

Dr. Brainerd H. Whitbeck, New York City: Dr. Taylor has covered the field very thoroughly, and I agree with him, but I would like to emphasize one or two points. In fractures of the neck of the femur in children there is often no history of trauma, but a gradual onset with intermittent pain in the hip joint. These cases have been considered very often as tuberculosis of the bone, or rheumatism, and have been treated as such. They thus go beyond the time when any benefit can be derived from proper treatment. The majority of these cases have a slow, gradual separation of the epiphysis with symptoms that simulate tuberculosis. The child can have an acute trauma also. In the treatment of these cases, certain principles have to be carried out, and the most important is, the early recognition of the fracture. The first case I saw was ten days after the first fracture, and three weeks after the second and good union was obtained. It is necessary to see these cases as early as possible. There should be complete reduction by the Whitman abduction method, with complete immobilization to secure good union; this should be continued 8 to 12 weeks. Patients should not be allowed to bear weight on the limb for a long time. The neck of the femur in the normal condition stands any amount of weight in adults, but when the weight is brought to bear on the healing bone the femur gives way. The weight should be kept off the affected limb for 5 to 6 months. I don't allow my cases to bear weight on the limb for 6 months, and the consequent results are worth while. I have had two cases with coxa vara because they disobeyed directions. I have two slides illustrating the two types of fractures. (1) traumatic fracture, and (2) separation of the epiphysis. The first case is of a boy whose fracture was diagnosed as a dislocation, because of hyperabduction. He was 12 years of age, very strong and active, and fond of out-door sports. While playing hockey on the ice he fell with a lot of other boys on the top of him and received a traumatic injury. The fracture was reduced and put in plaster for 8 weeks with complete anatomic repair. The boy was kept on crutches for 6 months, which he adhered to faithfully, and the leg was perfectly good. He went back to school and was playing football when he again fell and fractured the other hip. I did not see him for three weeks. The treatment was the same. The boy has two perfectly good hips. The second slide is of a child, 12 years old, weighing 168 pounds. It shows the slow separation of the epiphysis, and was considered tuberculous disease for nearly 6 months.

Dr. Reginald H. Sayre, New York City: My father reported a fracture of the neck of the femur in a small child in 1883, supposed to have had hip joint disease, but my father made a diagnosis of fracture. It was found later, at the death of the child from diphtheria that an artificial acetabulum had been formed and the end of the femoral neck articulated there in an ivorylike socket. Dr. Taylor spoke of obese children with slipped epiphyses. In these cases there is a general disturbance of the metabolism, but we don't know what it is. In these cases when you have an X-ray taken, you don't get a good, clear impression, and you think that the plate is a bad one and you take another, only to find the same fuzzy outline. The fact is that the bone is not sufficiently hard to give the outline of normal bone. These children complain of growing pains and begin to limp, much like children with tubercular hips. I believe in putting these children up in abduction, not only the sick leg, but the good leg, as far as the knee to control the motion of the hip more accurately, and to give them more absolute quiet. These children must be kept off their feet for a long period of time. In a small child a splint must be put on as they often will not use crutches. Often children do not understand that they must use their crutches all the time. A boy came to me the other day and I asked if he was using his crutches all the time. He said he did, in the street, but he was running around in the house without them, and thinking he was obeying instructions. In the child with coxa vara, we often have green-stick fracture. A good many of these children have soft, fragile bones. For instance, if a boy is plowng, he stubs his toe in a furrow, and a fracture occurs, as I have seen happen.

Dr. H. L. Prince, Rochester: I agree heartily in what the doctor has said about the treatment of these fractures. I have seen one striking case, in a boy of 16, with no public or axillary hair. There was a history of slipped epiphysis 8 months before. I was unable to reduce the fracture by manipulation and had to spike it. After feeding the boy on pituitary there was a very marked change. He developed hair and his face took on a much more intelligent look. It seems necessary to find a constitutional explanation in these cases for the ease with which these slips occur. Very often there is a history of slight pain for months beforehand, and then an accident happens. In regard to Dr. Meisenbach's spike, if a spike does its work well, there is no object in taking it out. I don't see any advantage in using silver. An ordinary wire nail will serve the purpose as well. In any of these operations you do enough damage to start the blood supply. You are going to fail in a certain proportion of cases anyway. There is nothing about the bone peg that will insure good results. Absorption will take place in some cases anyway.

I don't believe in interfering with the epiphyseal line when unnecessary, but when it is necessary, I never let it interfere with me. A clean surgical injury to the epiphyseal line does not affect growth.

Dr. C. N. Dowd, New York: I think it is a question of nutrition of the head and neck of the femur rather than one of fixation. Bones have a wonderful power of repair if they have good nutrition. We have taken many X-ray pictures of fractures a year or more after the injury and have compared them with pictures taken just after the injury, and it is surprising to note nature's marvelous effort to bring the bone back to the normal. In babies and young children, this is particularly noticeable: Broken femurs, for instance, which have healed with marked angular deformity are almost straight after a few months. The neck of the femur, however, is not well qualified for showing good repair. Murphy called especial attention to this. If the fracture occurs inside of the nutrient artery of the neck, the head of the bone is deprived of its nutrition, and poor results are the rule. I remember, for instance, one case which was treated in abduction by the Whitman method. The immediate result seemed particularly gratifying, but the late pictures showed a marked coxa vara with a shrivelled head of the bone. The lack of nutrition was the important factor. These cases must be kept in complete immobilization for a long time. They should not bear weight on the bone for six months. One is dealing not only with bone in bad position, but probably with ill-nourished bone.

Dr. H. L. Taylor, New York: I am very much pleased to hear such interesting discussion, but nearly everything that has been said applies to the cases of 12 years of age or more. The type of fracture in a younger child is entirely different. This is my personal experience, though I am aware that it has not yet been confirmed by other workers.

BRONCHOSCOPY AND ESOPHAGOSCOPY.*

By JOHN WESLEY MURPHY, A.M., M.D.,
CINCINNATI, OHIO.

WHEN Kerstein in 1894 devised a practical electrically lighted laryngeal speculum for the direct examination of the larynx I purchased one and have made much practical use of the same ever since.

Later with the evolution of the bronchoscope and the esophagoscope by means of which we were able to extend our examinations below the vocal chords and into the most inner recesses of the lungs and the entire esophageal tract, bringing the parts under the direct vision of the observer, the success of the measure was assured. With this success came a multiplicity of tubes and forceps of various designs so that soon it was difficult to decide between the good and the bad, and a rather expensive outfit seemed necessary.

Experience has proven, however, that such is not necessarily the case, and that very good work can be done with a few well-selected instruments. Here, as in all other lines of work, no one method is suitable for all. Each, from actual experience, must develop the technique best suited to his mentality, and it is only by long continued practice that one can acquire a technique suitable for this line of work.

Not many radical changes in either instruments or technique are to be looked for. Jackson finds after years of experience that he is still able to do his most satisfactory work with many of his earlier devised instruments.

No instrument has yet been devised that can overcome a faulty technique.

Delicate manipulation at the end of a long tube with the vision of only one eye available, requires an immense amount of continuous practice to yield the best results.

The suspension method of Killian is the newest addition to this line of work, and it has seemed

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 26, 1917.

to me about the most difficult to develope a suitable technique.

The variations in the shape of the upper jaw, the condition of the patient's teeth, or the absence of teeth, together with the difficulty of keeping the epiglottic out of the field of vision, and the slipping of the tongue to one side, or folding over the spatula, all presented difficulties that seemed well nigh insurmountable in my hands. However, after seeing Dr. Lynch use the apparatus, and seeing how he has overcome many of the original difficulties by the application of his mechanical ingenuity, in almost completely remodeling and simplifying the mechanism of the mouthpiece, I find I am able to get much more satisfactory results than formerly.

The mechanics applied in suspension laryngoscopy furnishes one with an amount of power, which if not properly directed and controlled is capable of causing serious and permanent damage.

The chief advantage in the suspension method is in seeing the entire larynx with all of its parts in their normal position, and with both hands free to do such work as the case may require.

For diagnostic purposes and for operative work about the larynx, in properly selected cases, I feel that suspension laryngoscopy is going to find a permanent and useful place in laryngeal work.

To make a success of this line of work it is almost a necessity that the operator be a born mechanic, since this happy faculty can hardly be acquired from books.

The position of the patient in passing the bronchoscope or the esophagoscope is a question that each operator must decide for himself. Whether the patient is in the prone position, or in the upright, sitting position, is simply a matter of choice with the operator.

The question of whether to use an anaesthetic either local or general is often hard to decide, and must depend entirely upon the judgment of each individual operator. Time is a very important factor in all of this work, and that is why skilled assistance is always an absolute necessity.

One of the very great dangers in this class of work is in prolonging the examination, or an attempt to extract a foreign body too long. It is very difficult to quit, especially when you feel that the next attempt is going to succeed. In this manner the examination is apt to be prolonged beyond the point of safety.

I regard every foreign body either in the bronchi or esophagus as a dangerous case, and I try to make the parents understand this, in the case of children. I also impress upon them that the longer the removal is delayed the more serious the prognosis becomes.

I have had several very unhappy experiences along this line, and the more I see of this work the more I am convinced that every foreign body case is dangerous to the life of the patient.

Case Report.

It is astonishing how long a foreign body may remain in the bronchi or esophagus with very little discomfort to the patient.

In one case under my observation, in consultation with Dr. Samuel Iglauer at the Cincinnati General Hospital, the metal cap off of a beer bottle had been in the esophagus of a five-year-old boy for eight months. The foreign body was only discovered when an X-ray was taken to see why the child had a stiff neck. After the cap was extracted the mother then recalled that the child had choked upon some foreign body eight months before. They consulted a doctor at the time, who assured them that whatever the substance was, it would doubtless pass on into the stomach and cause no further trouble.

The sharp edge of the cap had gradually cut through the mucosa of the esophagus, and the cap was entirely concealed by granulation tissue, and was only located by references to the X-ray plate.

Too frequently the family physician attempts to relieve a patient of a suspected foreign body in the esophagus, by forcing it on into the stomach. I had a case recently illustrating the dangers attending this procedure.

A young man went to his physician with the history of having choked several days before, while eating chicken soup, and as he had been having difficulty in swallowing he feared that a piece of bone might have lodged in his throat. The doctor wrapped a piece of gauze about the end of a stomach tube, anointed it well with vaseline, and passed it into the esophagus in an attempt to push the intruder on into the stomach. As a patient expressed it, the doctor swabbed him out like he was cleaning a gun barrel.

One week later the patient complained of so much difficulty in swallowing that the case was referred to me for an examination with the esophagoscope, the doctor stating that he felt certain there was no foreign body present, as an X-ray had been taken with negative results. Under local anaesthesia the esophagoscope was passed down to the cardia without detecting a foreign body. Upon withdrawing the esophagoscope and watching the mucus membrane, about six inches from the lower end of the esophagus, I detected a slight injury to the mucosa. Upon separating the edges with my forceps I was surprised to see a foreign body present in the wound. Grasping it with forceps and making gentle traction I was able to remove a thin sliver of bone.

The operation was almost identical to the removal of the septum in the sub-mucous operation on the nose. An attempt to force the foreign body into the stomach had only succeeded in forcing the thin, knifelike edge of the bone under the mucous membrane of the esophagus. The failure of the X-ray was explained by the plate not extending that far down over the esophagus. This case simply illustrates the danger of attempting to force a foreign body on into the stomach.

I said a while ago that I regarded all foreign bodies in the bronchi or esophagus as dangerous. A case only last month well illustrates this point. About nine o'clock in the morning a woman called up the office and made an appointment to bring in her little six-year-old girl for an examination of her throat. The mother gave me over the 'phone the following history of the case:

"The child had not been feeling very well for about a week, and complained a great deal of soreness in the throat and for the past three days had refused to swallow food, and could swallow liquids only with difficulty. The family doctor was treating the child for a sore throat," but they wanted me to see the case also. I made an appointment for eleven o'clock that morning. Soon after telephoning, the child's condition became suddenly worse, and in two hours the child was dead. A post mortem showed a marble was impacted in the esophagus.

Evidently the family and doctor had failed to recognize the very serious nature of the case, and it only serves to emphasize the danger of delay in these cases. By careful physical examination and the use of the X-ray many cases of unsuspected foreign bodies might be diagnosed even in the absence of a definite history.

Once the diagnosis of a foreign body has been made, by means of the bronchoscope or the esophagoscope the removal is often not difficult. I feel that the bronchoscope, the esophagoscope and suspension laryngoscopy have made a permanent place for themselves in our specialty.

Discussion.

Dr. Thomas Henry Farrell, of Utica: It is a pity that more of this knowledge could not be given the general practitioner in regard to these cases, because so many of them come to us with cases which are practically moribund that could be helped if the general practitioner was properly informed. I have had several interesting experiences. One of these cases from a neighboring village was brought to me by the doctor who said that he had known of the existence of three similar cases occurring in one year in this small town. One of them was sent to New York, and during the attempt to remove the foreign body the child died. In another case, nothing whatever was done, but in the course of a short time the child coughed up a foreign body and became well. With the history of these last two cases, the parents who brought in the young child did not know whether to allow interference or not. The foreign body in this instance was a melon seed which we were able to remove from the right bronchus without injury to the child.

What practice does Dr. Murphy use in bronchoscopy, the direct or the indirect method in young children? Does he use the direct method in young children for the removal of foreign bodies?

Dr. Murphy: I thank the gentlemen for their interesting discussion of my paper. There was a case of interest of a button in the bronchus and which I attempted to remove; during this time the child vomited a great deal. Although I could not get the button, I saw it. One should be very cautious when vomiting occurs when the tube is in place and especially after a full meal has been taken as was the case in this instance. During the vomiting it was supposed that the button had been ejected with it, especially as the symptoms disappeared afterwards. But having seen the button in the bronchus I felt certain that it had not come up. The X-ray findings were negative. But I was so positive that the button was there that I secured a companion button. Again the X-ray was used and again with negative results. Later I found that it was a composite button which failed to show by means of the X-ray and I had the pleasure of removing the button from the left bronchus.

With regard to the use of an anaesthetic, it should not be used in children unless it is absolutely necessary. It is surprising what can be done in children without the use of an anaesthetic. In adults the use of morphine and a scopalamine allows us to work for some time with little or no discomfort to the patient.

The position of the patient too is an important point; some have the patients in the prone position, but I prefer the upright position.

In reply to Dr. Farrell's question, I used it once for the removal of a bell in the esophagus in a baby one month old. This was by the direct method.

Correspondence.

Dr. Floyd M. Crandall, *Secretary*,
Medical Society of the State of New York.
17 West 43d Street, City.

Dear Doctor:

I am sending to you herewith enclosed an opinion written by the Court of Special Sessions of the City of New York, Borough of Brooklyn. The opinion was delivered by Judge Collins.

Early in the summer a member of the Medical Society of Kings County was arrested charged with violation of Section 248 of the Public Health Law of the State of New York. The provisions of this law you are familiar with; no doubt you are also familiar with the provisions of the Harrison Law, the Federal enactment covering exactly the same situation.

In view of the fact that the law under which this particular doctor was charged was about to be amended, and by reason of the fact that he was arrested but a few days before a new law was to go into effect, which simply amplifies the former one, and because of the extraordinary unreasonableness of its provisions I undertook the defense of this doctor, Dr. Frederick J. Kirk, who, by the way, is a member of the Committee on Legislation of the Kings County Medical Society.

I was and am convinced that the doctor had fulfilled to the exact letter, every provision of the Federal requirements, not only in the purchase but in the dispensing of the drugs which is so carefully safeguarded by both Federal and State laws, and very properly so. There was no question in this case about what the facts were, and there was also no doubt but what the doctor lived up to the Federal law, but the state law had been violated as to its terms. The proofs, therefore, in the case were of necessity very short, with the result that the Court convicted the doctor under the state law, and on August 3d the decision of the Court was rendered and sentence suspended.

On behalf of this defendant I have served a notice of appeal, but I am uncertain as to whether or not to proceed with the appeal.

This state law, in my judgment, should be immediately repealed. It places a burden upon the profession which is out of proportion to the benefits to be derived by the public because the law is directed against that very small percentage of doctors who have prostituted their profession by selling various forms of narcotics to patients and others, and unfortunately places the great mass of the medical profession in the same class with these few creatures who are willing to barter their own moral sense in return for the few dollars they can get from the unfortunately diseased persons, who, for one reason or another, have become addicts of the drug habit.

I am frank to say that the legislation referring to the purchase, registration and dispensation of morphine, cocaine and other drugs as it now stands in this state should be repealed, that a statute similar to the one the United States Government has put in force should be adopted in its place, that the inferential criticism of every member of the medical profession should be done away with, and the honor of the profession relieved of its ban.

I think this matter should be given utmost publicity through the New York State Journal of Medicine.

James Taylor Lewis.

COURT OF SPECIAL SESSIONS, CITY OF NEW YORK.

Borough of Brooklyn.

The People of the State of New York,
against
Frederick J. Kirk.

For sentence at Brooklyn, N. Y.
August 3d, 1917.

Before:
Hons. Cornelius Collins,
Presiding Justice.
Moses Herrmann,
Edward L. Garvin,
Associate Justices.

Appearances.

For the People:
Assistant District Attorney Cooper.

For the Defendant:
James Taylor Lewis, Esq.

Justice Collins:

Mr. Kirk, you have been convicted of failing to keep a record of the amount of morphine which you disposed of, but an explanation has been made by you to the effect that you complied strictly with the Federal statute in the obtaining of the drug and in the disposition of it, and that under the Federal statute an exception was made to such quantities of morphine as were directly administered to a patient, and that following that exception you believed it applied not alone to the Federal government but as well to the state government, and superseded the state statute. There was something in the state statute saying that the Federal law would apply but that related only to the using of blanks in obtaining the possession of a drug by purchase. Under the State law the Commissioner of Health of this state was permitted to allow purchasers of narcotics who were entitled to purchase it for professional purposes to use but one blank. In other words, they allowed the Federal blank to be used as a substitute or so as to include the state blank. That exception related, however, only to blanks, but it was a serious error and is a serious error for any person to assume that the exception contained in the Federal statute insofar as it relates to the administration of drugs superseded the state statute and made it unnecessary for any doctor administering the drug to comply with the state statute. I say it was a serious mistake.

It should be borne in mind by you and by others of your profession that the Federal statute is in theory one for the purpose of raising revenue; it is not an exercise of police power such as the state statute is—intended to comply strictly with the drug evil, and the United States Court has held it is not an exercise of police power on the part of the United States Government. The right to exercise police power under such circumstances is vested solely in the states. Congress evidently did not believe it was necessary in order to protect the purpose of the Federal statute to require a doctor to record every quantity of drug ad-

ministered, and believed it was sufficient protection in such instances to have the record of the doctor as to the purchases of the drug and the amount disposed of by prescription alone.

The contention has been made that you made an honest mistake. That contention is reinforced by a situation which appeals very strongly to this Court, and that is, that the medical society of Brooklyn has urged that that contention in their judgment insofar as you are concerned is absolutely correct. A committee appointed by your society has communicated with the court, and many other members of your profession, men of standing and excellent reputation in Brooklyn, and in fact throughout the city, have given us assurance that you are a highly reputable practicing physician; that you are a man of honor and that you have never before committed any offense, and they in their judgment say this was an honest mistake on your part, you being led into it by the express exception stated in the Federal statutes. Because of your contention and because of the assurances brought home to the court by the various factors I have spoken of, we are going to accept that explanation.

We sincerely trust that the medical profession will see to it that its members are advised of the fact that both statutes are in operation, and that there is now no exception in the law as to the blanks in the purchasing of the drug, and that the blanks must be used practically together, the two forms—the one required by the Federal statute, unless the Federal government makes an exception by regulations, which it could have a right to do, and the other as required by the State of New York. We would like to assure the medical profession, too, that in the wisdom of the legislature requiring adherence to state provisions, they were fully cognizant of what was being done; in other words, they were making forms for the state regardless of the provisions of the United State statute; their reason was, it was the only way in which the state authorities —local and general—could ascertain definitely the amount of drugs purchased by a man operating in the State of New York, either professionally or in connection with their business. The blanks now required to be filed with the Board of Health are duplicate blanks. and it is the only way that a check can be kept of those purchasing the drug.

It is exceedingly unfortunate that a number of very highly reputable men of the medical profession are to some little extent embarrassed by virtue of the inforcement of the law. Yet in a government we have to forego some natural liberty, and this is one of the results of government upon the natural liberty of the physician and is a reasonable exercise of police power.

In the few days you have been in court, you have undoubtedly seen several cases where drug victims were carried out of the court room in the throes and spasms invoked by the horrible habit. These are facts that render it necessary for us to have legislation of this kind in this State. It is to be hoped that hereafter we will not be confronted with a man who is an honored college graduate coming into court to tell us he has made a mistake by reason of the interpretation he has placed upon the law. It is sincerely hoped, too, that the medical profession will wake up to the necessity of seeing to it that there will be no mistake in its application hereafter. I am inclined to think, speaking for the court, we will not be apt to accept an explanation of this kind after our efforts have been made to bring home the facts to the medical profession.

Sentence suspended.

Medical Society of the State of New York

Committee on Prize Essays.

The Committee in charge of the Lucien Howe $100 Prize Fund of the Medical Society of the State of New York, offer the following suggestive, but not arbitrary, subjects upon which the competitors may write their essays:

1. Renal Permeability; Its Relations to the Pathology and Prognosis of Diseases of the Eye.

2. Describe the Ocular Changes, Diagnosis, etc., of General Paresis and Tabes Dorsalis—including Peripheral and Central Lesions and the pathological conditions peculiar to each—with differentiation from lesions found in Cerebro Spinal Syphilis.

3. Give the Effects of Shell Shock upon the Optic Nerve, as occurring in the present great war.

Essays must be in the hands of the Chairman of the Committee, Dr. Albert Vander Veer, 28 Eagle Street, Albany, N. Y., not later than April 15, 1918.

Albert Vander Veer, M.D., *Chairman.*
Edward D. Fisher, M.D.,
Charles G. Stockton, M.D.

District Branch Meetings

THIRD DISTRICT BRANCH.

Annual Meeting, Troy.

October 4, 1917.

After witnessing medical and surgical clinics at the several hospitals in Cohoes and Troy, the members of the Third District Branch of the Medical Society of the State of New York, were shown by Dr. James P. Marsh through the new Samaritan Hospital one of the best, finest and most completely equipped hospitals in the country, then were conducted to the Assembly Room where by the kindness of the Medical Society of the County of Rensselaer and the efficiency of the nurses of the hospital a most excellent luncheon was served.

The Business and Scientific Session was held in the Assembly Room of the Samaritan Hospital, a large number of members being present.

The meeting was called to order by President James P. Marsh at 2.30 P. M. Minutes of the last annual meeting were read and approved. After a discussion on redistricting the state, a motion was made, seconded and carried that it is the sense of the Branch that a geographical rearrangement of the districts of the state should be made.

James H. Mitchell, M.D., of Cohoes presented a strong plea for unselfish patriotism in his paper "The Duties and Responsibilities of the Profession during the Present Crisis."

Emmott Howd, M.D., of Troy, graphically illustrated on his paper, "General Principles of the Surgical Treatment of Inguinal Hernia," the gradual improvement and perfection of technique in the operation. In the discussion of the paper by Drs. Houston, Hacker and others, the importance of a long convalescence for the restored wall to become firm was especially emphasized.

A most timely and interesting paper was given by Edwin MacD. Stanton, M.D., of Schenectady, on "End Results following Operations for Goitre," which was

ably discussed by Drs. Gordinier, Houston, Waldorf, Howd and Marsh.

In his paper, "The Value of Digitalis in the Treatment of Auricular Fibrillation with Report of Cases." Dr. Hermon C. Gordinier, of Troy, stated that the dose must be sufficient to produce a definite physiological result. The paper was illustrated with photographic charts of electro-cardiographic tracings and clearly proved the undoubted value of the drug. The discussion opened by Drs. Kirk and Martin was closed by Dr. Gordinier.

Dr. Floyd M. Crandall, Secretary of the Medical Society of the State of New York, gave an interesting address.

FIFTH DISTRICT BRANCH.

ANNUAL MEETING, OSWEGO.

October 3, 1917.

The meeting was called to order by President James F. McCaw, at 10.30 A.M. There were 110 members present. We were fortunate in also having with us several of the army surgeons stationed at the hospital at Fort Ontario, at Syracuse camp and Madison Barracks.

In addition to the regular program of the morning, we had the privilege of listening to the following:

Dr. Floyd M. Crandall, Secretary of the Medical Society of the State of New York, gave an interesting talk, emphasizing the importance of district meetings and asking that the Branch consider the question of the desirability of changing the counties comprising the Branch.

Major Shaw spoke in favor of a petition for the selective draft of physicians and asked for its hearty adoption.

Colonel Thompson, stationed at Fort Ontario, gave an interesting talk on the contrast of army and civil life in medicine and the importance of training along lines which seem to be foreign to medicine. He heartily supported the talk given by Major Shaw relative to selective conscription of the medical profession.

The following were elected as the officers for the ensuing two years: President, G. Masillon Lewis, Vernon; First Vice-President, William D. Alsever, Syracuse; Second Vice-President, Charles Bernstein, Rome; Secretary, Horace B. Pritchard, Syracuse; Treasurer, Nelson O. Brooks, Oneida.

Motion was made and seconded that the Secretary of the District Branch write the State Society that no change is desired in the counties composing the Branch. Carried.

Motion made and seconded that the society go on record in favor of selective draft of the medical profession. Carried.

The following resolution was adopted:

"Resolved, That it is the opinion of the Fifth District Branch of the Medical Society of the State of New York that universal conscription of the entire medical profession with selective draft of those found to be available and desirable is the only fair, just and patriotic method of supplying the army with the desired medical personnel."

At the opening of the afternoon session, Dr. Biggs, of the State Normal School of Oswego, gave a short talk on the importance of caring for the feebleminded especially in relation to their education.

SEVENTH DISTRICT BRANCH.

ANNUAL MEETING, CANANDAIGUA.

Thursday, September 27, 1917.

The meeting was called to order by the President, William Mortimer Brown.

The minutes of the last meeting were read and approved. Officers were nominated for the ensuing year.

For President, John H. Pratt, M.D., of Manchester, moved, seconded and carried that one ballot be cast. And Dr. Pratt was declared elected for the ensuing two years.

Wesley T. Mulligan, M.D., was nominated for First Vice-President, but the nomination was withdrawn and John P. DeLaney, M.D., of Geneva was nominated.

It was moved, seconded and carried that one ballot be cast by the Secretary, and Dr. DeLaney was declared elected.

Festus M. Chaffee, M.D., of Middlesex, was nominated for Second Vice-President. One ballot was cast by the Secretary and Dr. Chaffee was declared elected.

John F. Myers, M.D., of Sodus was nominated to succeed himself as Secretary. One ballot was cast by the President and Dr. Myers was declared elected.

Alfred W. Armstrong, M.D., of Canandaigua, was nominated to succeed himself as Treasurer. One ballot was cast and Dr. Armstrong was declared elected.

President Brown expressed his thanks and gratitude for the work and support given him by the members of the Society. He then read a paper entitled, "Prophylocis in Eclampsian." Sulphate of Magnesia is used to remove the overload of proteids from the system. Venesection is especially good if Normal Saline is used to replace the Blood.

A second paper was read by Myron B. Palmer, M.D., of Rochester, "The Value of X-Ray of the Chest of Soldiers; Should It be as a Routine Examination?"

He said that 4 per cent of the thousand soldiers examined with the X-Ray showed lesions in the chest. Two per cent showed active tuberculosis in the chest. Will the 2 per cent continue to improve or will they develop active tuberculosis?

Dr. Palmer showed some very interesting stereographs of many conditions of the lung.

Dr. Jewett discussed the paper and said that he wished to thank Dr. Palmer for the very conservative paper which he had read.

"The X-Ray is useful, but is it wise to use it as a routine examination?"

"Interpretation is important and different Roentgenologists differ as to their interpretations."

Dr. Palmer closed the discussion.

They are not going ahead and X-Ray every soldier at present, but what they will do later, we do not know.

The X-Rays will furnish most wonderful data for statistics.

The Roentgenologist is not always able to decide between active and passive tuberculosis. In old cases the lesions are not so dense and look like a snowstorm.

Floyd M. Crandall, M.D., secretary of the State Society, was present and drew attention to the work of the District Branch President.

"The president has two duties: He has to visit the counties; he is to sit as a judge when troubles arise in the county societies. He is a member of the Council in the House of Delegates. He can represent you there in the time of need."

The fourth paper, "The Effects of the War on the Civilian Population," George W. Goler, M.D., Major M. R. C., Rochester. The Japs taught us sanitation.

In his address, which was composed mostly of statistics, he recalled to memory the epidemics and plagues which have followed wars in the past and therefore may be expected in the future unless the science of sanitation prevents them. Discussed by Drs. W. B. Jones and Lewis.

Dr. Jones said: "There is no place in Rochester where venereal diseases in the acute stage can go. Dr. Lewis said, I believe every hospital should have wards set aside for the treatment of Syphilis and Gonorrhœa.

Dr. Holinbeck then invited the doctors present to visit the hospital. Moved and seconded and carried that a vote of thanks be rendered our guests.

Moved, seconded and carried that a vote of thanks be

rendered Dr. Brown for efficient service rendered as president of the branch during the two years past. The meeting was then adjourned for luncheon.

After luncheon Dr. Almy invited the Seventh Branch to hold the next annual meeting at Auburn. The date and place to be settled by the executive committee.

The next paper on the program was, "The Getting of Wisdom," by E. C. K. Mees, D.Sc., Rochester. This paper was not discussed.

At this time Dr. Collier of the Craig Colony, Sonyea, as a special committee, appointed to consider the necessity of redistricting the Seventh District Branch, made the following report:

Dr. W. M. Brown, President,

The committee, appointed by you for the purpose of considering the redistricting of the branches of the State Medical Society, begs to make the following report, relative to the status of the Seventh District Branch.

First: The Seventh District Branch, we feel at this time constituted, is suitably arranged geographically for good attendance at all meetings, save possibly the geographical position of some parts of Cayuga County. The attendance at the meetings of our branch has always been large and but little criticism could be made as to our present arrangement.

It has been suggested, however, that there be some changes made to permit of a more equitable representation in the State Council of the smaller county societies. That is, the districts could be arranged according to the membership so that each councilor would have approximately the same number of members to represent. However, we feel that this is a matter that should be considered by the House of Delegates of the State Society, and also the matter of the transfer of any county from one district branch to another should be first considered by the individual county society.

Moved, seconded and carried that the report be accepted, placed on file and a copy sent to the House of Delegates.

The next paper on the program was "The Estimation of Cardiac Strength and the Importance of Conserving Energy During and Following Operations," by Rawley R. Huggins, M.D., Pittsburgh, Pa.

He said the curve of the systolic pressure after a measured amount of work is of some value. We first take the pressure at rest and then after a limited amount of exercise. We regard the lack of stability a sign of heart weakness.

We believe in a preliminary rest in gall bladder cases, uterine fibroids and in all cases where there is heart weakness. Everything should be done and given to quiet the nervous system, especially morphine anaesthesia. As a rule, ether is practically safe; we have the first half hour with its stimulating effects with the flushed face, followed by a period of more or less exhaustion. We have a lower temperature, respiration more shallow and less noisy, and there is a tired look on the face after an hour or so.

We want to call attention to the danger of Nitrous Oxide. It is not safer than other anaesthetics and there are occasional deaths from its use.

There is another anaesthetic which is bound to serve a useful purpose, namely, spinal anaesthesia. After an operation of one to one and a half to three hours, the patient will have expended less energy than under normal conditions. Shock is often caused by ether. There is no absolutely safe anaesthetic.

"I believe the time will come when we will have to select the particular anaesthetic for each individual case."

"I believe the patient should be made very comfortable the first forty-eight or sixty hours. I always see that they have a good night's rest."

Dr. W. Jones discussed this paper.

We must study the patient—there must be a restful period before operation. I wish we might have a rest retreat where we might study the patient and build him up before operation. That would be a humane thing.

I do not know of a man I would trust to select the anaesthetic for each case.

Dr. Knickerbocker said, "As I listened, it occurred to me that hospitals are equipped to take care of the paupers and the prince. The pauper comes into what seems to him a palace, the prince gets the best suite of rooms, is pampered and toadied too, but there is no place for the great middle class."

Dr. McLellan asked whether there is an established proportion of ration between the weight of the patient and the amount of the anaesthetics to be given.

Dr. Schoonmaker said, "I wish to commend surgeons looking after the condition of the heart. Changing the patient from the back to the side changes the blood pressure from ten to forty points, especially in sclerotic cases.

If you find a drop in the pulse rate and the blood pressure at the same time, there is myocardial weakness."

The discussion was closed by Dr. Huggins.

Dr. Brown asked, "Is it the anaesthetists or the surgeon or the medical attendants' duty to decide what anaesthetic is to be used?" The surgeon is the one who has most responsibility and therefore is the one who should decide what anaesthetic is to be used

In the absence of Dr. Frank S. Simpson, Major Swan made a few remarks and explained some of the needs of the United States Army. My private opinion is that when the surgeon general tells us what he wants, we should produce it for him. This remark applies to the need of surgeons in the army. He also explained the cost of equipment.

EIGHTH DISTRICT BRANCH.

Annual Meeting, Buffalo.

September 13 and 14, 1917.

The meeting was called to order in Alumni Hall, University of Buffalo. The President Albert T. Lytle, M.D., in the chair.

SCIENTIFIC PROGRAM.

Thursday, September 13, 1917, 2 P. M.

1. "Treatment of Uterine Prolapse by Pessary" (illustrated), James E. King, M.D., Buffalo.

Discussion by Earl P. Lothrop, M.D., Thomas H. McKee, M.D., James Stoddard, M.D., Buffalo, and V. M. Griswold, Fredonia.

2. Presentation of Cases.
   1. "Hyperplasia of the Pituitary Body" Arthur G. Bennett, M.D.
   2. "Malignant Growth in Orbit," Lucien Howe, M.D., Buffalo.

3. "Urethral Stricture" (illustrated), Frederic J. Parmenter, M.D., Buffalo.

Discussion by C. W. Bethune, M.D., Buffalo.

4. "Immobility of the Diaphragm" (illustrated), John H. Pryor, M.D., Buffalo.

Discussion by Albert H. Woehnert, M.D., Buffalo, and John W. Corman, M.D., North Tonawanda.

5. Presentation of Cases.
   "Lateral Pharyngeal Abscess."
   "Chronic Interstitial Laryngitis," Chester C. Cott, M.D., Buffalo.
   "Tracheotomy," John V. Woodruff, M.D., Buffalo.
   "Fracture of Odontoid Process," Julius Richter, M.D., Buffalo.

6. "Focal Infection," Thomas H. McKee, M.D., Buffalo.

Discussion by Henry R. Hopkins, M.D., Julius Ullman, M.D., and John H. Pryor, M.D., Buffalo.

7. Presentation of Cases.

"Roentgenograms," John M. Garratt, M.D., Buffalo.

8. "Late Skin Manifestations of Syphilis" (illustrated), Grover W. Wende, M.D., Buffalo.

Discussion by Alfred E. Diehl, M.D., Buffalo.

BUSINESS MEETING.

September 13, 1917, at 8.30 P. M.

1. Meeting called to order by the President.

2. On motion, the minutes of the last meeting were adopted as published in the JOURNAL of the Medical Society of the State of New York.

3. On motion, The Executive Committee was instructed to consider the advisability of rearranging the counties in the Eighth District Branch and to report to the Council of the State Society.

4. President's Address, "Compulsory Health Insurance."

5. Address by Floyd M. Crandall, M.D., New York, Secretary of the Medical Society of the State of New York.

6. "Colectomy in Relation to Intestinal Stasis" (illustrated by moving pictures), Edward R. McGuire, M.D., Buffalo.

7. "Technic in the Carrel Treatment of Infected Wounds" (illustrated by moving pictures), Lieut. Walter L. Machemer, M.D. U. S. M. R. C.

COLLATION.

Friday, September 14, 1917, at 9.30 A. M.

1. "The Electrocardiograph with Demonstration," Clayton W. Greene, M.D., Buffalo.

2. Medical Clinics, Charles G. Stockton, M.D., and Allen A. Jones, M.D., Buffalo.

3. Surgical Clinics, Edgar R. McGuire, M.D., Thew Wright, M.D., and Harry R. Trick, M.D., Buffalo.

STATE INSTITUTE FOR STUDY OF MALIGNANT DISEASES.

4. Laboratory Demonstration, Burton T. Simpson, M.D., and Bernard F. Schreiner, M.D., Buffalo.

MUNICIPAL HOSPITAL.

5. Clinics and Case Presentations by the Staff, arranged by Walter S. Goodale, M.D., Superintendent.

Attendance, 250.

County Societies

DUTCHESS-PUTNAM MEDICAL SOCIETY.

REGULAR MEETING, POUGHKEEPSIE.

October 10, 1917.

The meeting was called to order by the Acting President, Dr. Card, in the Library Rooms, at 4 P. M. The minutes of the previous meeting were read and accepted. The Comitia Minora had no report to make. The following candidates were presented for election:

Dr. Blanche Dennes and Dr. Lawrence E. Cotter, both of Poughkeepsie. Dr. Otis moved the election of the above candidates. Seconded by Dr. LeRoy and carried.

The dinner committee appointed at the July meeting through its chairman, Dr. Card, reported progress. Dr. Wilson moved that the report of the dinner committee be accepted and the committee be continued. Seconded by Dr. LeRoy and carried.

Dr. Ryon extended an invitation to members of the Society to attend the Medical program of the Superintendents' Conference to be held October 16, 1917, at the Hudson River State Hospital.

Dr. Sadlier moved that the President and Secretary be appointed a committee to spend such money as they see fit to properly install a service flag from our windows in honor of the eighteen medical men who have been commissioned in the Federal Service. Seconded by Dr. Peckham and carried.

Dr. Olmstead, of Atlanta, Ga., was granted the privilege of the floor.

Dr. Sadlier called attention to the meeting of the First District Branch to be held later in the season and urged a large attendance.

SCIENTIFIC SESSION.

Official Visit and Talk on Epidemiology of Bacillary Dysentery, Edward H. Marsh, M.D., Sanitary Supervisor.

Bacteriology of Dysentery C. A. Griffin, M.D.

Control of Dysentery, John S. Wilson, M.D., Poughkeepsie.

Discussion by Drs. Card, Furlong, J. H. Dingman, Sadlier and Sobel.

Dr. Otis moved that the Dutchess-Putnam Medical Society place upon its records its appreciation of the efficiency and faithful service of Dr. John S. Wilson as Health Officer for twenty-five years. Seconded by Dr. Sadlier and carried. Dr. Otis then moved that the Dutchess-Putnam Medical Society go on record as favoring the appointment of a full time Health Officer and that copy of this resolution be sent to the Common Council. Seconded by Dr. Peckham. Dr. Wilson amended the above motion by adding that a committee be appointed to appear before the Common Council to advocate the appointment of a full time Health Officer. Seconded by Dr. Furlong. The President appointed the following committee: Dr. J. C. Otis and Dr. J. E. Sadlier.

MEDICAL SOCIETY OF THE COUNTY OF ESSEX.

ANNUAL MEETING, TUESDAY, OCTOBER 9, 1917, AT PORT HENRY.

The meeting was called to order at the Lee House at 2.15 P. M. by the Vice-President, J. P. J. Cummins, M.D. Roll call showed the following members present: Drs. Barton, Canning, Cummins, Eaton, McCasland, Payne, Saville, Sherman and Warner. Dr. W. L. Munson, of Granville, and Dr. T. J. Cummins, of Ticonderoga, as guests.

Minutes of previous meeting read and approved.

The Chairman appointed as nominating committee for officers for 1918, Drs. Saville, McCasland and Warner. This committee reported the following nominations:

For President, J. P. J. Cummins, M.D., Ticonderoga.
For Vice-President, L. G. Barton, M.D., Plattsburgh
For Secretary, C. R. Payne, M.D., Wadhams.
For Treasurer, W. T. Sherman, M.D., Crown Point.
For Censors, L. G. Barton, Jr., R. T. Saville, J. H. Evans.
For Delegate to State Society. H. S. McCasland, M.D., Moriah. For Alternate, E. R. Eaton, M.D., Crown Point.

Motion made and seconded that the Secretary be instructed to cast one ballot electing these men officers for 1918. Carried.

The Committee on Resolutions reported the following resolutions which were unanimously adopted:

WHEREAS, It has pleased an all-wise God to remove from our midst Dr. Fortis M. Noble who departed this life January 19, 1917, from Bloomingdale, N. Y., where for years he had been doing his labor of love and service to his fellow-men and where he leaves many friends to mourn his departure,

Be It Resolved, That we the members of the Essex County Medical Society have lost a member noted for his skill and devotion to his chosen work, that we miss his presence in our meetings in which a rich experience

made his words helpful to all, that we miss his pleasing, happy personality which endeared him to all of us that these resolutions be spread upon our records and a copy sent to the family of our departed brother.

R. T. Saville,
H. S. McCasland,
W. F. Brown,

The Treasurer read a report showing $43.74 in the treasury which report was duly accepted.

A letter from the Surgeon-General regarding the re-education of persons disabled by accidents was read by the Secretary.

The question of changing the 4th District Branch of the State Society was discussed and the Society went on record as opposed to any change in the present make-up of the Branch. The Secretary was instructed to so inform the committee having this in charge.

SCIENTIFIC PROGRAM.

William I. Munson, Sanitary Supervisor of this district addressed the meeting.

Lyman G. Barton M.D., Plattsburgh, demonstrated a new apparatus for obtaining extension and adjustment in healing of fractures.

John P. J. Cummins, M.D., Ticonderoga presented several cases of Cæsarian section with special reference to a low transverse incision which he had used with excellent results.

Charles B. Warner, M.D., Port Henry, discussed a case of multiple pregnancy.

MEDICAL SOCIETY OF THE COUNTY OF WASHINGTON.

Annual Meeting, Hudson Falls, N. Y.
Tuesday, October 2, 1917.

The meeting was called to order at 11 A. M.

Members present, Drs. Munson, Mellick, Park, Paris, Stillman, Cuthbert, Banker, Heenan, Casey, Rogers, Leonard, Blackfan, Orton, Byrnes, Falkenbury, Heath, Pashley, Millington, LaGrange, Budlong.

Visitors: Dr. Edward Clark, of the State Department of Health, Dr. H. J. Brayton, Syracuse, Miss Durkee, State Department Nurse, Miss Babbs, Fort Edward Tuberculosis Nurse.

Minutes read and approved.

Minutes of special meeting read and approved.

Report of Comitia Minora. Meeting held at the office of the secretary, August 21st. Present: Drs. Orton, Paris and Banker. Bill of secretary for $3.02 and printing bill for $5.00 audited and ordered paid.

President Munson was requested to procure a speaker for the Annual Meeting. The following were chosen to act on the program: Drs. Wilde, Cuthbert, Plunkett, Leonard, Stillman, Sumner.

The application of Dr. Blackfan was received.

President appointed Drs. Stillman, Park and Heenan as Nominating Committee, and the following were nominated and elected:

President, Zenas V. D. Orton, Salem; Vice-President, Lewis S. Budlong, Fort Edward; Secretary, Silas J. Banker, Fort Edward; Treasurer, Russel C. Paris, Hudson Falls; Censors, William C. Cuthbert, Clifford W. Sumner, Walter A. Leonard; Delegate to the State Society, William L. Munson.

The President appointed the following Committee on Legislation: William B. Melick, Robert C. Davies, Robert H. Lee. Dr. Harry S. Blackfan was elected to membership.

The Secretary's report was received and approved.

The Treasurer gave a full report; $81.56 in treasury, and all members had paid their dues on or before June 1.

Dr. Melick presented the following resolution, which was unanimously adopted:

Whereas, A number of the members of our County Medical Society have shown their patriotism by giving their services, and time to our beloved country in this hour of her need, Therefore be it

Resolved, That the Society send in our name our annual greetings to them, and furthermore, be it

Resolved, That this Society pay the annual county and State Society dues of such members as a slight recognition of their worth as fellow practitioners.

The names of those now holding commissions are O. J. Park, F. W. McSorley, R. E. Plunkett and M. A. Rogers.

The matter of redistricting these northern counties was discussed, and the general opinion seemed to be that if we lost Saratoga, Schenectady, Fulton and Montgomery counties, we would loose so many good men that the interest of the meetings would be impaired and that it was better as it was.

Dr. Heenan presented the following which was unanimously adopted:

Resolved, That we make our fee for examination in lunacy, ten dollars and mileage, to take effect previous to the last meeting of the Board of Supervisors, and that every medical man in the county be notified.

Meeting of the Comitia Minora, 1.30 P. M Present, Drs. Munson, Stillman and Banker.

Bill of secretary for $3.67 and bill of treasurer for $2.00 were audited and ordered paid. Adjourned.

SCIENTIFIC SESSION.

President's Address, "The Tuberculosis Situation in Washington County," William L. Munson, M.D., Granville.

A very forceful and interesting paper, portrayed the needs of a hospital in the county.

Dr. Walter A. Leonard presented a case of Osteogenesis Imperfecta, a very typical case of a rare disease. The blue sclerotics were very marked and the 33 X-Ray plates of the numerous fractures very interesting.

Dr. William C. Cuthbert gave a very interesting talk on his experiences at the Hospital for Skin Diseases in Boston.

Dr. Edward Clark from the State Department of Health, gave a very interesting talk on the methods of control of tuberculosis and the importance of hospital care.

Discussed by Dr. Harry J. Brayton along the same line.

Dr. Munson and Dr. Melick talked in favor of the hospital.

The President appointed Drs. Melick, Leonard and Stillman a committee to draft a resolution to be sent to the Board of Supervisors, and the following was presented and unanimously adopted:

The Medical Society of the County of Washington at their regular annual meeting, held at Hudson Falls, October 2, 1917.

Unanimously voted to present to the Board of Supervisors of Washington County, their firm conviction that the time has arrived when the Board's attention should be called to the necessity of erecting a County Tuberculosis Hospital. That the individual members of the Washington County Medical Society, representing all sections of the county are most emphatically in favor of the erection of such a hospital built according to the needs of the people in the county afflicted with this deadly disease, and that they urge upon the Board their speedy attention to this matter.

A rising vote of thanks was tendered to Dr. Clark and Dr. Brayton.

Adjourned to meet in Greenwich for the May meeting.

SUFFOLK COUNTY MEDICAL SOCIETY.

ANNUAL MEETING, RIVERHEAD, N. Y.
Thursday, October 25, 1917.

The meeting was called to order at 11 o'clock.

Present, twenty-six members and two guests.

The following officers were elected for the ensuing year: President, Winfield S. Bennett, Patchogue; vice-president, David Edwards, Easthampton; secretary, Frank Overton, Patchogue; treasurer, Albert E. Dietrich, Bay Shore; censors, William A. Hulse, Albert C. Rice, and John W. Stokes; delegates to state society, Frank Overton, William H. Ross.

Dr. Dietrich for the Committee on Division of Fees, reported a new fee list which was adopted.

Dr. Overton for the Committee on Medical Preparedness reported that fourteen physicians from Suffolk county are now in active service in the army and navy.

Dr. W. H. Ross for the Committee on Hospital Facilities at the County Alms House, reported that plans were being formulated with the county authorities for establishing such a hospital.

Drs. Hulse and O'Leary were appointed a committee to co-operate with the Committee of the State Medical Society in securing legislation to improve the medical aspects of the law.

Dr. Loper, treasurer, reported a balance on hand of $639.77.

Drs. Overton and Dietrich for the society and Major Schoenleber of Camp Upton, were appointed a committee on Mosquito Extermination.

Dr. Floyd M. Crandall, secretary of the Medical Society of the State of New York, and Dr. Arthur H. Terry, president of the Second District Branch, were present and spoke of the work of the higher organization.

SCIENTIFIC PROGRAM.

Report of cases in the Eastern Long Island Hospital, Clarence C. Miles, M.D., Greenport; Arthur C. Loper, M.D., Greenport.

"Heart Compensation," Major Harlow Brooks, M.D., Camp Upton. Clinical cases will be provided by Doctors Payne and Terrell of Riverhead.

"Camp Sanitation," Major A. W. Schoenleber, Camp Upton.

"Defects Found in Drafted Men," Frank Overton, M.D., Patchogue; Albert C. Rice, M.D., Babylon; Albert E. Payne, M.D., Riverhead.

MEDICAL SOCIETY OF THE COUNTY OF SARATOGA.

The Annual Meeting, Saratoga Springs, N. Y., October 24, 1917.

The meeting was called to order in the Business Men's Association Rooms at 3 P. M.

The first order of business was the election of officers for the coming year. President, William Van Doren, M.D., Mechanicville; Vice-President, Frank J. Sherman, M.D., Ballston Spa; Secretary, James T. Sweetman, Jr., M.D., Ballston Spa; Treasurer, Frederic J. Resseguie, M.D., Saratoga Springs; Censors—W. B. Webster, M.D., Schuylerville; A. S. Downs, M.D., Saratoga Springs, and A. W. Johnson, M.D., Mechanicville.

Dr. J. T. Houghton was declared to have been elected to membership illegally and his name was ordered dropped from the roll.

SCIENTIFIC SESSION.

President's Address, "The County Medical Society in War Times," Horace J. Howk, M.D., Mt. McGregor.

"Symptoms and Treatment of War Shock," Thaddeus Hoyt Ames, M.D., New York City.

RICHMOND COUNTY MEDICAL SOCIETY.

REGULAR MEETING, ST. GEORGE, S. I.
October 10, 1917.

The meeting was called to order in the Staten Island Academy at 8.45 P. M., by the President, Dr. Max Krueger.

The minutes of the regular meeting, June 13th and special meetings August 20th and September 4th, were read and accepted.

The application of Dr. MacDonald Peggs for transfer from the New York County Society was considered and referred to the Board of Censors. President Krueger spoke briefly of the Visiting Nurses Association of Staten Island and their plea for aid; after discussion it was regularly moved and carried that the Association be advised that the Society indorse the work of the Visiting Nurses but refused to render financial assistance.

Dr. Pearson asked for further information in regard to the sharing of fees collected from patients of those practitioners called into federal service. General discussion followed.

The Secretary read a letter from the State Committee regarding the re-districting of the State. It was voted to postpone consideration of the matter to a later date.

Dr. Walrath said that District Attorney, Albert C. Fach requested physicians to promptly report accidents to the District Attorney's Office and urged the taking of complete notes in accident cases. The District Attorney would see that Physicians secured proper remuneration for services rendered.

Dr. Rimer spoke regarding the rank of medical officers in the U. S. Army. The members voted that resolutions be drawn urging legislative action to secure for medical officers a rank equivalent to the duties that they assume. The following were submitted:

"At a regular meeting of the Richmond County Medical Society, held at the Staten Island Academy, October 10, 1917, the following resolutions were unanimously adopted:

"WHEREAS: A great responsibility has been placed upon the Medical Officers of the U. S. Army in protecting and caring for the troops, and

"WHEREAS, We believe that the present rank of Medical Officers does not give authority corresponding to the responsibility assumed, therefore be it

"Resolved, That we strongly urge our Representatives in Congress to give their support to a measure such as the Owen bill (S. 2529) and the Owen amendment (S. 1786) designed to confer adequate rank on medical officers, and be it further

"Resolved, That copies of these resolutions be sent to our Senators, Hon. James W. Wadsworth, Jr., and Hon. William M. Calder, and to our Congressman, Hon. Daniel J. Riordan.

Dr. Edward D. Wisely read the paper of the evening," Health Problems in the Borough of Richmond." General discussion followed. The Society tendered a vote of thanks to Dr. Wisely for his instructive talk.

The meeting then adjourned to the Staten Island Club where a collation was served.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

Modern Dietetics, Feeding the Sick in Hospital and Home with Some Studies on Feeding Well People, by Lulu Graves, Dietitian Lakeside Hospital, Cleveland. The Modern Hospital Publishing Co., 1917.

The Roentgen Diagnosis of Disease of the Alimentary Canal. By Russell D. Carman, M.D., Head Section on Roentgenology, Division of Medicine, Mayo Clinic, and Albert Miller, M.D., First Assistant in Roentgenology at the Mayo Clinic. Octavo of 558 pages with 504 original illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, $6.00 net. Half Morocco, $7.50 net.

Practical Treatment, Volume IV. By 76 eminent specialists. Edited by John H. Musser, Jr., M.D., Associate in Medicine, University Pennsylvania; and Thomas C. Kelly, M.D., Instructor University of Pennsylvania. Desk Index to complete set of four volumes sent with this volume. Octavo, 1,000 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, $7.00 net. Half Morocco, $8.50 net.

The Medical Clinics of North America, Vol. I, No. 2. September, 1917.

International Clinics, A Quarterly, Vols. I and III, 27th Series, 1917. Price, $2.00.

Obstetrics, Normal and Operative, by George Peaslee Shears, B.S., M.D., and E. E. Shears. 419 illustrations, 2nd edition revised. J. B. Lippincott Co. Price, $6.00.

A Manual of Physical Diagnosis. By Austin Flint, M.D., LL.D., Late Professor Principles and Practice of Medicine and Clinical Medicine in Bellevue Hospital Medical College, etc. Seventh edition, revised by Henry C. Thacher, M.S., M.D. Illustrated. Philadelphia and New York, Lea and Febiger, 1917. $2.50.

A Manual of Therapeutic Exercises and Massage Designed for the Use of Physicians, Students and Masseurs. By C. Hermann Bucholz, M.D., Orthopedic Surgeon Out Patients, Director Medico-Mechanical and Hydrotherapeutic Departments Massachusetts General Hospital; Assistant Orthopedic Surgery, Harvard Medical School. Illustrated. Philadelphia and New York, Lea and Febiger, 1917. $3.25.

Organism and Environment as Illustrated by the Physiology of Breathing. By John Scott Haldane, M.D., LL.D. F.R.S., Fellow of New College, Oxford. New Haven, Yale University Press, London, Humphrey Milford, Oxford University Press, 1917. $1.25.

Cataract, Senile, Traumatic and Congenital. By W. A. Fisher, M.D., Professor of Ophthalmology, Chicago Eye, Ear, Nose and Throat College. Chicago, Published by Chicago Eye, Ear, Nose and Throat College, 1917.

Diseases of Infancy and Childhood, Their Dietetic, Hygienic, and Medical Treatment. By Louis Fischer, M.D., Attending Physician Willard Parker and Riverside Hospitals New York, Chief Attending Pediatrist Zion Hospital, Brooklyn; Attending Pediatrist Sydenham Hospital; Former Instructor in Diseases of Children at the New York Post Graduate Medical School and Hospital, etc. Seventh Edition, with 305 illustrations and 43 plates. Philadelphia, F. A. Davis Company, 1917. $6.50.

State Work Against Infantile Paralysis. Steps Taken by Forty-three Departments of Health in 1916. Institute for Public Service, New York City, 1917.

Localisation et Extraction des Projectiles. Par L. Ombrédanne, Chirurgien des Hôpitaux, Professeur agrégé à la Faculté de Paris et R. Ledoux-Lebard, Chef de Laboratoire de Radiologie des Hôpitaux de Paris. Paris, Masson et Cie, 1917. 4 Francs.

Handbook of Practical Treatment by Many Writers. Edited by John H. Musser, Jr., B.S., M.D., Associate in Medicine University of Pennsylvania, and Thomas C. Kelly, A.M., M.D., Instructor in Medicine University of Pennsylvania. Volume 4 and Desk Index. Philadelphia and London, W. M. Saunders Company, 1917. $7.00.

Modern Dietetics. Feeding the Sick in Hospital and Home with Some Studies on Feeding Well People. By Lulu Graves, Dietetian Lakeside Hospital, Cleveland. St. Louis, The Modern Hospital Publishing Company, 1917

Nutrition and Clinical Dietetics. By Herbert S. Carter, Paul E. Howe and Howard H. Mason. Philadelphia and New York, Lea and Febiger, 1917. $5.50.

Fracture of the Lower Extremity or Base of the Radius. By Lewis Stephen Pilcher. Philadelphia and London, J. B. Lippincott Co., 1917.

Transactions of the American Gastro-Enterological Association, Nineteenth Session, 1916. St. Louis, Printed by the Association, 1916.

Fortieth Annual Report of the Department of Health of the State of New Jersey, 1916. Trenton, N. J., State Gazette Publishing Company, 1917.

The Surgical Clinics of Chicago. Volume 1, Number 4, August, 1917. With 71 illustrations. Philadelphia and London, W. B. Saunders Company, 1917. Published Bi-Monthly. Price per year: Paper, $10.00; Cloth, $14.00.

The Conversion of Hamilton Wheeler. A Novelette of Religion and Love Introducing Studies in Religious Psychology and Pathology. By Prescott Locke. Bloomington, Ill., The Pandect Publishing Co. 1917.

Sanitation for Medical Officers. By Edward B. Vedder, M.D., Lieut.-Colonel, Medical Corps, U.S.A. Illustrated. Philadelphia and New York, Lea and Febiger, 1917. $1.50. (Medical War Manual No. 1, Authorized by the Secretary of War and Under the Supervision of the Surgeon-General and the Council of National Defense).

A Treatise on Orthopedic Surgery. By Royal Whitman, M.D., M.R.C.S., Eng., F.A.C.S., Assistant Professor Orthopedic Surgery College Physicians and Surgeons, New York; Professor Orthopedic Surgery New York Polyclinic, etc. Fifth Edition, Revised and Enlarged. 704 Engravings. Philadelphia and New York, Lea and Febiger, 1917. $6.50.

Genito-Urinary Surgery and Venereal Diseases. By Edward Martin, A.M., M.D., F.A.C.S., John Rhea Barton, Professor Surgery, Univ. Pennsylvania, Benjamin A. Thomas, A.M., M.D., F.A.C.S., Professor Genito-Urinary Surgery Polytechnic Hosp., Stirling W. Moorhead, M.D., F.A.C.S., Asst. Surgeon Howard Hospital, Phila., Pa. Illustrated with 422 engravings and 21 colored plates. Tenth Edition. Price, $7.00. J. B. Lippincott Co., Phila. and London.

The Child in Health and Illness. By Carl G. Leo-Wolf, M.D. Illustrated. George H. Doran Co., New York. $2.00 net.

Book Reviews

THE BREAST: ITS ANOMALIES, ITS DISEASES AND THEIR TREATMENT, by JOHN B. DEAVER, M.D., LL.D., Sc.D., Prof. Practice of Surgery, Univ. Pennsylvania, Surgeon-in-Chief, German Hosp., and JOSEPH McFARLAND, M.D., Sc.D., Prof. Pathology and Bacteriology Medical Department University Pennsylvania; Pathologist Philadelphia General Hosp.; J. LEON HERMAN, B.S., M.D., Assistant Surgeon Methodist Hosp., Philadelphia. Eight colored plates, 277 illustrations in text. Price, $9.00 net. P. Blakiston's Son & Co., 1912 Walnut St., Philadelphia, Pa.

A new book on the surgical diseases of the breast is opportune. Deavers' books are always welcome and are sure to enlighten. His latest literary triumph, written in collaboration with McFarland must be added to those brilliant contributions on the same subject by Velpeau, Cooper, John and W. L. Rodman, Bricket, Billroth, Bryant, Williams, Binaud, Braquehaye, Shield and Handley. It is the logical successor of these earlier monographic studies on the breast.

The basis of this work is large personal experience. The surgical statistics are derived from about 1,000 records from the German Hospital, the pathological studies of McFarland reflected his views of 575 cases.

The volume contains something over 700 pages divided into twelve chapters. The first four deal with the normal breast, its evolution and involution, surgical anatomy, congenital and aquired anomalies. A very thorough presentation is given of congenital anomalies in which may be found a great deal of curious information.

The three following chapters are devoted to injuries, infectious diseases, cysts and cystic diseases. The important subject of tuberculosis of the breast receives full consideration. The authors tabulate 48 records of primary cases, and 29 secondary cases reported since 1904.

Cystic disease of the breast is accorded the attention which is due it. Depending upon the histologic features which have appeared most conspicuous this condition has received a number of names. Thus Koenig has given it the name of Chronic Cystic Mastitis; Quenu, Epithelial Cirrhosis; Warren, Abnormal Involution; Bloodgood, Senile Parenchymatous Hypertrophy; Schimmelbusch, Cyst-adenoma; Virchow and others have designated it in other ways all indicative of the varied pathologic changes. No one name is all inclusive. Many sections from the same breast will often show many changes. The most comprehensive are those of Warren, "Abnormal Involution," and Reclus, "Cystic Disease of the Breast." We are here most concerned with the behaviour of the glandular epithelium and its relationship to carcinoma. We know that abnormal involution and cancer commonly co-exist in the same breast, that carcinoma may follow or accompany this condition in about one case in every ten, also that it may take a long search through many slides made from various sections before this is demonstrated. Deaver advocates the investigation of these breasts by the Warren plastic resection and deprecates amputation without suitable examination. The too ready acceptance of the doctrine that abnormal involution is the precancerous stage of carcinoma the authors believe unwise. For may not cancer be the cause of abnormal involution? Actual transmutation fails of demonstration. Abnormal involution is found in mammary tuberculosis, actinomycosis and epithelioma. May not these conditions act as stimuli? The reverse, *i. e.*, transformation of abnormal involution into these lesions mentioned is not possible. Again, extensive pathologic involution changes may be seen without the development of carcinoma. Then again we find involution changes of but moderate degree in certain cases of cancer. We can not yet be certain of the relations of the one morbid process to the other. The question is involved and complex and is not settled here.

Chapters follow on the general pathology of tumors, non-indigenous tumors, carcinoma and its non-operative treatment. The last chapter deals with diseases of the nipple and areola.

It is noted that the authors make no mention of Jennings' incision in the treatment of mammary cancer. This provides for the excision of that portion of the skin and subcutaneous tissues between the avilla and the breast. The great trunk lymphatics run in this direction, some breasts have an extension of gland tissue in this direction. Skin recurrences have been found to be common in this situation. It seems rational to excise this region. (See Jennings, Cancer of the Breast, *N. Y. Medical Journal*, May 20, 1916.)

At the end of each chapter is to be found a very extensive bibliography. This is a most useful book. Reflecting as it does the modern conceptions of the various phases of breast pathology and surgery it stands as the newly acknowledged standard in its field.

ROYALE H. FOWLER.

THE HEALTHY GIRL, by MRS. JOSEPH CUNNING, M.B. (Lon.), Hon. Med. Director to the Open Air School in the London Botanical Gardens and A. CAMPBELL, B.A. Lecturer in Biology and Hygiene Technical Institution, Swindon. London, Henry Frowde, Hodder & Stoughton, Oxford Univ. Press, Warwick Sq., E.C., and 35 West 32nd Street, New York City. Price, $1.75.

This volume of 191 pages and 23 illustrations gives a neat outline of instruction in the subjects of health, hygiene, physiology, exercise, and growth, suitable to the needs of a school girl, and also serves as a guide for her mother or teacher in working together with her for the purpose of building up a strong and vigorous mind and body preparatory for her emergence from home and school into the world where she is to be an independent factor.

The tenth chapter delicately treats the subject of menstruation, the organs of reproduction and the mystery of the development of new life. While it is always a question just how much ought to be said in a work of this kind on the subject of the sex question, Mrs. Cunning has with true English modesty probably erred on the side of ultra conservatism, and might have with propriety said much more, even to the giving of a warning against some of the perils a girl of the school graduate age is apt to meet with in her association with the opposite sex.

Many of the expressions in the book are decidedly English, but it is well written and may be studied with profit by the American girl.

FREDERIC J. SHOOP, M.D.

A MANUAL OF PHYSICAL DIAGNOSIS. By AUSTIN FLINT, M.D., LL.D. Seventh edition, revised by HENRY C. THACHER, M.S., M.D. Illustrated. Phila. & N. Y., Lea & Febiger, 1917. 381 pp., 12 mo. Cloth, $2.50.

In these days of ever increasing new methods of examination especially those laboratory tests which are done by a technician who never sees the patient, and at a time when the complaint is so often made, not without justification, that the present day practitioner of medicine depends almost entirely upon such tests and has lost his ability to diagnose even the ordinary diseased conditions of the various organs by his own skill in the good old fashioned physical diagnosis, this little work comes as refreshing change.

It begins with a physical explanation of the phenomena elicited in auscultation and percussion, following with a discussion of the anatomical physiological and pathological principles involved.

This is unquestionably the proper way to teach physical diagnosis and the absence of the description of labor-

atory tests, electrical apparatus and other modern diagnostic accessories serves to avoid the distraction of the student's attention away from the plain simple fundamental principles which should and do form the foundation of all true medical skill.

While really intended for the medical student it may be read with interest and benefit by any practicing physician. W. H. Donnelly, M.D.

An Inquiry Into the Principles of Treatment of Broken Limbs. A Philosophico-Surgical Essay with surgical notes by William F. Fluhrer, M.D., Consulting Surgeon Bellevue and Mt. Sinai Hospitals. The Rebman Company, New York, Price, $3.00.

This work shows what can be accomplished in competent hands by means of the plaster of Paris bandage in the treatment of fracture of the long bones. The author makes use of roughened tin strips as a reinforcement to his bandage thus enabling him to dispense with the extension traction force as soon as the splint is applied, as it gives sufficient stability during the process of hardening, as well as lending rigidity to the cast afterward. The illustrations clearly show the methods of applying the cast and the apparatus devised by the author, both as an aid in putting on the cast and for slinging the injured limb so as to make the patient more comfortable during the after care.

In his hands the method has worked well, giving results favorably comparable with those obtained by the various operative methods now in vogue. The author admits that any rigid support of the broken bones must act through a more or less thickness of soft compressible tissues, and that nicety of judgment must be exercised with reference to the degree of pressure which may be applied at this or that given point to bring the fragments into proper alignment, which amount of pressure continued through the period of healing will not result in injury to the tissues by being too strongly applied, nor to allow the displacement of the bones by being too lightly applied. The reviewer, after studying a number of radiographs he has made of oblique fractures, both before and after being set in plaster or other splints, feels impelled to say that surgeons as a rule have not shown results equally as good as those obtained by Dr. Fluhrer. Whether these same men can in the future obtain better results by following the methods herein described, or by wiring, or using Lane splints, or some kind of bone graft or peg, is a matter which they alone can determine.

Frederic J. Shoop, M.D.

The Diagnosis and Treatment of Abnormalities of Myocardial Function with special reference to the use of Graphic Methods, by T. Stuart Hart, A.M., M.D., Asst. Prof. Clinical Medicine College of Physicians and Surgeons, Visiting Physician Presbyterian Hospital. Illustrated with 248 engravings, 240 of which are original. The Rebman Company, New York, 1917.

This work is devoted mainly to the study of myocardial function by means of polygrams and electrocardiograms with many excellent reproductions of which it is replete.

There can be no question but that the polygraph and the electrocardiograph have added very greatly to our scientific understanding of both the normal and pathological workings of the heart, but the general practitioner will find in this book the same old relegation of treatment to a minor position of importance, only sixty odd pages out of over three hundred, being devoted thereto.

The aim of the author to acquaint the student and the busy family physician with the advances in modern methods of cardiac examination and diagnosis is, however, undoubtedly accomplished.

W. H. Donnelly, M.D.

The Ophthalmic Year Book, Volume XII, containing a Digest of the Literature of Ophthalmology for the year 1915. Edited by Edward Jackson, M.D., Sc.D., assisted by Theodore B. Schneideman, M.D.; William Zentmayer, M.D.; William H. Crisp, M.D.; Casey A. Wood, M.D., etc. Illustrated. Published with the assistance of the Knapp Testimonial Fund of the Section on Ophthalmology of the American Medical Association. Herrick Book and Stationery Company, Denver, Colorado, 1916. 479 pp., 8vo. Cloth.

The Ophthalmic Year Book, Vol. XII, of about 475 pages, gives a concise résumé of the literature of ophthalmology for the year 1915. Dr. Jackson and his collaborators succeed in making each Year Book better than the preceding. The limited space accorded to the reviewer precludes even a brief mention of all the subjects which might interest the ophthalmologist. However, a few practical points may be selected at random. Falta suggests a simple method of determining monocular blindness. He holds an object before the eyes. The seeing eye continues to fix the object. But a blind or highly amblyopic eye deviates outward.

G. E. de Schweinitz concludes that many cases of iritis which formerly were classified as rheumatic are really the result of a gonorrhœal infection which had remained latent for many years.

Gifford describes a new method of destroying the lacrimal sac. After opening the sac and separating the lips of the incision, two or three drops of concentrated trichloracetic acid are dropped into the opening. After drying, a second application of the acid is made. And then a light dressing is applied. About forty cases were treated with very gratifying results.

Elliott, Posey and others report cases of serious eye injuries caused by cutting into the cores of golf balls filled with dangerous chemicals

A. E. Smith deprecates the use of cold compresses in the treatment of gonorrhœal conjunctivitis. Immediate canthotomy is advocated, instead of cold compresses, when there is dangerous pressure upon the eyeball from the swollen lids.

In conclusion, it may be said that the Ophthalmic Year Book fills an important place in the library of the oculist who wishes to be familiar with the progress of ophthalmology. James W. Ingalls, M.D.

Applied Immunology. The Practical Application of Sera and Bacterins Prophylactically, Diagnostically and Therapeutically. With an Appendix on Serum Treatment of Hemorrhage, Organotherapy and Chemotherapy. By B. A. Thomas, A.M., M.D., and R. H. Ivy, M.D., D.D.S. Illustrated. Second edition, revised. Phila. & Lond., J. B. Lippincott Co., 1916. 364 pp., 8vo. Cloth, $4.00.

This volume is a storehouse of information for the physician who desires the facts of immunity in simple, understandable form. All reference to experimental research has been omitted. The chapters on anaphylaxis, antisera, bacterins, complement fixation, tuberculin therapy, serum treatment of hemorrhage, organotherapy, and chemotherapy, present these subjects in as clear and readable form as we have yet encountered.

The physician will find in this work not only a comprehensive and comprehensible résumé of immunity, but a mass of practical details concerning the use of biological therapeutic agents covering indications, contraindications, mode of administration, dosage, and frequency. E. B. S.

Microbiology: A Text Book of Microorganisms, General and Applied. Edited by Charles E. Marshall, Prof. Microbiology and Director graduate school Mass. Agricultural College. 2nd edition, revised and enlarged; 186 illustraitons. P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia, Pa. Price, $3.00 net.

This book is particularly noticeable for its more extensive discussion about protozoa and fungi than is

allotted in most text-books of bacteriology. The discussion on immunity, if not very exhaustive, is, however, precise, clear, and up-to-date. It is particularly gratifying to find chapters on such practical subjects as the preservation of fruits and other foodstuffs. These chapters are very thorough and complete. This subject is certainly apropros, especially now when the cost of food is so high. William Lintz, M.D.

Practical Prescribing and Treatment in the Diseases of Infants and Children. By D. M. MacDonald, M.D., F.R.C.P.E. London. Henry Frowde, Hodder & Stoughton, 1915. Oxford University Press. 35 W. 32nd St., New York City.

This little volume does not claim or attempt to be exhaustive in any sense, but merely to be a help to the inexperienced in prescribing drugs in the diseases of infancy and childhood.

The book contains some very good suggestions and points on the palatability and incompatability of medicines.

There is a small dietary of six pages, but much has been left out, presumably for lack of space.

About one-third of the body of the book is devoted to a therapeutic index. A quotation or two therefrom may serve to give the reader an idea of the value of some of the recommendations:

"For anorexia in an infant, if teething, give one-half grain of antipyrin daily for some months." . . . "Then increase the dose to one grain for another period."

"For acites, if idiopathic (*sic*) give iron."

Barley water is recommended for constipation. For convulsions a hot bath of two or three minutes' duration is suggested. So we get an impression of inexactness.

About one-third of the work is given over to a monograph by Halliday Sutherland on Tuberculin and the Tubercular child. This is well written, evidently by a man of large experience clinically; what he writes being founded largely on that experience and is well worth perusal. William A. Northridge.

The Stretcher Bearer. A companion to the R. A. M. C. Training Book, illustrating the Stretcher Bearer Drill and Handling and Carrying the Wounded. By Georges M. Dupuy, M.D., Stretcher-Bearer Ambulance Section C (Norwood) Co., Lambeth Battalion V. T. C. London, Henry Frowde, Hodder & Stoughton. Oxford University Press, 35 W. 32nd St., N. Y., 1915.

This little book is almost a moving picture of stretcher bearers in drill and at work. It is a companion to a more extensive work on the subject by the same author, and is designed to convey to the mind through the eye the various steps in their drill and in first aid to the injured. The photogravures are beautifully executed and their meaning can not be misunderstood.

While it was published for the English army, and here and there an order may differ slightly from those in the American military tactics, the work might well be adopted by our own army as a guide for that branch of the medical service. The author is to be congratulated on the production of a work of such excellent character. Frederic J. Shoop, M.D.

Universal Military Education and Service, the Swiss System for United States, by Lucien Howe, Fellow of the Royal Society of Medicine, Member of the Royal College of Surgeons, Professor Emeritus of Ophthalmology. G. P. Putnam's Sons, New York and London. Knickerbocker Press, 1916.

This is a small book but there is a great deal of meat in it, and the author shows a knowledge of his subject. He points out why preparation is necessary, that while it may be costly, unpreparedness would be much more costly.

He describes the efficient Swiss and Australian systems. The advantages of military education from a physical standpoint would be hard to disprove. He points out that there is no provision in the constitution of the United States for education, and suggests that "the establishment of universal military education could be the basis of an efficient means of improving school hygiene and the health of the nation."

The Surgical Clinics of Chicago, Vol. I, No. 2 (April, 1917). Octavo of 226 pages, 99 illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Published Bi-Monthly. Prices per year: Paper, $10; Cloth, $14.

The second number has been delayed in its circulation on account of lack of paper. Thus the results of the war are beginning to be felt. The June number, long since due, has thus far failed to appear. We hope this valuable medium of surgical activity will not be discontinued.

The April issue contains 99 illustrations. In addition to contributions by Andrews, Beck, Eisendrath, Ochsner and Phemister, names which appeared in the February number, we note the following collaborators: F. G. Dyas, L. A. Greensfelder, A. E. Halstead, M. L. Harris, Hugh McKenna, N. M. Percy, John Ridlon and Davis C. Straus. Harris contributes an article on "Laryngectomy Under Local Anesthesia," Ridlon "Congential Dislocation of the Hip." Other papers are of a general nature. McKenna'c clinic at St. Joseph's is devoted to bone surgery, Halstead's at St. Luke's to three cases illustrating points in the surgical pathology of embryonic branchial clefts. Beck's plastic work as done at the North Chicago Hospital is interesting. Bevan, in "Surgical Lesions of the Colon," discusses ileo-cecal tuberculosis, carcinoma of the colon, diverticulitis and polypus.

A unique case of a bullet, located upon the dura at the base of the skull, is reported by Karnavel. He resorted to an unique method of removal. The soft palate was held up by rubber tubes, introduced through the nostrils, the two ends being brought out through the mouth. With the head thrown back, the mouth held open, an incision was made to the right of the mid line, behind and parallel to the right posterior pillar of the fauces on a line with the atlas. The bullet was found at a depth of three and one-half cm. On the third day swelling of the nose and face occurred which immediately subsided. The patient was discharged in ten day and could then flex and extend the head which actions were previously impossible.

Dyas writes upon a subject, "The Open Treatment of Infected Wounds," which deserves wider recognition and adoption than is accorded it. Dyas presented his first article upon this topic before it was published in Europe. One of the early advocates of this method was Sneve, of Minnesota, who tried it in a series of 85 cases (*Jour. Am. Med. Assn.*, 1905, XLV, p. 1). An advantage of this method is that a given area is more rapidly epithelialized than is accomplished under occlusive dressings. In the case of burns painful dressings are abolished, retention of toxic products and fever from absorption are minimized.

Royale H. Fowler, M.D.

Deaths

Herbert M. Burritt, M.D., Hilton, died October 11, 1917.

Edson Card, M.D., White Plains, died September 9, 1917.

Stephen A. Churchill, M.D., Stamford, died October 20, 1917.

Morey C. Collier, M.D., Painted Post, died September 16, 1917.

Floyd S. Farnsworth, M.D., Plattsburg, died October 12, 1917.

James A. Gibson, M.D., Buffalo, died October 4, 1917.

Melvin Sheldon, M.D., Brooklyn, died October 8, 1917.

Richard Halsted Ward, M.D., Troy, died October 29, 1917.

Robert Watts, M.D., New York City, died October 15, 1917.

NEW YORK STATE JOURNAL OF MEDICINE

A Journal Devoted to the Interests of the Medical Society of the State of New York

JOHN COWELL MAC EVITT, M.D., Editor
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EDITORIAL DEPARTMENT

LEGAL POWERS CONFERRED UPON MEDICAL SOCIETIES.

ARTICLES relative to medical laws in New York State appeared in the issues of this JOURNAL for September and October. It is the design of this article to set forth certain powers conferred by statute upon the State and county medical societies.

Some of the matters are of great importance in the conduct of these societies. It is hoped that these three articles will record these facts in permanent form, where they may be referred to by officials and members as occasion may arise in the transaction of business.

The medical laws of New York may be divided into four general classes:

1. Laws regarding educational requirements for admission to practice.

2. Laws referring to licensure, including methods of examination and reciprocity with other states.

3. Laws placing restrictions upon methods of practice by licensed physicians.

4. Laws relating to the incorporating of medical societies and the definition of their powers.

The present article deals with the last class of laws, and it is hoped will make clear certain powers and restrictions placed upon the State and county societies.

The original law of 1806 was so radical in its terms that it was held by the courts that all licensed physicians of the State were members. In other words, it formed the whole medical profession into one corporation. The question soon arose as to powers of discipline and the right to enact by-laws other than those specified in the statute. On April 10, 1813, therefore, a law was enacted for the purpose of granting important powers to the societies. Chapter 14 of this law reads as follows:

"And be it further enacted, That it shall be lawful for the respective societies to make such by-laws and regulations relative to the affairs, concerns, and property of said societies, relative to the admission and expulsion of members, relative to such donations or contributions, as they or a majority of the members at their an-

nual meeting shall think fit and proper; provided that such by-laws, rules, and regulations, made by the Society of the State of New York, be not contrary to, nor inconsistent with, the constitution and laws of this State, or of the United States; and that the by-laws, rules, and regulations of the respective county societies shall not be repugnant to the by-laws, rules and regulations of the Medical Society of the State of New York, nor contrary to, nor inconsistent with, the constitution and laws of this State, or of the United States."

Doubt still existed as to the authority of the societies over their members and their power to impose discipline. Members under charges raised the question of the authority of the societies as to suspension or expulsion. On April 7, 1866, therefore, a farther law was enacted specifically granting the power "to establish such rules and regulations for the government of its members as they may deem fit, provided the action of such societies receive the sanction of the State Medical Society." At this time the State Homeopathic Medical Society had been organized, and this statute granted equal powers to both State societies.

The provisions of this law were so specific that the power of the societies to discipline their members can never again be questioned. This power is conferred as follows:

"Section 2. Each county medical society shall have full power and authority to enforce discipline among its members and obedience to its rules and regulations, with power to expel or otherwise discipline, as they may deem most advisable for the best interests of said society.

"Section 3. Any member of any county medical society, or applicant for membership to such society, feeling aggrieved at the action of said society, shall have the right to appeal to the Medical Society of the State of New York, representing such county medical society."

From the original law to the present day we find repeated paragraphs asserting the close relationship between the State and county societies, each strengthening the principle that they are one and inseparable.

Under authority of these statutes the Constitution of the State Society contains the following clause: "Each county society may adopt a constitution and by-laws for the regulation of its affairs, provided that the same shall be approved by the Council of this Society." It should be fully understood that each county society has full power to adopt any constitution or by-laws it may choose, provided only that they are not repugnant to the laws of the State Society or of the State of New York.

The Council appoints, annually, a committee of three, of which the Secretary is chairman, to which it delegates the power of determining whether by-laws or amendments to by-laws adopted by county societies are in conformity with the legal provisions above referred to. This committee has no power to dictate to the county societies as to their by-laws nor has it *any* wish to do so. It is simply the means adopted by the State Society to assure itself that county society by-laws do not contain provisions which are not in conformity with the law. No amendments to county society by-laws have legal force until they have been submitted to the State Society and received its approval. A small committee is able to act promptly and enable by-laws enacted by a county society to become at once operative.

F. M. C.

The following documents have been deposited for reference, in the safe of the Secretary of the State Medical Society:

A Certified copy of Chapter 138, Laws of 1806.

The titles with brief description of the Medical Laws enacted in New York from June 10, 1760 to 1907.

Report of the Joint Committee on Conference adopted by the Medical Society of the State of New York and the New York State Medical Association in 1904.

Numerous extracts from laws enacted by the Legislature pertaining to the powers and jurisdiction of medical societies."

Original Articles

PEPTIC ULCER.*

By JOHN B. DEAVER, M.D.,
PHILADELPHIA, PA.

PEPTIC ulcer is an ulcer of that portion of the gastro-intestinal tract in which gastric juice is normally present, namely, the stomach, the duodenum and the first portion of the jejunum. The ulcer is therefore known, according to its location, as gastric, duodenal, marginal (on the margin of the gastroenterostomy opening) and jejunal—immediately distal to, or one or two inches below, the gastroenterostomy opening. Jejunal and marginal ulcers are the occasional sequel to the operation of gastroenterostomy. Aside from this jejunal ulcer is rarely known to be a distinct pathological entity. It was formerly more often encountered, but, since the technic of the operation has been perfected, it follows in less than two per cent. of the operations.

Peptic ulcers are acute and chronic. The acute ulcer occurs in the shape of toxic abrasions or erosions which may be single or multiple, or as an acute, round, punched-out ulcer. In acute, round ulcer the destructive process may extend rapidly from the mucosa toward the peritoneum.

There can be no doubt that many acute ulcers, both of the erosion type and the more definite round ulcer, heal spontaneously, or with the aid of appropriate treatment. All chronic ulcers were at one time acute and their chronicity results from failure of the healing process. Occasionally, though not often, chronic ulcers, also heal, leaving evidence of their former presence in the shape of cicatrices, adhesions or deformities. Ulcers may therefore be spoken of as open and healed or healing. The symptoms, however, do not necessarily run parallel to the duration or pathological state of the ulcer. It is probable that in many instances acute ulcers, unless they bleed, give no evidence of their presence. Similarly, it is well known that chronic ulcers, even though extensive, enjoy periods of remission from symptoms, which are erroneously interpreted as cures or as evidences of healing, when the ulcer is still open and liable to all the complications incident to the disease. Open ulcer is, therefore, a menace even when the symptoms are not acute, and a quiescent chronic ulcer may become an acute process by reason of an exacerbation.

The lack of parallelism between the gross character of the ulcer and the symptoms to which it gives rise becomes clear when we consider that ulcer symptoms, in respect to their origin, fall into four groups, namely:

(1) Symptoms due to infection.
(2) Symptoms due to disturbed function.
(3) Symptoms due to hemorrhage.
(4) Symptoms due to perforation.

Whether or not we admit that peptic ulcer is infective in origin it cannot be denied that open ulcers are always infected by microörganisms, and that the latter gain entrance into the adjacent gastric walls through the ulcerated surface. The lymphatics convey the infection to points at a distance from the ulcer; the adjacent omenta are inflamed and the regional lymph nodes enlarged. Just as is the case in superficial ulcers, we have inflamed and chronic quiescent gastric and duodenal ulcers. As gastric sensation is slight or non-existent, according to the researches of Lennander and the confirmatory evidence of others, it is not the inflamed state of the ulcer itself that causes pain but the propagated inflammation which involves the parietal peritoneum and the sensory nerves in the omenta and retro-peritoneal spaces. This readily explains the quiescence of open ulcer as being due to the absence of propagated inflammation to areas supplied by the parietal nerves. Pain, in this type of ulcer, is usually a constant soreness, sometimes acute, more often dull, occurring in attacks lasting for a few hours or even a few days and then subsiding.

Disturbed function is an usual accompaniment of ulcers. We are not prepared to say just what relation exists between the ulceration and the functional disturbances. Formerly it was thought that hyperacidity was the cause of ulceration. It seems just as likely that it is a sequel. Hyperacidity in itself does not cause pain. The pain is probably due to the motor disturbances of which we now have direct evidence in fluroscopic examinations. Hyper-peristalsis, pylorospasm, and localized spasm of the area affected by ulcers are all recognized as causes of, and are quite capable of giving rise to, painful sensations. In the presence of adhesions or deformities or stenosis of the stomach or duodenum, it is evident that the functional activities of these muscular structures may be painful. So varied are the inflammatory conditions, the pathological alterations, and the functional state, that it is not surprising to find the symptomatology of ulcer equally variable.

Gastric and duodenal ulcers which come to diagnosis and treatment usually appear as non-perforating and perforating types, the latter presenting an acute, sub-acute and chronic form. Chronic non-perforating and acutely perforating ulcers are the ones most commonly seen by the surgeon, the latter, in my experience, occurring in about twelve to twenty per cent. of operative cases. The relative frequency of chronic ulcer

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 26, 1917.

in the stomach and in the duodenum is about one in three in favor of the duodenal location.

The difficulties of diagnosing these ulcers are gradually being cleared up. As a rule, the symptoms appear in a rather well-defined sequence, the dominant feature of which, as you are all probably aware, being periodicity of attacks with intervals of complete well-being, the so-called hunger pains appearing regularly during the continuance of the attack, from one to six hours after eating, usually relieved by taking food or alkalis. Frequently, but less characteristic, are acid eructations, nausea, vomiting, and hemorrhage as manifested by tarry stools or by occult blood in the stools or in the gastric contents, and occasionally by hematemesis, especially in gastric ulcer. Profuse hematemesis may occur from small erosions as well as from the opening of a larger vessel in the wall of a chronic ulcer.

As for laboratory methods of diagnosis, I find the fractional method of gastric analysis at times significant, and occasionally I use the string test and the duodenal tube. In isolated instances I have derived help from all. But I derive the most satisfaction from the information that may be gathered by the careful use of the stomach tube. With the ordinary Ewald test-breakfast some idea may be obtained of the motility of the stomach and of the existence of retention. Analysis of the contents for acidity is suggestive of ulcer in cases of pronounced hyperacid states, though the converse is by no means true. A most valuable test for motility and retention is the full meal followed in twelve hours by gastric lavage. Before removing the stomach tube I have the stomach inflated with air, and after careful percussion the outlines are marked out with ink. After this the air is allowed to escape and the stomach is filled with water and percussion again made. The water is now siphoned off and measured. In this way the amount of retention, if any, and the degree of motility of the stomach are again ascertained and the size and position of the organ, with respect to abnormalities such as gastroptosis, gastric stasis, hour-glass contraction, etc., noted.

X-ray and fluroscopic examination are next in order. While in my opinion helpful in the hands of the expert, I do not attach the same diagnostic value to the method as do many of my colleagues. Not a few reports read "no evidence of ulcer" when ulcer has later been demonstrated; so that negative evidence in the face of a clear-cut history cannot be relied upon as a point in diagnosis.

In the last analysis it is the history upon which I place the greatest reliance. This is carefully elicited, plenty of time being devoted to obtaining details, and after careful interpretation of the same, treatment is advised accordingly. Physical examination is, of course, thoroughly made from every standpoint; the lungs, the heart, the circulation, the reflexes are examined, and if need be, an eye examination is made. The tests for kidney function, the blood urea, and various examinations of the stools and the urine are made, as indicated by special conditions.

The symptomatology of other abdominal diseases often simulates that of peptic ulcer and *vice versa*. This is especially true in certain types of appendicitis, the picture of which not infrequently suggests duodenal ulcer. There may be the same history of hunger pains, hyperacidity and periodicity of attacks. Two main distinguishing points, however, are that in appendiceal disease there is usually more or less discomfort persisting during the periods of remission of the more severe symptoms and the pain is not usually so severe as in duodenal ulcer and unlike the latter, radiates downward. In chronic appendicitis, also, there is, as a rule, some abnormal tenderness on deep palpation over the appendix. I find the appendix diseased in so large a percentage of cases of gastric and duodenal ulcer that I cannot help gaining the impression that these ulcers might be considered secondary conditions.

The differentiation of peptic ulcer from gall-bladder conditions is made possible, as a rule, by noting the more colicky character of the attacks of pain, especially in cholelithiasis, and the sudden and unaccountable appearance and subsidence of the seizure. On the other hand, very often in chronic cholecystitis there is absence of jaundice, while a few cases of duodenal ulcer give a history of slight jaundice, so that clinical diagnosis in these cases is not always possible.

In chronic disease of the pancreas, there is generally no relation to food intake, either as to time or as to the kind of food taken.

The gastric symptoms of visceroptosis have been mistaken for ulcer. Incipient malignant neoplasms also occasionally simulate the symptoms of gastric ulcer.

Some authorities claim that a clinical differentiation between the gastric and duodenal peptic ulcer cannot be made. At the same time there are a few points in the history which, to my mind, makes such a distinction to some extent possible. For example, the time relation of the pain. This usually shows a longer interval after food intake in the duodenal disease than in the gastric affection; the radiation of pain, too, in the former is usually to the right, and to the left in the latter. It has been stated that a left-sided position is more comfortable for the patient with duodenal ulcer, while the reverse position adds to the comfort of the subject of a gastric ulcer.

Physical examination rarely aids us in the differential diagnosis of gastric and duodenal ulcers. A mass is not often palpable, although

under the relaxing influence of an anesthetic I have occasionally been able to feel a small indurated mass in the stomach or in the duodenum. A positive radiographic or fluroscopic study is of considerable assistance.

Hemorrhage is not a conspicuous feature of these ulcers in either location and is not an important factor in the diagnosis. Though small occult hemorrhages do occur, great care is required to detect them, and they are often absent during long intervals. Massive hemorrhage is rather the sign of an erosion into a larger vessel normally located at a considerable distance beneath the initial site of ulceration, so that Moynihan is right when he says that hemorrhage is as much of a sign of duodenal ulcer as a ruptured perineum is of pregnancy.

Continued study and discussion have to a great extent removed many of the difficulties of diagnosis and differentiation of peptic ulcers some of which I have briefly touched upon. But the *etiology* and the *cause of recurrence of symptoms* after operation are still shrouded in mystery. The surgeon and the bacteriologist have done much and are still busy trying to clarify the question, but opinions and conclusions are as divergent as ever. It is my personal belief that the cause of ulcer in the majority, if not all instances, is infection, and I have always thought, and still think, that the appendix plays the most important rôle in the occurrence of upper abdominal infection. The most recent bacteriological studies have shown that the organism most commonly found in all types of peptic ulcer is a strain of streptococcus having a selective affinity for the tissues of the stomach and the duodenum. The various factors formerly assigned as causes of ulcer do not harmonize with the results of modern investigation. They are largely based on theory while present-day teaching is based on bacteriological examination and study of cultures taken from the lesion exposed by the surgeon in the living, human subject and by animal experimentation. We all readily admit that the rôle of infection has no limitation. Often apparently trifling when seen as a focal lesion, by dissemination through the blood or the lymphatic circulation, infection is capable of bringing about most dire results. Every experienced surgeon working daily in the abdominal cavity can bear witness to the truth of this statement. The task of correcting the ills thus occasioned is too often an Herculean one, and not infrequently, I regret to say, meets with defeat. Metastasis of infection from inconspicuous foci is always a threatening danger.

This phase of our subject might be discussed for many hours without doing more than merely touching upon some of its most important points. The crux of the matter is that the situation can best be met by dealing with infection at the earliest possible moment. The watchword, therefore, is to operate early and not to encourage repeated attempts at medical cures. Operate after the first relapse is the dictum of my friend, Dr. M. Howard Fussel, and I heartily agree with him.

A word as to medical treatment: While we believe that some gastric ulcers heal under this treatment, it requires much time and perseverance on the part of the patient and necessarily restricts his mode of life and interferes with the ordinary pursuits of business and pleasure. Medical treatment should consist of rest in bed for several weeks, careful diet, alkalies and so forth. That it is not always efficacious or even safe is indicated by the fact that I have knowledge of two cases of duodenal ulcer during the past year that perforated in the medical ward of one of our largest and best hospitals while under treatment for the condition.

Excision is the operation for all chronic ulcers of the stomach with few exceptions; this not only ensures the best immediate results but affords the best safeguard against a possible carcinomatous degeneration. Ulcers located on the anterior wall, on the lesser curvature, on the posterior wall and in the fundus, if not too large, are best treated by excision; followed by a posterior gastroenterostomy only where the mechanics of the stomach have been left defective by the incision and closure.

Ulcers on the posterior wall or in the fundus are excised transgastrically, and similarly, a small percentage of small ulcers on the lesser curvature.

I regard posterior gastroenterostomy alone for gastric ulcer as of use only where the ulcer is located in the pylorus and causes obstruction; even then it is not so efficacious a procedure as pylorectomy.

Pylorectomy is done as follows: The stomach and if possible, and it usually is, the transverse colon are delivered, the lesser peritoneal cavity opened, and the pyloric and the coronary arteries ligated close to where the sections are to be made; the index finger of the left hand is then passed into the lesser peritoneal cavity and carried to the posterior wall of the duodenum, and the omental attachment to the inner wall is made prominent by the point of the finger. The point of the finger is then forced through the omental attachment and the omentum grasped at the point of the finger with hemostatic forceps and cut away until enough of the duodenum is freed to permit the application of hemostatic clamps, when the bowel is amputated between the clamps. The distal end is then closed, surrounded with a pursestring suture and invaginated. Next the omental attachment to the stomach, as far as the point where section is to be made, is grasped with hemostats and divided; two clamps are then applied and the pylorus cut away be-

tween the clamps. Both the stomach and the duodenum are cut through with a cautery knife. The opening in the stomach is now closed, a posterior gastroenterostomy done and the operation completed.

Where the ulcer occupies the lesser curvature distal to the pylorus and infiltrates both walls of the stomach, circular resection is the operation of choice.

Posterior Gastoenterostomy in Central Resection of the Stomach: As a rule I do not make it a practice to follow central resection of the stomach with a posterior gastroenterostomy. I have not found it necessary to do so when making a central resection for saddle-back ulcer in the absence of widespread induration. Under these circumstances I have not seen any deformity that would be likely to affect the evacuating power of the stomach. The only deformity noted has been a foreshortening of the stomach. Where induration is diffuse and the ulcer is located at a distance from the pylorus, I believe it is safer to terminate the operation by anastomosing the proximal jejunum to the antrum. I am in the habit of testing the motility of the stomach by giving a test meal and a full meal after the patient has recovered from the operation.

In small ulcers of the anterior wall of the duodenum which are not amenable to excision, I believe it better to amputate the duodenum below the ulcer and follow with a pylorectomy. If only a posterior gastroenterostomy is made, there will be restoration to normal of the lumen of the bowel by absorption of the exudate, when the pylorus will again transmit much of the contents of the stomach, and the ulcer being again subjected to renewed irritation, the symptoms will recur. For this reason excision of the simple ulcer is preferable to gastroenterostomy alone, or gastroenterostomy with plication, as the latter usually not being permanent, permits restoration of the lumen of the bowel.

In the case of an ulcer of the duodenum which is not amenable to excision and too low for pylorectomy, we must be content with plication and posterior gastroenterostomy, which is sometimes efficacious but by no means as reliable as excision.

The organ most often affected as the result of duodenal ulcer located in the wall of the second portion of the gut is the pancreas, the diseases of which, I regret to say, receive too little attention from both the surgeon and the medical man. It is a delicate organ and one that is easily injured by infection communicated not only by the blood stream but by the lymphatics from the gall bladder, the duodenum and the stomach, etc. In my work I frequently find this organ diseased in late duodenal ulcer as well as in other conditions, and I consider this an additional argument for early operative treatment of duodenal ulcer.

The fact that we are sometimes confronted with recurrence of symptoms after operation for peptic ulcer can hardly be admitted as a valid argument against operation, considering that with a few exceptions recurrence of symptoms is the rule after medical treatment of chronic indurated ulcer, while in my experience it is reported in only fifteen per cent. of the operative cases that I have been able to trace. This means that eighty-five per cent. of operated patients remain well as against practically none remaining well after medical treatment. Furthermore, patients treated medically are subject to what may be termed a continuous performance in the sense that although not continually taking medicine, they are restricted in diet as well as in the enjoyment of many of the pleasures of life, such as exercise and the more active sports. The eighty-five per cent. of operated cases, on the other hand, are able to lead a normal life unhampered by such considerations.

Recurrence of symptoms in some operated cases is, without doubt, due to faulty methods of operation, such as simply doing a gastroenterostomy when excision is in order, or when a pylorectomy or sub-total gastroectomy or a circular resection should have been done: or in not removing foci of infection; or again, by not making the gastroenterostomy in the proper axis of the stomach or sufficiently close to the pylorus or to the end of the resected stomach; or making the proximal limb of the jejunum too taut; or lack of care in suturing the proximal limb of the jejunum so that its lumen will not be distorted; or carrying the first row of sutures too far from the line of the bowel directly opposite the mesenteric attachment and thus carrying the posterior wall of the bowel so high as to produce a spur which will interfere with the free circulation of the bowel-contents; or by making the opening too large or too small.

A most important consideration in the operation is the removal of the focus or foci of infection. I, therefore, never operate on a peptic ulcer without taking out the appendix, if it has not already been removed, and the gall bladder if at all diseased, and in a few instances I establish drainage of the gall bladder or of the common duct. When there is enlargement of the head of the pancreas, due either to a chronic pancreatitis or a pancreatic lymphangitis, I either drain the gall bladder or the common duct or make a cholecysto-duodenostomy. A careful survey of the operative field with the necessary attention to the diseased viscera is essential to insure permanent recovery. I have on more than one occasion found duodenal and gastric ulcer in the same patient, and in some instances also duodenal ulcer and stone or stones either in the common duct or, more frequently, in the gall bladder. In the presence of a biliary cirrhosis I drain the bile passages. Furthermore, I make it a practice to examine the spleen to determine whether there is an enlargement of that organ or whether perisplenic

adhesions are present. I think I have said sufficient to impress upon my hearers the importance of thoroughness of operation. At the same time I wish to add that this thoroughness should be coupled with a minimum of manipulation commensurate with safety. It is hardly likely for example, that an ulcer of the stomach will be overlooked if there is reason to suspect its existence.

In cases of ulcer with high acidity the continuance of high acidity for some time after operation may be expected. It is my practice to have a stomach analysis of such cases made at varying times after operation. In passing, I may state, what you all probably know, that approximately only fifty per cent. of ulcer cases show hyperchlorhydria, while in thirty per cent. acidity is normal and in twenty per cent. sub-acidity is the rule.

Hemorrhage following a gastroenterostomy has, in my experience, always taken place from the posterior margin of the opening. I have had this occur three times. In each case I have re-operated by opening the stomach through the anterior wall, and invaginating the margins of the gastroenterostomy opening into the stomach; in this manner the bleeding is easily controlled by the introduction of a continuous row of catgut sutures. This post-operative complication occurred before I had made it a practice to carry three rows of sutures in the posterior margin of the opening as I now do and have been doing for some time. In one case I have had to re-open the abdomen for hemorrhage where the bleeding was caused by a needle puncture of a vein in stitching the margins of the opening in the transverse mesocolon to the stomach wall. Such an accident can be avoided by grasping the margins of the opening in the mesocolon at three or four points with hemostatic forceps and tying them to the wall of the stomach by the suture carried into the stomach wall.

In the days before I adopted the posterior no-loop operation regurgitant vomiting was not an uncommon post-operative complication. We now know that regurgitant vomiting means obstruction and that, in turn, means faulty mechanics. If the jejunum is not attached accurately opposite its mesentric border, the bowel is twisted and a spur may protrude into the gastroenterostomy opening which will impede or obstruct the passageway into the distal loop. Vicious circle is therefore no circle at all but simply the accumulation in the stomach and duodenum of food, fluid or secretions that are prevented from finding their way into the jejunum. The symptom known as vicious circle should not be regarded as functional and the patient be allowed to get into a desperate state, but it calls for operative relief. This may be done by a jejunoplasty made in much the same manner as a Finney pyloroplasty. Or in other words, the afferent and efferent limbs of the jejunum may be anastomosed. Or, finally, the proximal jejunum may be detached and joined to the distal jejunum below the gastroenterostomy opening, as in a Roux en Y operation. Adhesions are rarely responsible for regurgitant vomiting. It is due to faulty mechanics and in relieving this condition it is essential not only to detach any adhesions that may have formed, but to employ one of the above methods in order to safeguard against recurrence of symptoms by the reformation of adhesions.

Where a saddle-back ulcer is located comparatively close to the pylorus sub-total gastroectomy is the operation indicated.

Perforating Ulcers: The occurrence of perforation in acute gastric ulcer is possible, as will be seen by reference to the literature. Perforation of an acute duodenal ulcer is much rarer than perforation of an acute gastric ulcer, yet a few cases are on record.

Acute perforation not infrequently occurs in chronic, gastric and duodenal ulcer, especially in the latter, this being the more common form of chronic ulcer.

Perforation of chronic gastric ulcer is the chief cause of death from that condition unless we except the numerous cases of gastric carcinoma which are later implanted upon ulcer bases. Hemorrhage in gastric ulcer, as well as perforation may be caused either by mechanical means, or by the pathological process of ulceration or sloughing. When an acute ulcer is subjected to a sudden strain, as in vomiting, or lifting, or excessive peristalsis, or is abraded by ingested food, its base may give way, and thus the peritoneal cavity be opened. Chronic ulcers are not so apt to be affected in this manner, partly because of the thickness of their bases and margins, but, more especially because of the adhesions formed by a perigastritis, which usually has existed for some time, by which the general peritoneal cavity has been protected. When in an acute ulcer the perforation arises from the physical causes just mentioned, the solution of continuity is frequently slitlike in character; but when due to the extension of the ulcerating process, or to sloughing, the perforation is more or less circular. The larger perforations are due to the separation of a slough, while those produced by progressing ulceration are small in size, and give rise to symptoms less acute.

The terms acute, subacute and chronic refer not so much to the symptoms produced, as to the pathological course of the resulting peritonitis.

An ulcer which perforates acutely is usually found on the anterior wall of the stomach, duodenum or jejunum, and bursts through into the peritoneal cavity by sloughing or as the result of an insult, without having set up by continuity a limiting plastic peritonitis for the protection of the general peritoneum from invasion. An ulcer that perforates sub-acutely is one whose base gradu-

ally ulcerates through, so that perigastritis with its premonitory symptoms precedes the actual solution of continuity, and when the solution occurs, there is either a spreading plastic peritonitis, or, as the result of previously existing adhesions, the peritonitis is limited. Chronic perforation indicates a process that ensues when the base of an ulcer is adherent to a neighboring organ, so that practically no additional symptoms are produced at the moment. The gastric or duodenal wall then no longer forms the floor of the ulcer, its place having been taken by the organ or viscus to which the ulcer has become adherent. The symptoms of this condition are neither those of perforation nor of peritonitis, but of sepsis with localized tenderness, local pain and so forth, perigastritis or a subphrenic abscess.

In treating perforated gastric and duodenal ulcers I do a posterior gastroenterostomy because I believe that in the hands of the skilled surgeon it gives a lower mortality and is more likely to result in a permanent cure. If the appendix has not been removed I take it out, also the gall bladder, if diseased.

This statement is borne out by my results. But I maintain that this should be done only by the experienced surgeon and not by the occasional operator. He should content himself with a simple closure of the perforation except when the duodenal ulcer has greatly narrowed the lumen of the bowel. I have never operated for an acute ulcer, and have therefore never had to consider the practical question of excision of such an ulcer. While I would entertain such a proposition in acute perforation of an acute gastric ulcer favorably located, I should not think of doing so in case of acute perforation of an acute ulcer of the duodenum.

J. S., 55 years old. Referred to me by my friend, Dr. A. Barr Snively, of Waynesboro, Pa.

Admitted to the German Hospital the night of March 30, 1917, with a diagnosis of perforated duodenal ulcer.

On the morning of March 30th, at ten o'clock, developed sudden acute pain immediately followed by marked rigidity of the entire abdominal wall. Dr. Snively called me on the 'phone and told me his diagnosis, also that he was bringing the patient to Philadelphia.

Patient gave a history of indigestion for many years; attacks of pain coming on three or four hours after meals; always afraid to eat feeling that eating was the cause of the pain.

Operation, March 30, 1917: Upper right rectus incision. Small perforation in anterior wall of duodenum. Perforation closed with purse-string suture of linen. Very little free fluid in upper but much in lower belly. Posterior gastroenterostomy. Chronically diseased appendix, removed; gall bladder removed. Gall bladder fossa oversewn with iodine gut. One rubber tube placed in subhepatic fossa; suprapubic opening made and glass tube placed in the pelvis; upper wound closed to drainage.

Culture of fluid from pelvis: No growth.

Blood count: Hem., 100%; R. B. C., 4,420,000; W. B. C., 9,050; Polys., 90%.

Marginal ulcer: The symptoms of marginal ulcer are practically the same as those for which the gastroenterostomy was done. The operation for marginal ulcer may be difficult, in fact usually is. If, in a case of supposed marginal ulcer, there is any doubt after the abdomen is opened and the field of the gastroenterostomy has been examined, I at once make an anterior gastrotomy, and thus the question of the presence of an ulcer is quickly and positively determined. In passing I may say, I strongly urge making a gastrotomy in cases about which there is uncertainty as to the presence of ulcer. In this manner I have found ulcers that could not have been otherwise detected.

What we are usually able to do, is to excise the gastroenterostomy field, make an end-to-end union of the proximal and distal jejunum, and follow with a posterior gastroenterostomy at the site of the opening in the stomach made by cutting away the gastroenterostomy, or at another site. Occasionally, it is better not to close the opening in the stomach entirely, and to anastomose the distal limb of the jejunum to the same, and the end of the proximal jejunum to the side of the distal limb.

Where the original operation has been done for gastric ulcer and the pylorus has been left open and there is no longer any evidence of disease, I do nothing more than close the opening in the stomach by cutting away the gastroenterostomy and make an end-to-end union of the proximal and distal limbs of the jejunum.

In closing I may say that just as the pathology and symptomatology of peptic ulcers are extraordinarily varied so is it true that the appropriate surgery to meet these varied conditions cannot be reduced to an inflexible routine, but must consider not only matters of mechanics but the physiological conditions as well.

During 1916 and up to the present time I have operated on a total of 86 peptic ulcers, with 4 deaths, a mortality of 4.6 per cent.

PEPTIC ULCERS.

Table I.—Mortality.

	No. of Operations	Died	Mortality
Chronic			
Duodenal	60	4	6.6%
Gastric	14	0	
Marginal	3	0	
*Acute perforated**			
Duodenal†	8	0	
Gastric	1	0	
Total	86	4	4.6%

* All but one of the acute perforated cases gave a history of previous gastric disturbances.

† One case of acute perforated duodenal ulcer arrived moribund and died without operation.

TABLE II.—TYPE OF OPERATION.

Operation	Ulcer	No.	Died	Mortality
Excision, posterior gastroenterostomy	Duodenal, chronic 11 Gastric, chronic 2	13	1	7.7%
Plication, posterior gastroenterostomy	Duodenal, chronic 11 Duodenal, acute perforation. 3	14	1	7.1%
Pylorectomy, posterior gastroenterostomy	Duodenal, chronic 18 Gastric, chronic 1	19	1	5.3%
Posterior gastroenterostomy	Duodenal, chronic 17 Duodenal, acute perforation. 3	20	1	5.0%
Subtotal gastrectomy, posterior gastroenterostomy	Duodenal, chronic 2 Gastric, chronic 5 Marginal 2	9	0	
Circular resection of stomach	Gastric, chronic 7	7	0	
Gastrotomy, resection of ulcer-bearing area	Marginal 1	1	0	
Gastrotomy, posterior gastroenterostomy	Duodenal, chronic 1	1	0	
Incision and drainage (subdiaphragmatic abscess)	Duodenal, acute perforation. 1	1	0	
Perforation closed only, drainage	Gastric, acute perforation.... 1	1	0	
	Total	86	4	4.6%

Included in the above there were: Cholecystectomy, 9; appendectomy, 49; the appendix was found diseased in all but two of the cases.

TABLE III.—SITE OF ULCER.

	Duodenal	Gastric	Total	Percentage
At or near pylorus	11	2	13	15.0%
First part of duodenum	27		27	31.0%
Second part of duodenum	17		17	20.0%
First and second part of duodenum	1		1	1.1%
Near head of pancreas, too low for excision	5		5	5.8%
Lesser curvature		10		11.6%
Greater curvature		1		1.1%
At margin of gastroenterostomy			3	3.5%
Multiple, duodenum and stomach			3	3.5%
Not indicated			17	
			86	

TABLE IV.

Complicating Conditions	Number
Appendicitis	47
Pyloric obstruction	4
Adhesions	24
Gall-bladder disease	9
Pancreatic involvement	5
Gastroptosis	3
Hour-glass duodenum	2
Malignancy, questionable	1

SYMPTOMATOLOGY OF PEPTIC ULCER.*

By GEORGE ROE LOCKWOOD, M.D.,
NEW YORK CITY.

IT is just as possible to describe the symptoms of peptic ulcer within the limits of the present paper as it is to enjoy a table d'hote dinner in a three minute stop at Poughkeepsie, nor would it be altogether complimentary to such an assembly. All that it is possible to do is to speak briefly of the principal or characteristic symptoms, and even then to limit the discussion to those symptoms which are of diagnostic value. The paper, therefore, is merely a brief discussion of certain diagnostic characteristics of peptic ulcer which seem to be of practical value. It cannot be expected that this paper will contain anything new or startling.

To make a diagnosis of peptic ulcer correctly is laudable; to attempt to make such a diagnosis hastily is culpable, and yet this is what we are doing constantly. The various laboratory and mechanical aids for diagnosis are resorted to to save time, and the busy doctor is too busy to sit down and work over a case himself. Too much reliance has, therefore, been placed of late on such means of diagnosis as the "string" test, the X-ray, and gastric analysis. It has not been exceptional in my experience to hear of patients going to doctors with the story that they have a painful indigestion, and without any cross-examination or physical examination or study of the case, of being referred to the roentgenologist for a final diagnosis.

The X-ray is, undoubtedly, of tremendous value in our work, but it has limitations, and it is well to bear in mind that there are limitations before we accept the roentgenologist's diagnosis as the final word. My experience has been particularly disappointing. The diagnosis of gastric ulcer by the X-ray has been usually good, especially in large saddle-back ulcers which stiffen and deform the gastric wall. When it comes to the diagnosis of duodenal ulcer, the X-ray has been so disappointing that I am inclined to disregard the X-ray diagnosis altogether unless it agrees with a positive clinical diagnosis of a duodenal lesion. Over four-fifths of the duodenal ulcers that I have seen diagnosed by the X-ray have turned out nothing but chronic appendicitis. The picture may be perfect; the photograph may be clean-cut, but the diagnosis, derived from inference of disturbed gastric functions and distortions of the cap, may be alto-

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 26, 1917.

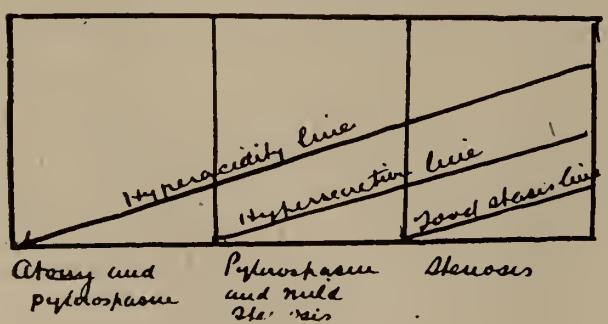
gether valueless. Some roentgenologists have better results than others according to their power to make correct inferences. My remarks are suggested by the results obtained from a variety of sources.

The "string" test has shown ulcer where no ulcer existed; has been negative where ulcers were found, and has been generally so incorrect that I have discarded it altogether.

Gastric analysis may or may not be of help. To be of service a double test should be used. The stomach should be emptied by the tube in the morning in the fasting state, for chronic hypersecretion is the most important evidence of ulcer. A test breakfast should then be given and a determination made of the acidity and of the surplus amount of gastric juice.

As regards gastric analysis, we have to deal with hypersecretion or the finding of acid gastric juice in the fasting state, and hyperacidity or the increase in the amount of hydrochloric acid above the normal, irrespective of the amount of gastric juice secreted.

Hypersecretion depends on motor error. Any quantity in the gastric juice over 30 c.c. is pathological if repeatedly found. One or two examinations do not suffice. Mild degrees are found with moderate ulcers, and with pylorospasm so commonly associated with chronic appendix. It is not infrequent in cancer and in many other conditions. I have mentioned merely the most prominent. Larger quantities of 100 c.c. or over, may occasionally occur with ulcer or cancer. Food remnants in the fasting state indicate organic pyloric stenosis, and do not occur with appendix. The hypersecretion and food stasis lines can be seen on the accompanying chart.



Hyperacidity also depends upon motor error. A moderate hyperacidity may occur with atony, but is painless. Painful hyperacidity indicates an organic lesion. In ulcer the nearer the lesion approaches the pylorus the higher the acidity. This is shown in the accompanying tables from private practice. It is interesting to note how large a proportion of ulcers give no change in their acidities from the normal.

ACIDITY OF TEST BREAKFAST IN ACUTE ULCER.

Total acidity, 40-50	17%	
Total acidity, 50-60	34%	68%
Total acidity, 60-70	17%	
Total acidity 70-80	16%	
Total acidity, 80-90	9%	32%
Total acidity, 90-100	7%	
	100%	

ACIDITY OF TEST BREAKFAST IN CHRONIC ULCER.

Total acidity, 30-40	10%	
Total acidity, 40-50	14%	
Total acidity, 50-60	14%	50%
Total acidity, 60-70	12%	
Total acidity, 70-80	16%	
Total acidity, 80-90	10%	
Total acidity, 90-100	8%	50%
Total acidity, 100-110	8%	
Total acidity, 110-120	8%	
	100%	

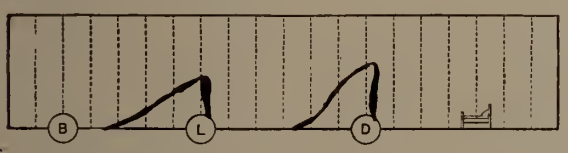
ACIDITY.

	Low Acidity.	Normal Acidity.	High Acidity.
Ulcers, not including pylorus	9%	75%	16%
Ulcers, including pylorus	0%	18%	82%

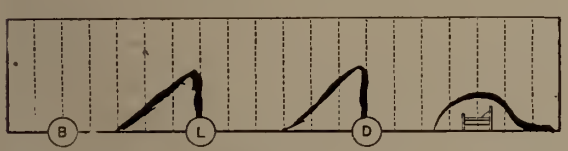
The chief characteristic of ulcer symptoms is the regularity at which they appear at a definite hour after meals; and, secondly the relief afforded by eating. This sequence of hunger pain and food ease is such a prominent one in ulcer that the presence of this syndrome is generally accepted as proof presumptive of ulcer. Unfortunately for diagnosis, other conditions give rise to the same hunger pain, and show the same relief by eating. Such a history, therefore, is not infrequent with appendix, gall stones, carcinoma of the stomach, or arteriosclerosis. If we watch, however, carefully, the ulcer symptoms will keep steady at their appointed time, but sooner or later we will find the symptoms of the other conditions losing their clocklike regularity, and showing a greater variation in the time of their onset. Again the pain of these other conditions is not as regularly relieved by eating as is the case in ulcer, nor as regularly relieved by vomiting. It becomes obvious, therefore, that to obtain a clear idea of the time relationship and the methods of relief of the ulcer symptoms, a careful history and some little personal observation are necessary. We cannot accept the patient's statement, which he often glibly runs off, that he has pain two hours after eating, relieved

by eating, for while this may be his ordinary pain, he forgets the small number of occasions at which the pain has been at irregular times, although to us for diagnostic purposes, these irregular pains are more important than are those of which he speaks.

There is no reason why we should not adopt a pain chart in our suspected ulcer cases just as we have a temperature chart for typhoid fever. I am showing you a chart, which I have used with advantage, showing the breakfast, lunch, and dinner tables and the bed. The verticles indicate the hours. Patients can readily chart out their pain on these charts. If we have a case of hunger pain that is due to the appendix, we may note that for several days the pain is regular, as is that of ulcer; but sooner or later comes a day when the pain comes at irregular times and is not relieved by eating. This pain overlapping a meal is rarely seen in ulcer. We may have in ulcer a steady pain overlapping the meals with acute hypersecretion and with incomplete perforation as, for example, into the liver or into the substance of the pancreas, but the pain in these instances is so severe and so marked and is attended by so many other diagnostic signs that we are not apt to confuse these conditions with the epigastric, growling, nagging pain in uncomplicated ulcer or of chronic appendix. Examples of these conditions are shown in the accompanying charts.

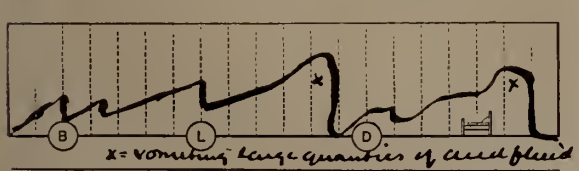


Two days' pain in chronic appendicitis.

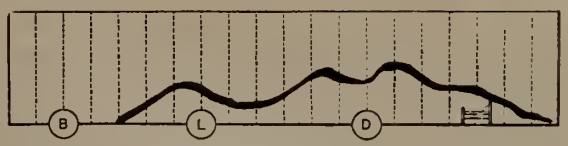


Classical ulcer pain.

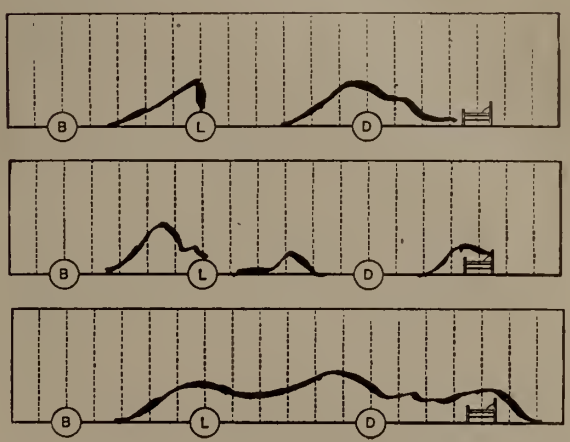
Ulcer pain from a case of appendicitis.



Pain of acute hypersecretion of ulcer.



Ulcer-type the first day, "all-day" type the second.



Pain of chronic appendix, showing variations in type.

After all is said and done we are forced to the conclusion that no one symptom is characteristic of ulcer. We have seen the "string" test fail as often as it has succeeded; X-rays may be accurate pictures or photographs of the conditions at the moment, but their interpretation is difficult, and when the X-ray diagnosis is so frequently wrong we are forced to regard the X-ray diagnosis of ulcer as extremely uncertain, for three-fourths of the cases I have seen diagnosed as duodenal ulcer have been appendix. Some observers interpret plates better than others and get better results. I am speaking of the general results of X-ray diagnosis at the present time.

Hypersecretion and hyperacidity depending on motor error give the same results in many other conditions than ulcer. There is no difference between the diagnosis of pylorospasm in ulcer and pylorospasm in appendix, and in half the acute cases of ulcer and one-third of the cases of chronic ulcer there is nothing at all in the gastric analysis that departs from the normal. Nor is there anything in the physical examination of the patient which will render a diagnosis possible. The history of hunger pains and food ease is common alike with appendix, gall stones, carcinoma and arteriosclerosis and only time and observation can differentiate between these conditions and ulcer. Even hemorrhage from the stomach may occur from other causes than ulcer,

from appendix, cancer, or easophageal varices and aneurisms, so that even hemorrhage is not conclusive.

The diagnosis, therefore, is not a simple one nor an easy one to make and should not be made lightly. We make a mistake in diagnosing ulcer on one symptom alone whether the symptom be hunger pain, food ease, or hemorrhage, or by the report of the X-ray, or gastric analysis—all of these methods of diagnosis should be used, but they must be checked up one with another. For this purpose time and observation are required. To judge hastily is culpable. To make a diagnosis of ulcer on the work done by the X-ray and laboratory man alone is shirking responsibility. These laboratory methods must be controlled by clinical work and observations which we do ourselves. The reason why so many mistakes are made in the diagnosis of ulcer is that the clinician does not go into the case himself with sufficient care and thoroughness, and he does not correlate the laboratory and X-ray results by the clinical history of the patient, and his observation of that particular case. Even though the clinician be as painstaking as it is possible for him to be, the diagnosis of ulcer in many cases must still remain a question of doubt, and in many cases, only operation will decide, and even then the decision may be deferred until the pathologist's report has been handed in.

TREATMENT OF PEPTIC ULCER.*

By LUDWIG KAST, M.D.,
NEW YORK CITY.

THERE is no specific treatment for peptic ulcer. The non-surgical efforts can only purpose to give the natural healing-tendency a better chance by stimulating same as far as we can, and by eliminating such factors as interfere with it.

The ideal way would be to put the stomach entirely to rest, stop all motility and secretion. The nearest approach to it would seem to be complete starvation. This method has been tried and remains justified in certain instances for a limited time, particularly after severe hematemesis. But experience has shown that it is not possible, as a routine measure, to starve patients for weeks until the ulcers heal, and furthermore, strict starvation implies danger in many ways. In fact, often makes matters worse by lowering the general vitality. But the whole method is doubtful since it is established beyond doubt that even strictest starvation does not necessarily stop the motility of the gastric muscles nor does it stop completely the gastric secretion. The same objection pertains to the treatment with the duodenal tube, which again, may be employed successfully in some instances, but does harm in others. Since starvation does not guarantee a cessation of motility and secretion, it stands to reason that it is better to put food into the stomach than to leave it fasting because the gastric juice is more effective in its digestive power, the more concentrated it is. A reasonable plan of treatment may, therefore, vary between temporary complete starvation and frequent feeding according to the individual case.

Thus, the medical treatment has in the course of the last fifty years gradually crystallized into several systems of treatment which make it possible to keep the general state of nutrition and vitality of the patient at a good level or increase it, and at the same time, create the most favorable intragastric condition for the healing of the ulcer as to the motility, secretion, and evacuation of the stomach.

All treatment of peptic ulcer is based upon the healing tendency of the tissue, even the surgical treatment, by excision of the ulcerated area, is successful only insofar as it produces a surgical wound in the place of the peptic ulcer, and relies upon its better healing tendency in the healthy tissue.

Some peptic ulcers undoubtedly heal very quickly, perhaps in a few days—as quickly as a surgical wound of the stomach; others heal in a few weeks without any treatment or with very haphazard therapy. But in a large group of cases peptic ulcers of the stomach do not heal readily, or not at all. The reason for it is not quite clear, primarily, because the etiology of peptic ulcers, in a large measure, is still unknown.

It is more than probable, whatever the etiologic factors may be, that they sustain the lessened healing power of the ulcerated area. The gastric juice will, of course, digest the granulating tissue of the ulcer, unless it can resist its peptic power. The peptic power of the gastric secretion, in turn, is effective in proportion to the duration of its action, its quantity, and concentration.

Different systems have been worked out and tested on large material and I need not refer here to the methods of the French school or Leube's method or the Lenhartz treatment or Shippy's method. The more one gathers experience in ulcer cases, the stronger one is lead to the conclusion that there is no method which is *the* method of ulcer treatment. Each one has its advantages and disadvantages and in the long run the application of the tested principles to the individual case holds out best promise as to the final results.

First of all it is necessary to be clear as to which cases should be treated medically and

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 26, 1917.

which should not. We group our patients as follows:

A. *Surgical without delay* are cases of

1. Perforated ulcers.

They should be operated upon as soon as possible. If a delay of more than forty-eight hours has occurred; if there is no general peritonitis, and the situation seems safe, it becomes a matter of choice. Surgical experience, as well as our own, would indicate that it is better than to wait with the operation until the perforation is well walled off.

2. Repeated serious hemorrhages, particularly with continuous occult bleeding in chronic or recurring ulcers.

B. *Surgical as soon as feasible.*

1. Chronic ulcers which had the chance of one or two systematic rigid medical treatments—by which we understand, aside from other factors, four weeks in bed, and at least two months longer on an appropriate planful dietetic course.

2. All indurated ulcers, particularly with pyloric stenosis, or ulcers with disturbing adhesions.

3. Penetrating ulcers and hour-glass contractions.

4. Cases of intractable continuous secretion.

5. All cases which offer suspicion of malignancy.

C. *Borderline cases.*

1. Cases in which a medical cure becomes doubtful because of difficulties in giving up the time for treatment in bed and inability to carry out the proper diet and rest afterwards.

2. Cases of peptic ulcer complicated by severe neurasthenia, particularly those who become dependent upon anodynes.

To claim all cases should be treated medically as long as possible is as extreme and foolish as to claim all cases should be operated upon as soon as the diagnosis is made. The extremists do not help but retard the growing understanding between surgeons and medical men. It is not the question which is the cure-all but to learn by conservative exchange of our experiences to select, as early as possible, the cases which should be surgical and those which should at least, for the time being, remain medical. But I must confess that to my judgment, a great many medical men persist in wasting time and good chances for the patient with ill-conceived and haphazard plans of medical treatment. On the other hand, the poor results from bad medical treatment are not an argument for surgery but for better medical treatment.

Having circumscribed the group of cases which are the legitimate field for medical treatment, we proceed to outline the principles in a broad manner.

Though the etiology of peptic ulcers remains doubtful, recent investigations, particularly of Rosenow, would indicate that hidden infections like peridental abscesses, pyorrhea, infections of tonsils, sinuses, and the appendix might directly or indirectly be responsible for gastric ulcers. At any rate, such foci are sufficiently appreciated now-a-days in their significance and should be dealt with accordingly.

Another factor which might have etiologic bearing upon the beginning of ulcers is that form of unbalanced tension of the sympathetic nervous system which has been termed "Vagatonia" and appears as a link between chronic derangements of gastric tone and neuro-secretory apparatus of the stomach on the one side and internal secretions on the other side.

Aside from giving due consideration to these possible etiologic factors, the *general plan of the medical treatment* is as follows:

Foremost, we must remember that after all we are not treating an ulcerated organ but a human being and that the stomach in its motor and secretory function is most intimately correlated to other organs. Our aim is to feed the patient properly but to burden the motor and secretory function as little as possible. Therefore, the patient, as a rule, is put to bed, and kept as quiet as possible for about four weeks. Particularly in patients with high tension of the nervous system we must insist upon a general relaxation and if necessary employ bromides; also, if necessary, somnifacients. After three weeks, provided the ulcer symptoms have disappeared, the patient gradually gets out of bed. Patients with gastroptosis must continue to rest for one or two hours after the main meals. Only if necessary, do we combine our plan with a strict rest-cure. If there has been bleeding or still is bleeding, we apply an ice-bag to the stomach. If there is no suspicion of bleeding, we apply the hot-water bag or the electric pad over the epigastrium, preferably not all the time but for one or two hours after main feedings.

Light massage of the body with the exception of the abdomen, moderate passive or mild active exercises, and other measures to keep the patient in a good general state of health and prevent secondary anemia are self-understood.

Our efforts to hasten the healing of the ulcer are based upon the following factors:

A. To cover and protect mechanically the ulcerated surface.

1. This can be done with bismuth which should be taken on empty stomach in doses of one to three drams, before main feedings. Later on, once a day, preferably the first thing in the morning.

2. The claim that olive oil taken before meals facilitates the cure by keeping the ulcer covered is not warranted. The effect of oil is not me-

chanically protective but chemically, by causing regurgitation of duodenal contents, which in turn, neutralizes the hydrochloric acid in the stomach.

3. Nitrate of silver exerts its beneficial effect mainly by increasing the secretion of mucus, which protects the ulcer to a certain degree, mechanically and chemically. It is given in doses of one tablespoonful of a solution of 1:500 of distilled water t.i.d. about half an hour before meals.

B. To diminish the action of the hydrochloric acid which has been secreted in the stomach. This is accomplished:

1. By giving acid-binding food, especially egg albumen, milk, and easily digestible meat of chicken, turkey, lamb and fish.

2. By giving alkalies like sodium bicarbonate, magnesia, milk of magnesia, calcium salts, separately or in suitable combinations. These alkalies must be given in large enough doses and repeatedly enough to avoid, if possible, the presence of free hydrochloric acid. It is a mistake to give the alkaline medication at the time of the day when the gastric distress appears. It must be taken before the time of its appearance; generally speaking, one teaspoonful five or six times daily will suffice; as a rule, a larger dose at night.

3. Of course, no acids should be given in the diet—lemonade, orange, grapefruit, or soured milk are excluded.

C. To check the gastric secretion as much as possible.

1. By avoiding all food that stimulates its secretion such as alcohol; meat extractives like soup or gravies made of beef; poultry or lamb; beef juice; spices; and much table salt.

2. By avoiding psychic stimulation of gastric juice; appetizing food; fancy dishes; and fancy trays.

3. By dulling the appetite; if necessary, with frequent feedings; often accomplished by a little olive oil before meals.

4. By avoiding food that remains long in the stomach and keeps up the flow of gastric juice, like ham, pork, fat meat, sausage, beef, game, hash, etc.

5. Finally, and most important, by the effect of atropin or belladonna. Atropin usually can be safely given in doses of 1/100 by mouth or hypodermically, gradually increased to 1/60 even 1/50 of a grain b.i.d. or t.i.d., the largest dose preferably at bedtime. We have seen no ill effect in cases in which considerable quantities were given for several weeks. Of course, in the beginning, the individual tolerance to atropin must be carefully determined. Of belladonna, the extract may be given in doses of 1/10 to 1/5 of a grain several times daily.

D. To arrange the diet properly.

The dietetic régime must be planful, systematic and thorough in all details. The greatest mistakes in general practice are probably due to an incomplete consideration of the diet. There is no cut-and-dry plan of diet for peptic ulcer. The diet has to fit the individual problem and not the patient to fit our pet scheme of diet. A discussion of whether the plan of Leube or the plan of Lenhartz is the right plan seems fruitless. There are, to my knowledge, at least one dozen different diets proposed in the literature and each of these has some advantages in some cases, but without individualizing, they are equally dangerous in the long run. Regarding details of these plans I must refer to our textbooks.

As mentioned before, it is often necessary to starve the patient for a few days after a hemorrhage or if the stomach is much dilated. But otherwise, patients should be fed well and often. We begin with milk, plain or peptonized, albumin water, thin gruels, feeding four to six ounces every hour or two; neither too cold nor too hot. After a week or so, we add milk-toast, cream, rice, well cooked cereals, eggs, and thick soups; later, potato, custards, ice cream, puddings, and minced chicked; and again later, some vegetables finely pureed; crisp toast, well masticated; and minced lamb, or minced beef. Even if the patient has no ulcer symptoms any more, it is necessary to keep the diet strict until the fourth or fifth week before allowing additional food articles. Of course, during this time the meals have been gradually changed to three main meals and light feedings between meals, and at bedtime.

A few dietetic points need special emphasis as they are not sufficiently appreciated in general practice:

1. Alcohol, and meat extractives like broth, bouillon, beef juice, and gravies are strictly forbidden. We must bear in mind that several popular so-called blood tonics contain alcohol.

2. The less salt there is in the food, particularly in the beginning, the better; this makes milk particularly useful.

3. Some patients cannot take milk; it causes heartburn, and flatulency, and coats the tongue. It is useless to persist in such instances with the milk. The same pertains to eggs.

4. All additions should be made gradually and never more than one addition at one time. This gives an opportunity to recognize food articles which might upset the course of improvement and to discontinue them at once.

5. In case of persistent ulcer symptoms, the diet should not be enlarged.

E. To relieve pyloric spasm.

1. By atropin or belladonna; hot poultices; Preisnitz compress over the abdomen during the night; and if necessary, bromides, and codeine.

Among the special symptoms and complications of peptic ulcer, we consider the following:

1. In regard to the treatment of *acute hemorrhage,* no important additions have been made lately. The most valuable plan is still to keep the patient absolutely quiet in bed. No food; no water; nor anything else by mouth for three to five days. Ice bag to the stomach; morphine hypodermically, if necessary; and nutrient enema in the beginning, if necessary, but always after the third day of starvation. Gelatin per rectum or hypodermically under proper precautions is, in our judgment, a valuable point in increasing the coagulability of the blood. It is best given twice daily, as an enema of six to ten ounces of 10 per cent gelatin in normal saline solution of body temperature. The Murphy drip is often of great help. In hemorrhages which resist our treatment, we should not hesitate to wash out the stomach with ice water. Otherwise, the problem is treated as other post-hemorrhagic conditions. Repeated examinations of stools for occult blood will be of greatest importance in the management of cases after severe hematemesis and of ulcer that bleed little but for a long time.

2. Symptoms like pain, nausea, and vomiting are due to the effect of the acid upon the raw surface of the ulcer and usually yield to the treatment within a few days. Symptomatically, anesthesin, chloroform water, and very small doses of cocaine are the most reliable adjuvants. Perigastric inflammations, acute or sub-acute, are often responsible for the continuation of the ulcer symptoms in spite of our treatment. These patients always show a marked tenderness to palpation, are easily nauseated, and in these cases it is the best plan to feed very little, at short intervals, or to resort to a second period of starvation of two or three days, during which time we try to nourish the patient as much as possible, per rectum. For nausea and frequent vomiting a combination of sodium bicarbonate, sodium bromide, and bismuth in aqua menth. piper. or in aqua chloroform has been found useful.

As a rule, perigastric distress is more relieved by ice bag than by the hot water bag.

3. If there is food retention, the stomach should be washed out late at night, and of course, the lavage must be done in a very gentle way, causing the patient as little nausea and retching as possible. The stomach tube should not be introduced if there is evidence of perigastritis, nor is it necessary to examine the patient often by palpation. Particularly after a hemorrhage, palpation should be omitted once the diagnosis is made. I wish to emphasize here that patients in whom the first few examinations show food retention and all other evidences of a pyloric stenosis, often respond to proper medical treatment in three or four weeks to such a degree that the food retention has disappeared and the other symptoms of pyloric stenosis are either gone or only traceable with X-rays. This proves that in these cases at least, the symptoms of pyloric stenosis were due to oedematous swelling and to functional spasm rather than to an organic stricture. Cases of real organic stenosis, however, should be operated upon as soon as feasible.

4. Menstruation is a critical time for gastric ulcers. Many cases of so-called "vicarious hematemesis" are recurring gastric hemorrhages from ulcer. For several months after an ulcer cure women should be particularly careful at their menses as to diet, etc.

Constipation, which sometimes is a very disturbing factor in the treatment of peptic ulcer, should be counteracted as much as possible by plain enemata, oil enemata, glycerine enemata, enemata of Carlsbad salt, mineral oil by mouth, olive oil by mouth, and only if we are forced to resort to laxatives, we employ mild Carlsbad salt, phenolax, or a combination of powdered rhubarb, sodium sulphate, and sodium bicarbonate.

Regarding nutrient enemata, we must not be too optimistic. Peptonized milk, or preferably 5-10 per cent glucose in small enemata or as a Murphy drip should be employed. 300-400 calories is about all we can expect to furnish the starving patient. The amount of fluids which we can give per rectum, however, is often of considerable importance. We do not recommend the duodenal tube feeding as a routine treatment in peptic ulcer.

Finally, I may be allowed a few suggestions of general importance:

1. If an ulcer cure within a week or ten days does not bring about a very striking improvement, provided there is no local peritonitis, pyloric stenosis, or penetrating ulcer, it is advisable to re-examine the patient and make sure whether the diagnosis of ulcer was correct. I base this suggestion upon the fact that nine patients out of ten of simple ulcer must be markedly benefited within the first week of treatment.

2. It is a source of encouragement to notice how much more attention is paid lately by surgeons to the post-operative treatment of peptic ulcers. No doubt, in many instances, the final results of gastroenterostomies were disappointing because patients were allowed too soon after the operation to go on a haphazard diet.

3. The disappearance of the ulcer symptoms is by no means a cure of the ulcer. More mistakes are made by advancing in the diet too rapidly than by keeping the patient back too long on the strict diet. If, after several months of medical treatment, the patient is still dependent upon a strict diet and shows a recurrence of ulcer symptoms upon reasonable enlargement of his diet, the ulcer must be considered unhealed. It is a waste of time in these cases to persist in medical treatment.

X-RAY IN PEPTIC ULCER.*

By LEWIS GREGORY COLE, M.D.,
NEW YORK CITY.

WHAT is peptic ulcer? Osler says: "The round, perforating, simple or peptic ulcer is usually single and occurs in the stomach and in the duodenum as far as the papilla." I have repeatedly attempted to show that the ascending portion of the duodenum has all the characteristics, both anatomical and physiological, of the stomach and not the characteristics of the duodenum. Osler's observations appear to corroborate this conclusion and I shall continue to refer to peptic ulcers as being either pre- or post-pyloric, the latter group being beyond the sphincter.

Morphologically the entire thickness of the wall of gut at the point of ulceration is involved; the crater may go down only to the muscular coat or it may go deeper, but in most instances it is surrounded by an area of induration. The result is to render that segment of the organ less pliable and associated with this there may be or may not be cicatrical contraction or adhesions binding the stomach to the adjoining viscera.

The question that concerns us in this discussion is whether we can show these morphological changes in the wall of the gut by roentgenographic methods?

Gross deformities, such as are produced by the more advanced lesions such as marked indurations and cicatrical contraction are so easily recognizable by the Roentgen method that they are not of particular interest.

My present attitude toward the small, round ulcer with the superficial crater in its early stage is that it should be just as accurately detected and diagnosed as the gross lesion. *The small, early ulcer can be diagnosed with as great a degree of accuracy by serial roentgenography as a fracture of the long bones can be diagnosed in a plain roentgenogram.* This statement sounds emphatic and to make it more emphatic I desire to repeat it.

The carcinomatous ulcer can be diagnosed just as accurately as the other types.

I will show you slides demonstrating the normal stomach and cap as shown roentgenographically, also slides demonstrating ulcers on the gastric side of the sphincter. These include ulcers with a classical niche, cicatrical contraction, and the burrowing type. I will also show another group where it would be unjustifiable to make a diagnosis from one or two plates.

Many diagnoses of gastric ulcer are made from symptoms and laboratory findings and the patients treated medically. A man may make the statement that he has treated 1,000 cases of gastric ulcer medically with 75 per cent of cures, but if such statements and such diagnoses are not based on absolute facts and such statements must be accepted with the definite reservation that the diagnoses are at least questionable. A surgeon who treats an ulcer surgically is dealing with absolute diagnostic facts, provided he visualizes or palpates the indurated area at the time of operation. For either the surgeon or the medical man to claim ultimate result from surgical or medical treatment, the acid proof of such claims lies in his ability to demonstrate the retrogressive pathological changes of the ulcer. I do not believe that there is a more certain method of demonstrating and ascertaining these retrogressive or post-treatment changes than we have in serial roentgenography.

FIG. 1.—TYPICAL HOURGLASS STOMACH WITH HAUDEK'S NICHE.

FIG. 2.—ULCER WITH CRATER BURROWING BETWEEN MUCOSOUS AND SEROUS COATS OF STOMACH.

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 26, 1917.

Some slides demonstrate ulcers on the intestinal side of the sphincter, and show the classical appearance of the cap deformity in postpyloric ulcer.

It looks as though Doctor Codman must have had an Aladin's lamp in his hand when he wished

Fig. 3.—Small Mucosal Ulcer with Crater.

for *"An all-seeing eye to see the fish in the bottom of the pond"* for I am convinced beyond any doubt that serial roentgenography is that *"all-seeing eye"* for the detection of post-pyloric ulcers and that we can see the little fish as well as the big, and determine which of them is worthy of the surgeon-angler's skill.

I have published and re-published these statements until I sometimes wonder whether I have said too much or too little, but to avoid doubt I am repeating them. I am saying this because there appears to be a tendency among certain surgeons and most gastro-enterologists not to

Fig. 3A.—Same Case as Fig. 3, After Excision of Ulcer.

Fig. 4.—Cap Deformity from Postpyloric (Duodenal) Ulcer.

make use of this "all-seeing eye." They remind me forcibly of a certain long-neck bird that sticks its head in the sand. A patient recently came to me who had been under the care of one of these men for two years without amelioration of her symptoms under medical treatment. I made a diagnosis and advised surgical procedure. She was operated upon and obtained complete relief from a condition in which she felt so badly that she said she would rather have died than gone on as she was. After her recovery she asked if this doctor who had cared for her knew of the X-ray method of diagnosis? I did not answer her query as I should have liked, for if I had I would have been forced to say that I thought he knew of the method but refused to use it.

Discussion.

Dr. Fenton B. Turck, New York: Drs. Deaver and Cole presented today two very important papers on the subject of peptic ulcer. Dr. Deaver made a most important point when he showed that the etiology of this disease is bacteriological. All surgeons now agree that peptic ulcer is of bacterial origin, arising from the intestines, colon or appendix.

In the laboratory we see the proof of the surgeon's conclusion, but the ulcer process is not an infection, but an *invasion* of bacteria from the intestines. No multiplication or growth of bacteria occur in the tissues, and consequently, no inflammatory reaction is seen. Round cell infiltration and a connective tissue formation is the secondary healing process. I find that the bacteria penetrate the intestinal wall and pass to the pyloric region. This is accomplished by diffusion of the bacteria in the sub-mucous tissue when on reaching the ulcer bearing area in the region of the pylorus, the bacteria break down and cause cellular autolysis resulting in peptic ulcer.

I have been able to produce thirty-six cases of ulcers experimentally. These are both the acute and chronic types.

In regard to infection from the teeth, and tonsils, there is as yet no real evidence. Injecting bacteria into the blood may result in infection of the lymph follicles and cause necrosis, but this is infection which promptly heals and peptic ulcer is not produced in this way. By injecting streptococci into the blood Rosenow caused breaking down of the lymph follicles, but not peptic ulcer.

A large amount of work done at Mt. Sinai Hospital demonstrated that ulcers were not produced by such infection. In my work, I fed the animals on beef extracts and fatty acids in connection with the ordinary feeding, and this caused migration of bacteria into the walls of the intestines, and passed along the sub-mucosal membrane.

The ferments (anti-bodies) in the pyloric region are eminently increased over other segments of the intestines, and result in bacteriolysis and finally tissue autolysis forming peptic ulcers.

In the treatment, as Dr. Deavers has said, surgeons see things. "They don't have to theorize about them from the outside." After an ulcer perforation is merely sutured, ulcers seldom recur. An immunity seems to be produced from the escape of the intestinal flora and auto vaccination takes place.

In my work I have used the bacteria from the urine and from the intestines, and have cultivated the bacteria on the patient's own blood serum, which causes an absorption of anti-bodies from the patient's serum. After sensitizing the bacteria I have used these for vaccines. I find that post-operative vaccination is advantageous, and have used these vaccines where operation was not indicated.

One of the important points mentioned this afternoon is never to give your patients fatty acids (heated fats) or meat extracts. Chopped meat should be soaked in cold water and the juice pressed out and discorded. The extracts are further removed by long boiling or steaming under pressure in the autoclave. The pulp residue forms the highest grade of nutrition, the highest acid binding power and the best form of protein. All food should be steamed and passed through a sieve. I am opposed to the German method of frequent feedings. Patients should be fed at first only once a day, and the stomach will have time to rest, and empty itself; later two meals—morning and night—are sufficient, which give opportunity for longer rest periods.

Colonic lavage should be used with the water at high temperature to stimulate the production of anti-bodies. The whole treatment should be based upon the viewpoint of a bacterial origin, and if thus considered, altogether different results are obtained. The use of colloids prevents the micro-organisms passing into the intestinal wall. Irish moss, mineral oil, bismuth, kaolin, fine bran, charcoal are colloids that remove bacteria by *adsorption* and are most useful.

It is also necessary to counteract the condition of acidosis which is present as the result of bacterial invasion in the ulcer process. For this purpose the mixed alkalies are useful, the carbonates of:

Potasium sodium
Magnesium calcium and
Bismuth

is the best combination for the acidosis. The ulcer problem is one of bacteriologic origin. The nervous condition and vagotonia may often be a result and not a cause.

We must have in mind a definite line of prevention, such as there is in diphtheria with antitoxine and vaccine prophylaxis. We may thus carry out a line of treatment, which is in accordance with etiology, and obtain better medical results. This would also apply to the ante and post-operative treatment.

DR. LE WALD, New York: There is one point in differential diagnosis in these cases which has been omitted, and that is the diagnosis of syphilis of the stomach. This is a real clinical entity and the surgeon should not be led into operating on syphilis of the stomach unless there has occurred a cicatrization causing pyloric stenosis. The findings in these cases are almost as definite as those in ulcer or carcinoma. There are many variations of this condition, but in the typical cases I have found it to hold true that the œsophagus is usually dilated, because the calibre of the stomach is very much reduced, something in the shape of a dumb-bell, though the pyloric cap may be normal. The ordinary quantity of food cannot be taken into this stomach, without backing up into the œsophagus, so that they have frequent regurgitation of food in this manner. There is a lack of hydrochloric acid, and one gets very little secretion because the stomach empties very rapidly, and is as a rule a small stomach. The stomach is narrowed over an area of considerable size, and these findings are quite characteristic. The number of observations are piling up daily. Some surgeons have resected stomachs with supposed carcinoma, and afterwards microscopical examination has proven them to be syphilitic in nature. As regards the value of the X-ray, I feel that Dr. Lockwood's statistics were compiled some years ago and the technic has very much improved since then. Dr. Cole's presentation today is very convincing. I have followed gastroenterostomy cases and have gone to many operations to see the nature of the pathological process and in very few cases have I noted a definite carcinomatous change following ulcer of the stomach. Dr. Kast has spoken of epigastric hernia. I would like to

emphasize that point. I have seen two cases where the gastric symptoms were due to epigastric hernia.

Dr. I. S. Hirsch, New York: If there were any unanimity of opinion regarding the question of excising every ulcer, our diagnostic difficulties would be considerably simplified. It would suffice to have a radiograph made merely to determine that there exists some pathological condition. Whether it was ulcer or carcinoma would not be important. But not all surgeons are in accord with Dr. Deaver nor will all medical men agree that the surgical treatment is the only treatment for every peptic ulcer. It has been my experience that the average clinician and surgeon want to know whether the case is one of a simple or penetrating or a perforating ulcer or one of early or late carcinoma. Consequently the radiographic diagnosis is a complex problem and in the elucidation of this problem the X-ray examination has done far more than all the stomach tubes and string tests ever devised. The plates as presented by Dr. Cole are not sufficiently conclusive on many points. They do not demonstrate with sufficient clearness the gross pathological difference of the various gastric lesions. I have seen some of these plates before, made to demonstrate other conditions. Some of the areas now dubbed simple and benign have been previously called carcinomatous degeneration. The Roentgen examination must be made with extreme care and a differential diagnosis cannot be always made on the morphological examination alone. There are erosions in the stomach which do not change the morphology of the stomach sufficiently to be determined by the X-ray. The functional changes must be taken into consideration and play a very important part in the determination of such simple ulcerations.

Dr. J. B. Deavor, Chicago: Peptic ulcer, in my opinion, is the result of infection and very often is secondary to disease of the appendix. Typical cases of these ulcers are easily diagnosed, but the atypical ones are apt to present a symptom complex which may suggest disease of other abdominal viscera which, in fact, are often associated with gastric or duodenal ulcer. After a first recurrence of symptoms of gastric or duodenal ulcer the case becomes a surgical one and the internist should as little think of treating such a case as the surgeon would of treating pneumonia or typhoid fever. Why, I have seen two cases of duodenal ulcer perforate while the patients were in the medical ward in one of the best hospitals in the city. It is to avoid that danger as well as carcinoma becoming grafted on a gastric ulcer that I make the statement that peptic ulcers, after a first recurrence, belong to the domain of the surgeon, who is the real internist, and not the man who sees things only from the outside.

ELLIOT'S OPERATION: COMPLICATIONS AND UNFAVORABLE RESULTS.*

By W. GORDON M. BYERS, M.D.,
MONTREAL.

In response to your kind invitation to read a paper before this section, I have chosen the complications and unfavorable results attending Elliot's operation as my subject. These disorders seriously mar the success of what is otherwise a rational and effective method of combatting some, if not all, types of glaucoma; and I feel that ophthalmology has at this time no problems more important than those looking to their elimination.

This paper will necessarily be in great measure a restatement of what has been already written on this subject; but I shall strive especially to emphasize the points that have been brought out in regard to causation, and the means to insure success that have been suggested by others and have occurred to me in my work.

Haemorrhages into the anterior chamber from the iris and ciliary body, occurring during the operation or after the effect of the local anaesthetic has worn away, are of little moment. Even when the extravasated blood entirely fills the chamber, absorption is invariably complete, and, as a rule, quite rapid. It would seem unwise, therefore, to unnecessarily irrigate or manipulate the parts, in an attempt to remove it. Retinal hemorrhages, too, while not infrequent are seldom destructive.

Of serious moment, however, is the expulsive haemorrhage from the choroid, which occurs almost invariably between this structure and the sclerotic. Sudden pain, or a feeling of discomfort in the eye, and a forcible welling out of the vitreous from the wound aperture give notice of its occurrence. A marked rise in the intraocular tension is a usual, if not invariable, accompaniment.

The outlook in these cases is always extremely bad; but a hopeless attitude should not be adopted from the outset. Some valuable suggestions in this connection have recently been made by Verhoeff following an experience with a case of this kind in which the eyeball regained an unexpectedly favorable status. In dealing with this complication, Verhoeff recommends instantaneous pressure over the trephine hole to arrest the flow of vitreous; immediate angular scleral punctures, combined with the excision of tongues of sclera, to insure permanent drainage; and injections of normal saline solution into the vitreous to force the choroid back into place or hold it in position. It has occurred to me that, following Parker's idea, one might with the

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 25, 1917.

trephine at hand use this instrument to secure the necessary sub-choroidal drainage.

In a certain percentage of cases, commonly during, or shortly after the operation, the clinical picture known as "Malignant" glaucoma makes its appearance. One sees the anterior chamber entirely obliterated; the wrinkling of the cornea disappear under a greatly increased intraocular pressure; and a further flow of aqueous arrested. There is pain and conjunctival oedema, and whatever sight remains is apt to be quickly extinguished.

Several factors may no doubt act separately or in combination in producing this condition. The essential feature is, that the iris is so tightly pressed against the spaces of Fontana that reformation of the anterior chamber is impossible. Haemorrhage, as described above, is undoubtedly one of the causes. In other cases the operative aperture is blocked by lens or vitreous or uveal tissue; while in all of them there is unquestionably associated a massive transudation of serum, rich in albumens, into the posterior chamber. The last factor is probably the cause in whole or in part in those cases which recover spontaneously within a short time of the operation.

Priestly Smith recommends Weber's method as the only recourse in these patients. A posterior sclerotomy is followed by steady pressure by means of a curette on the centre of the cornea, the idea being to force the lens backward until the anterior chamber reforms through entrance of fluid between the iris and the cornea. If Weber's method fail, Smith recommends removal of the lens in combination with rupture of the hyaloid membrane. Needless to remark, haemorrhage must be excluded before adopting this measure. Elliot takes a much more conservative view in regard to these cases, holding that many recover spontaneously.

As "malignant" glaucoma and haemorrhages occur in chronically affected eyes in which vascular degeneration is a marked feature, it is likely that there will always be operative difficulties no matter what procedure is adopted. Still, certain general precautions, if rigidly followed in every instance, would probably diminish the occurrence of these complications. Every effort should be made to secure quietness on the part of the patient during the operation, and tranquility through the following few days. Coughs should be controlled, the bowels and kidneys regulated, and sleep assured. Hypodermics of morphine are clearly indicated. As absorption is notoriously slow in glaucoma cases, sensibility of the parts should be tested, if drops are to be employed; and a suitable anaesthetic and a thoroughly experienced administrator chosen, if general anaesthesia is to be used. The utmost gentleness in performing the operation is indicated; and, as the disturbances are precipitated by the reduction of the intraocular pressure, the aqueous should be prevented, if at all possible, from escaping too suddenly from the wound.

While the complications in these two groups are by no means peculiar to Elliot's operation, they are apparently less common after sclerocorneal trephining than after iridectomy, and certainly much rarer as compared with Lagrange's procedure; and for obvious reasons. The reduction of the intraocular pressure is less sudden in Elliot's operation than after the other two methods; there is less manipulation; and the scleral opening is much smaller.

The causes underlying a return of tension following on corneo-scleral trephining must be looked for in several different directions.

In perforating wounds of the cornea, what may be called the normal down-growth of proliferating surface epithelium is arrested by a mass of cells, derived from the corneal corpuscles, which seal the sides of the retracted substantia propria. If for any reason the formation of this plug is delayed, the corneal epithelium can extend deeper, even to the extent of lining the whole of the anterior chamber, and undoubtedly produce a return of the glaucoma. Elliot very properly insists on a conjunctival flap, the upper edge of which is so far removed from the trephine hole that a down growth of the surface epithelium is impossible. The various flap modifications which disregard this fact are wrong in principle and must necessarily lead to failure in a certain percentage of cases; and altogether apart from this an unbroken conjunctival covering is necessary to protect the eye against the inroad of pygenic organisms so frequently present in a conjunctival sac. "Buttonholing" of the conjunctiva produces conditions favoring both infections and the ingrowth of the epithelium as described. The danger of this is lessened by avoiding traction on the conjunctiva and sedulously following the practice of splitting the cornea. I have only once seen the accident occur and that was when an inexperienced operator exerted undue traction with a suture tied to the needle by a knot. If an operator is not entirely sure of his assistant, he had better handle the flap himself; and he should always hold himself on guard against sudden movements of the patient. It cannot be too strongly stated that one of the greatest safeguards in this connection is to be certain that local anaesthesia when used is complete; and it is a valuable adjunct even in general anaesthesia to prevent unexpected reflex spasm of the lids.

Leber showed years ago by a series of interesting experiments that the endothelial cells lining Descemet's membrane prevented the filtration of aqueous into the tissue of the cornea; and it is essential to drainage that a break in the continuity of these cells be maintained. Following perforating wounds of the cornea, a retrac-

tion of Descemet's membrane occurs; but the endothelial cells rapidly proliferate and extend over the posterior surface of the coagulum, arresting filtration. If the wound is large, the cells may not be able to span the gap. It is very unlikely that they can bridge an aperture of 1.5 mm. in size and of a circular form; while they might in a smaller and less complete excision. The scleral button must be removed in its entirety; and this necessity is one of the pleas for an instrument such as that suggested by Verhoeff.

It was pointed out by Fuchs some years ago that, in the absence of haemorrhage or infection, and probably as the result of the parts being continually bathed by the sterile aqueous, the iris showed little or no tendency to healing or to connective tissue formation after injuries. The same thing, as suggested by Collins, is probably true of the cornea, in the case of trephine wounds of this structure made according to Elliot's suggestions. The removal of the endotherial cells permits of a filtration of aqueous to wash away what little granulation tissue is formed by the avascular substantia propria; while the practice of splitting the cornea not only guards the wound against closure by a downgrowth of the surface epithelium, but assures the necessary sterility through the creation of a protective flap.

While the tendency of a wound of the cornea to close under these circumstances is very slight, one is much more likely to have blockage occur if the opening is made in the adjacent sclera. Here the parts are markedly vascular, and not only is one likely to have connective tissue formation from the sides of the hole, but the episcleral tissue is liable to assume an even more active part in the process of occlusion. Faulty positioning of the trephine aperture has been the chief cause of failure in Elliot's operation. The cornea must be split, and the trephine opening must be placed in corneal tissue in part at least to insure success. Elliot even advises that the trephine opening be made entirely in corneal tissue; but Collins objects quite properly, I think, to the procedure being practised to this extent, because the escaping fluid has ultimately to be taken up by the blood vessels which terminate at the scleral cornea margin, and the nearer the channel of exit from the eye is to them, the more easily is such absorption effected; and also because the cornea is rendered opaque by the filtration into it of the aqueous humor.

Summarizing the three preceding sections, it will be seen that I have simply re-stated the rationale of sclero-corneal trephining, and emphasized the necessity of closely following the steps of the operation as described by Elliot. It is probable, however, that the percentage of failures with the method will be less from now on as the result of the practice and experience that the past few years have afforded.

Other causes for the return of tension will be found in a blocking of the aperature by connective tissue developing from the iris or ciliary body, or its plugging by a prolapse of vitreous or a displaced lens.

The inflammatory reaction in the iris, often so valuable in a protective way in perforating wounds of the globe, tends here to defeat the purpose of the operation. A corrective is found in placing the opening well forward in its proper position so that entanglements of iris are avoided, and in carefully clearing the trephine hole after the iridectomy has been performed. In this connection Elliot cautions against undue traction on the iris, and suggests instead that the point of the scissors be placed well into the wound in making the excision. For reasons stated more fully later on, I am opposed to the use of irrigations for this purpose.

I have within the last few days examined the microscopical sections of an eye, removed from an old lady upon whom I had operated for chronic glaucoma. The course of events following the trephining had been uneventful until the eighth day, when sudden flashes of light ushered in a malignant glaucoma with loss of the remaining sight. The slides show the hole entirely filled by vitreous, little or no inflammatory change in the iris and ciliary body, and no haemorrhage at any point within the globe.

It may be possible at times by transilluminating and by observing differences in the depth of the anterior chamber to diagnose a displacement of the lens, and in these cases extraction is worth considering.

In the treatment of a return of tension, miotics should be given first place. Apparently a much larger percentage of the cases, uncontrolled by drugs before operation, will be found to respond to them after trephining than was the case after an iridectomy. In eyes in which tension recurs (and when at all possible all eyes should be systematically tested by the tonometer at stated periods for many months after the operation), the miotics should be exhibited in maximum doses until a reduction of tension is achieved (or their inefficiency shown), and then gradually lessened to the point of complete cessation. I have under observation several cases which have apparently been successfully controlled in this way.

If a second operation has to be performed, the choice lies between a second trephining, a Lagrange, a sclerotomy, and an iridectomy.

A second Elliot is difficult to place; the bleb is unsightly and exposed to injury; and it is difficult to make an adequate flap. In my experience a Lagrange operation is doomed to failure because of the dense adhesions which

occur between the sclera and the conjunctival flap. An iridectomy, necessarily somewhat obliquely placed and excising tissue from one side of the iris only, with the incision passing through the trephine hole and then further back beneath the conjunctiva to secure a good flap, has given me uniformly successful results. As the vessels are fewer at this stage owing to cicatrization of the parts, and sterility can be assured through the conjunctival flap, ideal conditions are present for the formation of a filtering cicatrix—the thing above all others to be desired.

In every aspect of this subject bacterial infections are to be taken seriously into consideration. They complicate the process of healing by stimulating the formation of scar tissue in the trephine hole, as well as between the sclera and the conjunctival flap; and they originate troublesome and damaging inflammations of the iris and ciliary body. In view of the fact that the danger lies almost, if not entirely, with the bacteria of the conjunctiva (and even the ordinarily harmless saphrophytic organisms are capable of producing low grade plastic inflammations), the most scrupulous operative technique is indicated.

In this connection I should like to criticize a few practices that still remain as breaks in our asepsis. One still sees eye instruments used "wet," that is, taken directly from solutions in which they are held during the operation. As sterilization of the hands is in any case a difficult matter, and is as a rule very imperfectly achieved by eye surgeons, it is inevitable that bacteria should at times be carried directly into the wound from the surgeon's fingers. For the same reason, as bare hands are necessary in ophthalmic operations proper, swabbing, where possible, should be left entirely to one assistant wearing sterile gloves. Then there is a wrong impression abroad in regard to the time required for sterilization by immersion in alcohol. I was surprised to find not long ago that mere dipping was considered sufficient in a large ophthalmic service: whereas a minimum exposure of ten minutes in an eighty-five per cent solution is required. Finally, I object to the practice of flushing the wound after corneo-scleral trephining. In cataract cases the flow of the fluid is largely, if not entirely, from within out, and the incision is large; but in trephine openings the solution is apt to flush the conjunctiva before entering the opening, and the aperture is so small that retention of the fluid—that is bacteria—is inevitable. Generally speaking, it is to be remembered also that, if saline solution is seldom contaminated, it is often handled under conditions favoring sepsis.

Iridocyclitis occurring after sclero-corneal trephining is always a troublesome and often a serious complication. It occurs in all degrees of intensity, though its course is usually a mild one. It is liable as always to occasion a secondary rise of tension through the formation of posterior synechiae, or through the outpouring of fibrocellular exudations which block the angle of the chamber; it favors closure of the trephine opening and any aperture that may have been made in the iris; and incidentally it leads to impairment of vision as the result of troublesome deposits on the anterior surface of the lens, as well as nutritional changes in the substance of this structure.

In the treatment of iritis some very important points call for decision. In those cases in which the atropine is well borne and engenders no recurrence of the tension, our course is easy; but in those cases in which glaucoma supervenes, we must either stop the atropine and abandon the eye to the formation of posterior synechiae, or continue its use and employ repeated corneal paracenteses to combat the tension. An insuperable obstacle to this practice arises when pathogenic organisms are encountered in the conjunctival sac. In a case which was recently under my care virulent strains of streptococci and pneumococci were found in abundance. Under these circumstances tapping of the chamber was performed at the limbus after sterilizing the conjunctiva with iodine as suggested by Verhoeff. The procedure, however, proved to be too painful, and had to be abandoned because of the inflammed condition of the eye. Eserine was then employed, and this held the tension in check until, the active symptoms having practically subsided, an iridectomy was successfully performed in the way described.

Detachments of the choroid are interesting rather than important, in view of the fact that they apparently invariably disappear with the return of the intraocular tension to normal; but late infections after trephining constitute a very serious condition, entailing as they generally do complete loss of the eye. Just what percentage of the cases will be affected in this way remains to be seen.

For their development one must necessarily have a break in the epithelial covering of the vesicle and an infection; and the thinner the conjunctiva and the more virulent the bacteria the greater the danger. Apparently very mild microorganisms can at times originate the inflammations. In a recent case of this sort, which occurred, however, in an eye in which a cystoid cicatrix had developed following an iridectomy, the only organism found in the conjunctival sac just before enucleation was the staphylococcus albus. On the other hand, Wilmer and others have seen eyes operated upon by Elliot's method pass through severe attacks of conjunctivitis without damage. The general indications are, however, to secure thick protective flaps, and to adopt whatever measures are indicated by a thorough bacteriological examination of the conjunctival sac. A routine examination of the nose

should be made, and tear sac trouble should be rigidly excluded.

Of what may be called accidents occurring during the course of the operation, loss of the trephine disc in the anterior chamber is one which seems unavoidable in a certain number of cases. Its occurrence need apparently cause no concern. The button can generally be removed by flushing the anterior chamber with saline solution, and apparently in those cases in which it is allowed to remain no untoward results follow.

In several instances injuries to the lens have been reported as having occurred at the hands of skilful operators. Sudden, unexpected movements on the part of the patient and a blunt instrument are given as the causes; and certainly the danger is heightened by improperly placing the trephine behind the limbus. Two cases in which the lens had been injured have come under my notice. When seen by me both patients had normal tension but thick membranes of iris and lens substance entirely covering the pupillary area. Iridotomies, with scissors in one instance and Stevenson's punch in the other, gave excellent results considering the degree of loss of vision occasioned by the glaucoma.

Note: Special acknowledgment is due to Messrs. R. H. Elliot, Treacher Collins, Priestley Smith, and F. H. Verhoeff, whose works and articles I have freely consulted in the preparation of this paper.

IRRITABLE BLADDER IN WOMEN.*

By GEORGE W. STARK, M.D.,
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IN this discourse on the subject of irritable bladder in women, I will not burden you with cystoscopic appearances, and the technic of cystoscopy, which you may find in any text-book, but rather will endeavor to bring out some of the urological conditions in the lower urinary tract, and their relation to gynecology.

On looking over the records of the Women's and Children's Hospital of Syracuse, and the statistics of other institutions, I find that about 35 per cent of all gynecological cases complain of bladder irritation, and about 10 per cent of these cases make their urinary disturbance their chief complaint; this percentage is still higher in private practice.

The cardinal symptoms of irritable bladder in women are, frequency of micturation, dysuria, incontinence and retention.

Frequency of micturation—the time may vary from ten minutes to two hours, there may be just an increased desire to urinate, with fairly good control, to intense suffering the moment a small amount of urine accumulates in the bladder; *dysuria,* or painful urination, this is a burning sensation, before, after, or during the act of urination; *incontinence* is a relative incontinence, noticed when walking, laughing, or coughing; I have often had patients come to me for this symptom only; *retention;* this may be complete, as in tabes, or there may be varying amounts of residual urine, as in prolapse of the uterous, or toxemia of the bladder; primarily I divide bladder diseases into two classes, first, those that have pus in the urine (which include the inflammatory diseases, as cystitis, ulceration of the bladder, calci, tumors, and kidney infection), second, those in which the urine is normal, or a twenty-four hour specimen contains a few lecocytes, these include urethiritis, caruncle, injuries to urethra, trigonitis, and neurosis of the bladder. This second group is the one under discussion this morning.

It is my contention that ordinary pelvic disease, and uterine displacements (except in extreme cases, or pregnant uterous) do not give rise to bladder conditions mechanically or reflexly, but there has developed a real vesical or urethral disease; although the pelvic disease may be contributory.

By far the most common cause of bladder irritability in women is chronic urethritis, or urethra-cystitis; we have acute urethritis, but this is usually gonorrheal in origin, chronic urethritis may follow an attack of acute urethritis. *The most common cause of infection of the urethra is the forcing of infectious material and bacteria up into the urethra by means of the napkin worn by women; tight and small napkins separate the labia (which acts as a protection for the external meatus). The napkins, which are none too clean to begin with, soon become contaminated with bacteria from the vagina, skin or hair, and are continually held in contact with the external meatus; this I believe, is the real reason why urethritis is such a common complication of pelvic diseases; the discharge associated with pelvic disease is sooner or later carried to the urethra by means of the napkin.*

Urethro-cystitis is an extension of the urethral infection to the neck of the bladder and trigone; this may be a simple conjection or a low grade colon bacillus, or less frequently a staphylococus infection; chronic urethritis is usually located at the upper and lower ends of the urethra and does not as a rule involve the middle section. On examination with Kelly endoscope the glands in the posterior urethra are more marked, the mucosia is dark red in color, is swollen and bleeds easily, and granulations are very frequent. When the anterior urethra is involved the mucosia is reddened, and often a purulent secretion is forced into the speculum from the peri-urethral glands; other conditions near the external meatus that give bladder irritability are, eversions of the mucus membranes, hemorrhoidal conditions, and caruncle; with these conditions dysuria is more pronounced than frequency.

Treatment: The urine should be made as

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 26, 1917.

bland as possible, application of 20 per cent silver nitrate to trigone, while 3 to 10 per cent silver nitrate is applied to the urethra about once a week. Every day or every other day I irrigate these bladders with a solution of 1-5000 to 1-1000 silver nitrate in distilled water; the patient urinating the final filling of the bladder, I do not give urotropin. In those old cases where there is more or less fibrosis of the urethra, and the urethra becomes irritable every time the urine becomes acid, I find it very advantageous to dilate in addition to the above treatment; I dilate with a straight Kohlman dilator; this dilation is carried very slowly from 30 F. to 45 F.

Neurosis of the bladder: The medical profession has been too well satisfied to cover its ignorance with such terms as nerosis, neurasthenia, and nervouness; this certainly applies to bladder complaints in women; while we have bladder neurosis, they are a very small percentage of the cases involved.

Under this heading are grouped those functional abnormalities (both sensory and motor), and disturbances of the bladder that result from pathology of the nervous system and brain. These bladder symptoms are found in such spinal conditions as tabes, syringomyelitis and multiple sclerosis; such brain diseases as paresis, brain tumor, and idocy. Frequently urinary symptoms are dependent upon some previous bladder disease, as gonorrhea, that has left an impress on the nerves of the mucus membrane, and persists in spite of the fact that the original disease has disappeared. Very often we have a complication of organic bladder disease, and it is next to impossible to differentiate between this condition and that resultant from tropic changes due to the nervous system.

Sensory disturbances depend as a rule upon abnormal sensibility of the nerves of the bladder either at their ending, or at some point in their course; the most common cause of which is gonorrhea, or other infection which has healed and left this miserable reminder of its former presence. Very slight alterations in the acidity and toxemia of the urine are sufficient to excite this trouble. The symptoms are frequency, and burning pain in the act of voiding, more frequent by day than by night; these patients can not go by a urinal or hear running water without voiding. The true nervous polyuria very seldom has pain on urination.

Incontinence: May result from (A) complete lack of tonecity of the sphineter muscle of the bladder, due to birth injuries (B), from gross disease of the central nervous system, as transverse mylitis, Pott's disease, tabes, and paresis (C), slight incontinence or dribbling resultant from inflammatory condition of the urethra.

Retention of Urine: Retention may be complete or incomplete, acute or chronic, temporary or permanent. Retention may occur from a mechanical obstruction, as a pelvic tumor, it is very common symptom of tabes. It is quite frequent following operations on pelvic organs or the rectum; I have also seen a number of partial retentions of the bladder of the female due to a toxemia of the bladder itself.

Conclusion: When a patient complains of a bladder irritation with no pus in the urine, the chances are that she has a true involvment of the urinary tract, regardless of any pelvic condition, and this irritation is a urethritis.

Urethritis is usually a secondary infection from vaginal discharges carried by means of the napkin.

Displacement of the uterous and pressure ordinarily do not produce irritation of the bladder.

While we may have a true nerosis of the bladder the term has been used out of all proportion by the medical profession in the diagnosis of irritable bladder in women.

Discussion.

DR. DWIGHT H. MURRAY, Syracuse: It is not at all surprising that irritable and infected bladders may be caused in females by the use of a guard that is not frequently changed during the menstruation.

Men who do only special work in this field are more likely to think of and study possible etiologic factors and to suggest methods of prevention that would not be thought of by the general practitioner.

There is another method of infection of the bladder in females; B. coli infection can in my opinion be prevented in many females by advising a change in the habits of the patient in cleansing herself after a bowel movement. Most women cleanse themselves toward the front, it is extremely easy in this way to transfer B. coli to the urethra. They should cleanse themselves from the front towards the back the reason for which is obvious as a preventive measure.

Last year I heard a paper read by Dr. Shaw in Watertown in which the statement was made that of twenty-nine babies who had B. coli infection of the bladder all were girls; there must be a reason for this and I believe it is the short easily accessible urethra of the female which gives an opportunity for feces to come in contact with the meatus unrinarious. Hence the infection; it is comparatively rare in males.

I mentioned this in the discussion of Dr. Shaw's paper but he said he believed the B. coli infection traveled through the tissues to the bladder from the sigmoid or rectum. I cannot believe that these infections take place in this manner when it can be so easily accomplished in the manner I have mentioned and surely it is worth careful consideration.

DR. LEON M. KYSOR, Hornell: In regard to irritation of the bladder, there is another feature

which we have not taken up, and that is the matter on focal infection. I believe there is an important element there according to Rosenow's work and from actual experience. For instance, I have seen several instances of irritation of the bladder in young girls or young women who have had to get up several times in the night to urinate, and urinated frequently during the day, without any reason apparently to account for it. I have four such cases on hand now, and in them I have found ragged, chronically infected tonsils, and the removal of these tonsils clears up the difficulty. I believe this to have been a hematogenous infection.

Another thing I have found not only in women but in men is fissure in ano.

Dr. Robert L. Dickinson, Brooklyn: Much of the irritability of the bladder, with a low degree of urethritis and vaginitis in women, is of a persistent and chronic type that single vigorous treatments will not relieve. We have many patients who live at a distance that need repeated mild treatment, and I have had great satisfaction for a good many years in teaching intelligent women who can be trusted to treat themselves. The device I recommend, which has nothing new about it, is the two-way catheter. A difficulty in using silver nitrate solution is its prompt precipitation by the urine. I have given up argyrol solutions. Protargol is less painful than nitrate of silver, with 25 and 50 grain strengths of protargol as stock treatment. The difficulty of using any single tube in making applications in the bladder is that you get a precipitate of silver chloride with urine. If we can remove the last few drops, we can produce a much greater effect. The ideal method is the knee-chest position, the use of the Kelly cystoscope, the application of silver nitrate or silver solution to the spot where you want it but this is ungainly and usually unnecessary. A safe and effective method is to use my double catheter. This might be called a catheter applicator. Here we have a rubber bulb (indicating) at one end of the upper section of the catheter. This fluid is sucked up into this upper part. The patient lies down and washes off her vulva. She lies on her back with a hand mirror against a cushion. Her anatomy is taught her. The nurse sees to it that she does it two or three times herself without any break in technic before she does it at home. She then, having her solution and absorbent cotton in a little vessel in which has been boiled the applicator and the cotton, washes off the meatus and without allowing the hips to fall together, inserts the catheter applicator. The last drop runs out from the catheter that forms the lower half of the instrument and the bulb is squeezed and she makes application to her trigone with an empty bladder. I have not had a case of infection in an intelligent patient. This shoulder (indicating) prevents the thing from going in too far. It is an inch and three-quarters away from the tip.

A thing that has given me more satisfaction than the sound (and I believe dilating the urethra), is a glove stretcher dilator made some years ago and which has not been published. The difficulty with the ordinary sound is that the meatus is not elastic, and the most sensitive part of the urethra is the meatus and to enlarge that by a sound of sufficient size to stretch the upper part is to give a great deal of unnecessary pain and to cause fissure. Why not, therefore, use a tiny glove stretcher dilator to produce the same effect? At first, I employed the rubber covering used on the male dilators, but that is unnecessary.

One thing worth mentioning in this connection is inflammation of the Skene glands. The glands of the meatus are, of course, when infected, not always red. It is a routine practice with me, first, in making any vaginal examination to stroke the glands forward along the anterior vaginal wall to determine whether there be any secretion of the urethral glands. If, after our bimanual examination has been made, we can detect no pus it may be because we have squeezed it out. Those glands I have been in the habit of treating, when chronically inflamed, with a Dunn syringe, the old pyorrhea needle of the dentist, which is nothing more than a rubber bulb with blunt gold or platium needle. That tiny needle is more convenient than a hypodermic needle and passed into the urethral glands will let you use pure carbolic acid or any solution you prefer to treat these glands. I often split them with cautery or cook them with a fine cautery tip. Any such treatment of these glands is unsatisfactory unless carried out persistently. It is not a common cause of bladder irritablity, but it is worth mentioning.

Dr. Ross G. Loop, Elmira: I have been much interested in Dr. Stark's paper. I have been pestered with these cases. I wonder what importance Dr. Stark attaches to the theory that has been advanced notably by Sherman, of Spokane, that irritable bladder in women is frequently due to a prolapse of the bladder, and he has devised very elaborate measures to prove the sinking of the trigone below its normal level by means of metallic pessaries, radiographs, and so on. Personally, I believe the element of infection the doctor speaks of, with changes in the urethra and at the vesical orifice, is very important.

Dr. Harvey P. Jack, Hornell: Like the rest of you, I was much interested in the paper that has been presented. I have had these cases of irritable bladder in my practice, and I think the treatment outlined by the essayist is excellent. I suppose he intended to limit his paper to irritations of the bladder in younger women. In the older cases we get the senile changes which occur

in the bladder first, and in them we get the irritable bladder symptoms from the overformation of connective tissue which has taken place in connection with age degeneration, but I believe almost all the cases we find are due to local infection, and the very practical deduction is made that in wearing a tight napkin, with the constant rubbing the bacteria from the vagina are massaged, so to speak, into the urethra. That is very interesting. The use of nitrate of silver I have found to be the best treatment for irritable bladder. In the cases sometimes that follow operations in which we have not touched the urethra perhaps, and the bladder has been catheterized two or three times, may be a dozen times, we can find no infection in the urine. It is sometimes followed by a case of incontinence, and while I do not suppose this is germane to the subject exactly, in that condition I have been doing the Kelly operation, pushing in a mushroom catheter and outlining and suturating the bladder tissues in region of sphincter with satisfactory results.

With reference to the urethral condition and these baggy urethra are caused by labor injury, or some other injury in which the urethra bags and forms a pocket, bulging of the urethra, we have a good culture medium for bacteria and without touching the urethra you can clean it up with nitrate of silver and do not have to operate on them, but it is often a good treatment to take up that slack.

Dr. Loop and the writer of the paper called attention to the fact that whenever you get fibrous formation of the urethra as in men, a cold sound will cure a lot of these cases by cleaning out the urethra and stretching the fibrous tissue. These patients get irritable places in the urethra and many of them can be relieved or cured by the ordinary means of sounding the urethra.

Dr. Stark (closing): In the majority of cases of irritable bladder in women, there is very little theory either in the diagnoses or treatment. If one perfects himself in the use of the Kelly endoscope he sees the condition and treats it accordingly. The results obtained with this instrument are strikingly successful in the majority of cases.

Secondary involvement of the urethra from tonsilitis is a very good point. Dr. Guy Hunner has written an article on just this condition. Personally I have not had any experience in the above complications, but have noticed many cases of pyelitis, indurations and strictures, of the ureter following infection of the teeth and tonsils. I have X-rays of such cases and corroborations by Dr. Hunner.

I have seen a number of cases of irritation in the prosterior urethra in the male in which I could find no other cause than a secondary infection from the teeth or tonsils, or an irritation from a toxemia of the intestinal tract.

THE CAUSES OF URINARY FREQUENCY IN YOUNG MEN.

By ERNEST M. WATSON, A.M., M.D.,
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THE role of pathological conditions of the prostate gland in the etiology of urinary frequency in elderly men is universally recognized. There are, however, many men under forty years of age, a period too early to suspect hypertrophy or malignancy of the prostate gland who frequently present themselves to the urologist having as their chief symptom frequency of urination. It is in this group of individuals oftentimes that only an exhaustive examination and prolonged individual study will reveal the true cause of their complaint.

1. Among the more common causes of frequent urination in young men chronic prostatitis occupies a very prominent place. The frequency here may not be marked, but it may be the only subjective symptom. This condition is always insidious in its onset, coming several months to several years after a specific urethritis, tho in some instances no history of a Neisserian infection can be obtained. In fact, it is now believed that a non-specific urethritis or even a condition of chronic congestion due to sexual excesses, etc., occupy a position of considerable importance in the etiology of this disease. The urinary findings in these cases may throw very little light on its true nature. The urine voided in three glasses may be clear in all three with sometimes a few shreds or a few leucocytes in the third glass and very rarely in the cases of long standing do we find any organisms present. The findings on rectal examination often reveal a prostate no larger than normal, but the consistency of the gland is usually "boggy" with considerable induration diffuse in character and often extending upward and involving the seminal vesicles. The adhesions about the prostate and seminal vesicles are also more or less marked and the entire structures about the vesical neck are more fixed than is normally the case. Prostatic massage with the examination of the secretion microscopically will reveal the evidence of inflammation in an increase in the pus cells present which may reach fifty or even eighty per cent of the cellular elements, while the other normal constituents may not be materially altered.

2. Closely allied with the above condition in being practically always post gonorrhoeal in etiology is stricture of the urethra. This finding is usually noted a few years after a urethritis, tho it may appear much earlier. The

urine in this instance may be clear tho not infrequently it is cloudy, and when it is, the entire three glasses show the hazy consistency. Microscopically many pus cells may be seen, for with the stricture there is often a certain amount of cystitis. Organisms may or may not be present depending upon whether there has been much instrumentation of the urethra and subsequent secondary infection usually with the colon bacillus for the gonococcus is rarely found. Examination of the urethra by means of the flexible bougie àboule will readily demonstrate the number, size and location of the strictures present.

3. Marked urinary frequency with pain and burning on voiding in a young man with a markedly contracted bladder is always very suspicious of a urogenital tuberculosis, particularly when the X-rays of the kidneys and bladder are negative. These patients usually give a history of an insidious onset and the duration has usually been several years. The urinary findings here show a cloudiness in all three glasses voided. Microscopically many pus cells are seen and the smear stained by the ordinary methods usually shows no organisms. With these findings a most careful search should be made for the tubercle bacilli, for they are usually present in the bladder urine and the finding of the organisms is practically always a matter of individual perseverance in searching for them. In localizing the tubercular focus the kidneys must first be eliminated by cystoscopy and by ureteral catheterization with functional studies and pyelograms, then the seminal vesicles and epididymes must be examined, for a primary tuberculous cystitis is practically unknown.

4. Not uncommon among the urinary disturbances of young men and to be recognized almost upon inspection of the urine in the three glass specimens is the condition of a pyonephrosis (non-tubercular). The urine in this case is at times literally filled with pus and upon standing a few minutes oftentimes a sediment of an inch or more will be noted in the bottom of each glass. Microscopic examination will almost universally show the presence of cocci or bacilli under the ordinary methods of staining. While the above mentioned findings are not positive in their significance they are extremely suggestive and a cystoscopic examination will reveal the true condition. Thru the cystoscope in these conditions very often one can see a stream of pus coming from the ureter on the affected side. With each ureteral contraction there will be a spurt of thick creamy fluid escape from the ureter and quickly cloud the field of observation. As a supplementary procedure a ureteral catheterization with functional studies and pyelograms should be made to determine the degree of impairment of the diseased kidney and also the condition of the kidney on the healthy side.

5. Another condition in which the frequency is marked and associated with pain and burning, but which is easily diagnosed by modern methods is vesical calculus. Here also the onset is insidious and the duration of some length. The urine may be clear in three glasses and microscopically nothing may be found. In the cases of longer standing, however, a secondary infection takes place and much pus with many bacilli can be found in all three specimens voided. Any individual who persistently voids urine cloudy in three glasses with infection present should have a cystoscopy followed by a ureteral catheterization if no abnormal condition is found in the bladder. The presence of vesical calculus is easily diagnosed by the modern methods of cystoscopy and X-ray of the bladder. In this regard cystoscopy is perhaps preferable, for by this means small calculi may be found which have failed to cast a shadow in previous X-ray examinations.

6. A group of cases that only clearly have been brought to our attention in recent years, but which present very definite symptoms of urinary frequency are those of "median bar" prostatic obstruction. This occurs in individuals with no prostatic hypertrophy but with a bar formation in the region of the median portion of the prostate with or without definite contracture of the vesical neck but in many instances with more or less residual urine. In Young's[1] analysis of over one hundred such cases he found thirty per cent of them occuring in men under fifty years of age. These individuals have usually had symptoms of urinary frequency for years and many "all their life" according to their own words. The urinary findings here are usually negative, the urine being clear in all three glasses and rarely showing a few leucocytes in the third glass. Infection is commonly not present. Rectal examination shows no definite hypertrophy of the lateral lobes with only a slight amount of induration present and very few if any adhesions. The diagnosis in these cases can be made only on cystoscopic examination. By this means is determined the amount of residual urine, the condition of the bladder wall and particularly the size and shape of the median portion of the prostate and its degree of elevation above the trigone and also whether there has been any appreciable amount of sec-

ondary trigonal hypertrophy. This is a most interesting group for study and many of these cases will go unrecognized without a very careful cystoscopic examination.

7. Often secondary to some obstruction at the prostatic orifice as the condition mentioned above occur the group of vesical diverticuli. These in some instances, however, appear to be congenital, but whether so, or dependent entirely upon obstruction, are found most often just outside of the upper lateral margins of the trigone and frequently draw the uteral orifice on the affected side into the cavity of the diverticulum. The second site of election for diverticuli is in the dome or vertex of the bladder in the region of the attachment of the urachus of embryonic life. In either case these diverticuli vary greatly in size and are often the cause of considerable urinary frequency. The urine in these instances is usually clear unless the condition is of long standing, in which case it has probably become infected and the urine voided in all three glasses is then cloudy, containing pus and bacilli, usually of the intestinal type, denoting probably a hematogenous or lymphogenous infection in the pool of stagnant urine. This condition can be diagnosed on cystoscopic examination and also in a confirmatory way, when the diverticuli are of moderate size, by X-rays taken of the bladder after it is filled with a shadow casting substance such as a solution of thorium.[2]

8. Another condition responsible for urinary frequency in young men and not recognized as a definite entity until very recently in the male is a localized cystitis. This is observed when seen in the early stages, as a circumscribed area of hyperaemia of the bladder mucous membrane, the outlines of which are somewhat star shaped. In the later stages it is seen as a puckering with thickening of the mucosa with a local hyperaemia and finally as a definite ulcer with a broken mucous membrane. This condition described in the female some years ago by Hunner but only recently observed by Geraghty[3] in the male, is a most definite lesion with characteristic symptoms and urinary findings. The urine in these cases is clear in all three glasses, occasionally a few leucocytes may be found in the third glass of a centrifuged specimen but there is practically never any infection present. These cases have unquestionably long been overlooked in the male or classed as "neurasthenics." The site of predelection for these lesions is the posterior wall and sometimes the vertex of the bladder and are best seen by the direct vision cystoscope such as the Bransford Lewis. In fact by the ordinary cystoscopes which give an indirect view at right angles to the lesion they are practically never detected, especially in the early stages.

9. Men in the third and fourth decades of life who come in complaining of rather marked frequency and other urinary symptoms rather suggestive of prostatic hypertrophy deserve a very careful cystoscopic study. At this age systs of the prostate are not uncommon. This condition has to be ruled out if the rectal examination reveals a normal size prostate having very little if any induration and very few adhesions externally. The diagnosis of this condition rests entirely upon cystoscopic examination, at which time the cysts can be recognized about the prostatic orifice by their translucency, mobility and soft consistency. The urinary findings in these individuals are often negative, the three glass specimens being clear with no infection as a rule and only occasionally showing a few leucocytes or a rare red blood cell in the centrifuged specimen from the third glass.

10. Closely allied with the foregoing group is another termed by Buerger[4] "Urethritis chronica cystica." This condition occurs very often in young men, in over twenty-five per cent of Buerger's cases urinary frequency was the presenting symptom and these individuals were all under forty years of age. These lesions consisting of one or multiple cysts located along the posterior urethra are diagnosed by means of the cysto-urethroscope or the endoscope. The urinary findings here are of very little value, there occasionally being a few leucocytes present but rarely any infection.

11. The occurrence of malformations about the posterior urethra while not common are encountered sufficiently often to make one bear this possibility in mind in cases of urinary frequency in young men and particularly in boys in the first and second decades of life. Perhaps the most common of these is the presence of constricting bands or a "vale" in the posterior urethra which anomaly acts as a valve holding back the urine so that the individual practically never empties the bladder. These conditions are always congenital defects and consequently the symptoms date from birth usually becoming more marked as the child grows older. The site of choice for these valves is at the anterior end of the colliculus seminalis where normally there are two folds, the crista urethralis. It is the over development of these normal ridges that gives rise to the valve like folds which produce such marked urinary symptoms in infancy and childhood.

These anomalies until recently have only been diagnosed at the post-mortem table,[5] but within the last few years urethral examination with the small bougie à boule and subsequent supra-pubic cystostomy with inspection of the prostatic orifice and prostatic urethra have very definitely established their clinical importance. In the older individuals examination with the cysto-urethroscope and with the endoscope have thrown much light on the possibility of recognizing these conditions preoperatively. The urinary findings in these practically always show pus cells and bacilli in considerable amounts in the voided specimens, secondary infection having occurred in the large amount of residual urine.

From the above brief consideration of some of the causes of urinary frequency in young men it is seen that the problem confronting the urologist is not always a simple one and only by the use of all the modern methods can he expect to arrive at a correct diagnosis in many instances.

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SOME ASPECTS OF INTERNAL HYDROCEPHALUS.*

By CARL G. LEO-WOLF, M.D.,
BUFFALO, N. Y.

I MUST confess that I have considerable hesitation to bring before your body a study based on only two cases; but I do this in the hope that the discussion will bring out opinions of those of you who have had the good fortune to see more of this condition, that I may learn from your experience and that my little patients may benefit thereby.

I shall recite my cases first.

Case I: W. B., a white boy, was born July 9, 1915; he has one brother five years older who is well; the mother has not had any miscarriages and she and her husband are both well.

Patient was nursed for three months and then was given the bottle with the usual repeated changes of milk-modifications; he was getting along well, when in the middle of December, 1915, at an age of five months, he was taken ill with what the mother describes as a cold with high fever followed by convulsions.

When he was first seen by me on March 31, 1916, he weighed 15½ pounds, his head was not enlarged, both fontanels were closed, physical examination was negative, Wassermann taken twice was negative, but the convulsions were more frequent of late, as many as ten in twenty-four hours both when awake and during sleep; the convulsions were accompanied by a sudden cry.

On April 12, 1916, I sent him to my service at the German Deaconess Hospital where my friend Dr. Edward A. Sharp saw him with me. We decided that it was a case of internal hydrocephalus, and lumbar puncture showed a clear lumbar fluid under high pressure of which I removed 15 cc., bacteriological examination of this was negative at different times and it contained from eight to twelve cells per cmm.; he remained at the hospital for about five weeks and I have seen him quite frequently since. His general health is good, he weighs about twenty-five lbs., has teeth, he can sit up alone and is fairly good-natured and can recognize his mother but he can neither walk nor stand up. His mother brings him whenever she judges from his increased restlessness and the character of the convulsions that another lumbar puncture is required.

He still has occasional convulsions, but has gone once as long as two weeks without any.

Up to March first, when I made the last puncture, I have made on him nineteen lumbar punctures, of which four were unsuccessful, giving only blood or a few drops, in the other fifteen I removed in all 240 cc. of spinal fluid.

Case II: R. G., a white girl, was born September 29, 1914, she is the older of two children, the other child is well; mother had no miscarriages, both she and her husband are well; the birth of R. G. was normal but prolonged; she was a healthy baby, nursed thirteen months; her first tooth appeared at twelve months, she can run around, can talk quite a little and is bright.

She had never been ill, when she had a fall downstairs in December, 1915, after which she had convulsions, first daily, rarer since.

She was first seen by me at the Good Samaritan Dispensary on November 24, 1916. She now has a convulsion about every three weeks, a few days before this she is cross and cranky, restless and twitchy, and she puts her hands up to her head and ears more than usual. Her mother thinks that she is about due for a convulsion.

* Read at the Annual Meeting of the Medical Society of the State of New York, at Utica, April 24, 1917.

Physical examination negative, ophthalmoscopic report negative, McEwen sign present, patellar reflexes exaggerated, head not enlarged, both fontanels closed.

I made a diagnosis of internal hydrocephalus and lumbar puncture performed at once yielded 13 cc. of clear liquid under high pressure.

She had no convulsions until December 6.

On December 12, I had her admitted as a charity case to my service at the German Deaconess Hospital where she remained until the middle of February, when her parents decided that they had to have her at home and I have not seen her since.

In all I made six lumbar punctures on this patient in which I removed 150 cc. of fluid which showed a cell-count of between 110 and 270 per cmm.; bacteriological examination of this was negative; her Wassermann was negative; her blood showed 6600 leucocytes.

During her stay at the hospital she showed herself to be a bright but wilful child, she was companionable and made friends easily. It was noticed that her head would droop suddenly several times a day and that she put her fingers into her ears occasionally, more so before a convulsion.

I shall not weary you with a lengthy recital of all that is known about hydrocephalus, anyone can look this up in the textbooks; I shall only give you my own conclusions from these two cases for what they are worth.

Case 1. I regard as due to an acute attack of encephalitis. Case 2, as due to a traumatic encephalitis; in both cases the foramen Monroi and Magendii remained open, thus influencing the favorable prognosis and the evident result of the therapeutic measure, namely lumbar puncture, which in this class of cases seems to me to offer the only chance of ultimate and permanent recovery.

Discussion.

DR. ELIAS H. BARTLEY, Brooklyn: I would like to ask Dr. Leo-Wolf whether he regards the convulsions as due to pressure or irritation. Drawing off the fluid and reducing the pressure checked the convulsions for the time being. The pressure alone did not seem sufficient to produce the convulsions and there must have been some other irritation, yet it was stated that the fluid drawn off did not seem to indicate much inflammation. As yet Dr. Leo-Wolf has not been able to report on the autopsy; perhaps later he will know something more as to the cause of the convulsions.

DR. LEO-WOLF: I simply considered the convulsions as due to pressure; with the lessened pressure brought about by the lumbar puncture the convulsions stopped until pressure was again produced. Irritation would have caused local instead of general convulsions.

Medical Society of the State of New York

District Branch Meetings

FIRST DISTRICT BRANCH.

ANNUAL MEETING, NEWBURGH, N. Y.
Friday, November 9, 1917.

The meeting was called to order in the Palatine Hotel by the President, Dr. Richard Giles, of Cold Spring. There were 125 members present.

Moved by Dr. Toms that the minutes of the last meeting be accepted as printed in the State Journal of Medicine. Motion seconded and carried.

Dr. Floyd M. Crandall, Secretary of the Medical Society of the State of New York spoke of the importance of securing good presiding officers for the Branch meetings and of their work in the State Society meetings.

SCIENTIFIC PROGRAM.

"Is It Syphilis or Not?" William S. Gottheil, M.D., New York. Discussed by Mihran B. Parounagian, M.D., New York, and William H. Snyder, M.D., Newburgh.

"The Signs and Treatment of Thyroidism," John Rogers, M.D., New York.

"Mass Volunteering," Capt. Frederick T. van Beuren, Jr., M.D., New York. Discussed by Samuel W. S. Toms, M.D., Newburgh.

"Lessons Taught by the Present War in the Treatment of Gun Shot Wounds," Walton Martin, M.D., New York.

"Intermittent Hydro-and-Pyo-nephorsis in the Female," Dougal Bissell, M.D., New York. Discussed by J. Wilson Poucher, M.D., Poughkeepsie and Henry D. Furniss, M.D., New York.

"Acute Abdomen Caused by Acute Perforating Appendix, Acute Perforating Gall Bladder, Acute Perforated Gastric and Duodenal Ulcer, Acute Pancreatitis," John B. Deaver, M.D., Philadelphia, Pa. Discussed by Parker Syms, M.D., New York; Charles E. Townsend, M.D., Newburgh; James E. Sadlier, M.D., Poughkeepsie; George A. Leitner, M.D., Piermont.

SECOND DISTRICT BRANCH.

ANNUAL MEETING, BROOKLYN.
Monday, October 29, 1917.

The meeting was called to order in the building of the Medical Society of the County of Kings by the President, Dr. Arthur H. Terry.

After an informal address by the President of the Society, Dr. Floyd M. Crandall, the Secretary of the Medical Society of the State of New York addressed those present.

SCIENTIFIC PROGRAM.

"General Characteristics of Gun Shot Wounds and Their Treatment under the Conditions of Modern Warfare," Walton Martin, M.D., New York.

"Infectious Diarrhœa of Infancy," Carl H. Laws, M.D., Professor of Pediatrics, L. I. College Hospital. Brooklyn.

"The Diagnostic Value of Opaque Substances in the Kidney and Bladder Regions." Nathaniel P. Rathbun, M.D., Brooklyn.

County Societies

CAYUGA COUNTY MEDICAL SOCIETY.

Annual Meeting, Auburn, N. Y.

Thursday, November 15, 1917

The meeting was called to order in the Osborne House.

After hearing the reports of the Standing Committees, the Comitia Minora, and the annual reports of the Secretary and Treasurer, the polls were declared open and the following officers were declared elected for the ensuing year: President, Emerson Ward Hitchcock, Auburn; Vice-President, Milo Le Roy Seccomb, Auburn; Secretary, George Hall Beers, Auburn; Treasurer, Frederick Arthur Lewis, Auburn; Alternate Delegate to State Society, Nehemiah B. Ford, Owasce; Censors, Francis W. St. John, Howard I Davenport, Sedgwick E. Austin, Francis E. O'Brien, John H. Witbeck.

After the business meeting, the members of the Society attended a banquet in the Palm Room of the Osborne House, Dr. Frederick Sefton, of Auburn, was Toastmaster.

At the conclusion of the repast Dr. M. P. Conway presented an umbrella cane in behalf of the Society to Dr. A. H. Brown, of Auburn, who tendered the banquet.

MEDICAL SOCIETY OF THE COUNTY OF OSWEGO.

Ninty-seventh Annual Meeting, Oswego, N. Y.

Tuesday, November 20, 1917.

The meeting was opened with the following scientific program.

President's Address.

"Eclampsia—with Cæsarean Section," Edward M. Anderson, M.D., Fulton, N. Y.

"Carrel-Dakin Method," Capt. Milton Bodenheimer, M.D., New York.

"Mental Defectives," Miss Eleanor Gray, State Normal School (Special Department).

Report of a Case—Operative, Albert L. Hall, M.D., Fulton.

"Cyclic Vomiting in Children," Fred. L. Ritter, M.D., Pulaski.

The paper of Miss Gray brought out the importance of careful observation of children in the effort now being made to give those of sub-normal development the best chance in life, and showed the necessity of co-operation on the part of the physicians.

Captain Bodenheimer who is connected with the base hospital unit at Fort Ontario, gave with his paper, practical demonstrations in re the matter of administration of the Carrel-Dakin treatment. To this end he exhibited four patients from Post Ontario, two on hospital beds, and in his talk was assisted by other physicians, nurses and orderlies from the Post, in most lucid explanation of the details of the treatment.

The Society then took up the election of officers for the coming year. Owing to the absence of Dr. Frank E. Fox, Vice-President, who is now serving in the Medical Reserve, the usual custom of advancing the Vice-President to the Presidency seemed not desirable, members of the Society voicing the opinion that this honor should be bestowed upon Dr. Fox after his return and when he could actively participate in the work of the Society.

The following officers were elected: President, Frederick L. Sin Clair, Oswego; Vice-President, Edward M. Anderson, Fulton; Secretary, Walter H. Kidder, Oswego; Treasurer, Harriet M. Doane, Fulton; Delegate to the State Society, Walter H. Kidder; Censors, LeRoy F. Hollis, Emory J. Drury, Pascal M. Dowd, Jeremiah T. Dwyer, Arthur W. Irwin.

Upon the invitation and motion of Dr. L. F. Hollis, the Tuberculosis Hospital at Orwell was designated as the place for the semi-annual meeting in May, 1918.

MEDICAL SOCIETY OF THE COUNTY OF WESTCHESTER.

Annual Meeting, White Plains, N. Y.

Tuesday, November 20, 1917.

The meeting was called to order at 2:30 P. M. and the following officers were unanimously elected for the ensuing year: President, Henry Moffat, Yonkers; Vice-President, William L. Russell, White Plains; Secretary, William H. Purdy, Mt. Vernon; Treasurer, Walter W. Mott, White Plains; Delegates to State Society, William H. Cantle, Charles Ogilvy; Alternates, Edward F. Briggs, Frank A. M. Bryant, Robert B. Hammond, Elton G. Littell; Censors, Walter S. Woodruff, Clarence C. Guion, Arthur S. Corwin, Carl Osterheld, Robert Denniston.

Reports from special and standing committees were read, also the secretary's report which showed that at present we have a membership of 285, an increase of 20 members during the present year. The Treasurer's report showed a balance on hand of $242.26 and a 4 per cent "Liberty Bond" for $100, an increase of $72.63 during the present year. There have been five regular and two special meetings of the Society during the past year.

We have 57 men commissioned in the Medical Officers Reserve Corps, and our Committee for National Defense consisting of fourteen active members is endeavoring to increase the number of enlisted men, and make Westchester County one of the foremost of the state. Enclosed is a communication recently sent to 250 physicians in the county.

Westchester County Auxiliary Committee for National Defense.

Dear Doctor:

The New York State Committee of National Defense again urges that increased efforts be made to get more physicians to enlist in the Medical Officers' Reserve Corps. The Surgeon General states that the Department has at its command only one-half of the medical officers required for an army of two million.

New York is the *seventeenth* on the list of states in the proportion of its doctors who have volunteered, and Westchester is *twenty-second* in the list of counties of New York State rated on the same basis. In order for Westchester County to complete its quota, 11 more commissions must be issued. Out of 411 physicians in the county there are but 57 who have already been commissioned.

You have been rated by the State and County Committees as eligible and available for military service, and it is hoped that you will see your way clear to file application for the Medical Officers' Reserve Corps at this time. Your country needs and asks for your services and this committee feels sure you will not fail to respond to this call NOW.

Will you kindly inform the chairman of this committee immediately, as to when you will be ready to accept a commission?

Very truly yours,

E. G. Ramsdell, M.D., *Chairman.*
L. B. Chapman, M.D., *Secretary.*

The average attendance at our Society meetings is 50; at the meeting on September 17th 65 were present and at the November meeting 43.

Scientific Session.

"Clinical Aspect of Recent Studies Relating to the Autonomic Nervous System," Walter Timme, M.D., New York City.

Discussion opened by Clarence O. Cheney, M.D., New York City.

MEDICAL SOCIETY OF THE COUNTY OF ALLEGANY.

ANNUAL MEETING, BELMONT, N. Y.

Thursday, October 11, 1917.

There were seventeen members present.

A communication from Dr. Tinker in regard to the redistricting of the state for branch meetings was read and on motion it was voted that Allegany County did not desire any change made.

A communication from the surgeon general in regard to the best method to get employment for war cripples was read and every member was asked to report all cripples who had acquired ability to do work of any kind, in their respective villages.

Communication from Dr. William A. Groat, of Syracuse, in regard to the Medical Society of Central New York was read but no action taken.

The following officers were elected for 1918: President, Frank E. Howard, Cuba; Vice-President, Earl D. Kilmer, Rushford; Secretary-Treasurer, Chauncey R. Bowen, Almond; Censors, Francis E. Comstock, Emerson W. Ayars, Horace L. Hulett, Lloyd S. Benedict, William J. Hardy.

Dr. Chauncey R. Bowen was elected Delegate to the State Society. On motion all reasonable expenses of the delegate were ordered paid.

SCIENTIFIC SESSION.

"Catarrhal Jaundice," George W. Roos, M.D., Wellsville, N. Y.

"Etiology of Ectopic Gestation," Charles A. Bentz. M.D., Buffalo, N. Y. An interesting discussion followed by many of the members present.

COLUMBIA COUNTY MEDICAL SOCIETY.

ANNUAL MEETING, HUDSON, N. Y.

Thursday, October 11, 1917.

The following officers were elected: President, Frank Clay Maxon, Chatham; Vice-President, Clark Green Rossman, Hudson; Secretary-Treasurer, John Wellington Mambert, Hudson; Delegate, F. C. Maxon; Alternate, William D. Collins; Censors, Roscoe C. Waterbury, James W. King, Louis Van Hoesen, Charles R. Skinner, Henry W. Johnson.

It was moved, seconded and carried that the Society invest $100 in Liberty Bonds.

The Scientific Session consisted of a paper on the "Carrel-Dakin Treatment of Wounds," by Sherwood V. Whitbeck, M.D., of Hudson.

BROOME COUNTY MEDICAL SOCIETY.

MEETING, BINGHAMTON, N. Y.

Tuesday, October 2, 1917.

After calling the meeting to order the following officers were elected for 1918: President, Mabel A. Martin, Binghamton; Vice-President, George S. Lape, Binghamton; Secretary, Henry DeWitt Watson, Binghamton; Treasurer, William H. Hobbs, Binghamton; Delegate to State Society, William H. Hobbs; Alternate, Arthur S. Chittenden; Censors, John G. Orton, Daniel S. Burr, John H. Martin, William S. Overton, Charles S. Butler.

Following the business session, Dr. Sophy Carlucci read a paper on "Child Welfare Work in Binghamton." She discussed the origin of the work and spoke of its progress and educational elements. It was a very interesting paper and enjoyed by all.

Dr. Mary J. Ross read a paper on "Educational Value of Milk Stations." She spoke of the first milk station in Binghamton, its nurses and the number of cases treated in a year, and told of its expenses.

MEDICAL SOCIETY OF CLINTON COUNTY.

ANNUAL MEETING, PLATTSBURG, N. Y.

Tuesday, November 20, 1917.

The meeting was held at the Arcade Hotel at 12 o'clock. After luncheon, the business session was held.

Minutes of previous meeting were read and approved.

Election of officers: On motion the Secretary was directed to cast a ballot for all the officers for the coming year. The following were elected: President, Mahlon B. Holcombe; Vice-President, William U. Taylor, Mooers; Secretary, William H. Ladue, Morrisonville; Treasurer, Jefferson G. McKinney, Plattsburg; Censors, Robert S. Macdonald, Edwin W. Sartwell, Harold R. Robert; Delegate to State Society, James M. Hackett.

Dr. Schiff reported for the Committee on the County Tuberculosis Hospital, to the effect that no action had yet been taken by the supervisor. The report was accepted and the Committee continued in existence.

Committee on Revision of By-Laws to conform to the By-Laws of the State Society; Dr. Schiff in reporting proposed for voting upon two propositions as follows:

1. Chap. 4, Sec. 17: Substituting "ensuing two years" for "ensuing calendar year."

2. Striking out Sec. 4 of Chap. 8.

Motion made and seconded that proposition (2) be accepted. Carried.

Motion made and seconded that (1) be rejected. Carried.

The Treasurer's report showed dues received from all but two members and about $105 on hand.

A letter from a committee of the State Society was read relative to the redistricting of the Branches of the State Society.

After thorough discussion, Dr. Ransom moved that the society go on record as opposing any redistricting involving the Fourth District. Motion seconded and carried.

SCIENTIFIC PROGRAM.

Dr. W. L. Munson, of Granville, our Sanitary Supervisor read a paper on "The Management of a County Tuberculosis Hospital."

After discussion of the paper, Dr. Ransom moved that the Executive Committee of the County Society secure the printing of the article in toto in the county papers.

An amendment was offered by Dr. La Rocque providing that copies of the printed article be sent to the supervisors and that the treasurer meet whatever expenses may be incurred in the printing.

Amendment and motion seconded and carried.

Lt. Col. A. W. Williams, Commander of the Post Hospital, Officers Training Camp, Plattsburg, the next speaker, under the title of "Medical Preparedness" gave a most interesting account of the status of the Medical Service in the Army.

Captain McConechy gave an interesting talk on the "Relation of Local Infection to Systematic Conditions."

Lieutenant Seth, recently from the Rockefeller Institute gave a detailed account of the "Proper Method of Making and Employing the Dakin Solution in War Wounds."

Dr. Ransom moved a vote of thanks to the Army men for coming to the Society meeting and especially to those who gave such interest talks.

Lieut.-Col. Williams invited the members of the Society to witness at the Post Hospital the actual method of employing the Dakin solution.

The members of the County Society were invited by Dr. Ransom to attend the opening of the New State Tuberculosis Hospital at Dannemora in the near future.

QUEENS-NASSAU MEDICAL SOCIETY.

Annual Meeting, Long Island City, N. Y.

Tuesday, November 27, 1917.

The meeting was held in the rooms of the Chamber of Commerce of the Borough of Queens, Long Island City.

The officers elect for the year 1918 are as follows: President, J. Ensor Hutcheson, Rockeville Center; Vice-President, L. Howard Moss, Richmond Hill; Secretary-Treasurer, James S. Cooley, Mineola; Censors, Robert F. Macfarlane, Roy D. Grimmer, Margaret M. York, Chester W. Cole; Historian, Walter Lindsay; Delegates to State Society: John J. Kindred, Thomas C. Chalmers.

The Secretary reported the deaths of four members or former members of the Society, since the last annual meeting:

R. Paul Williams, at Farmingdale, April 12th.
Edward G. Rave, at Hicksville, July 23d.
Skidmore Hendrickson, at Munsey, August 30th.
Melvin Sheldon, at Churchtown, October 8th.

On motion of Dr. W. G. Frey, it was unanimously voted to remit the county and state dues of all members of the Society who are in the service of the country, the same to be assumed by the Society until their return.

Scientific Session.

The Scientific Session took the form of a symposium upon infectious and communicable diseases, especially such as are more common in army camps and in the navy. Surgeon J. R. Phelps, M.D., representing the U. S. Surgeon General and Dr. Emerson, of the New York City Board of Health, gave a very interesting and instructive talk upon the general subject of Communicable Diseases.

Dr. F. C. Smith, of the Public Health Service, representing the Bureau of Medicine and Surgery, spoke very emphatically in reference to the importance of co-operation of civilian physicians with the Public Health Service and with the Medical Corps of the Army and Navy. An interesting and valuable paper was read by Capt. O. M. Leiser of the Medical Reserve Corps, upon "The Relation of the Civilian Practitioner to the Infectious Diseases of Army Camps." The address of President Kindred, treated of "Venereal Diseases, their relation to Insanity and Nervous Diseases."

A brief discussion followed by Dr. W. G. Frey, Astoria; Dr. T. C. Chalmers, Forest Hills, and Dr. Maria M. Vinton, Richmond Hill.

The meeting was a very instructive one and merited a larger attendance.

THE MADISON COUNTY MEDICAL SOCIETY.

Annual Meeting.

Tuesday, October 2, 1917.

The following officers were elected: President, J. Frederick Rommel, Canastota; Vice-President, Martin Cavana, Sylvan Beach; Secretary, George W. Miles, Oneida; Treasurer, Nelson O. Brooks, Oneida; Censors, William Taylor, Charles H. Perry, Martin Cavana; Delegate to State Society, Nelson O. Brooks.

Following the business meeting, the President, Stowell B. Grant, M.D., Munnsville, gave an address on "Arthritis."

SENECA COUNTY MEDICAL SOCIETY.

Annual Meeting, Willard, N. Y.

Thursday, October 11, 1917.

The meeting was called to order at the Willard State Hospital at 11 A. M. Eighteen members were present.

The following officers were elected: President, Robert M. Elliott, Willard; Vice-President, Charles T. Ostrander, Waterloo; Secretary and Treasurer, Frederick W. Lester, Seneca Falls; Acting Secretary and Treasurer, until Dr. Lester returns from Medical Reserve, Thomas F. Cole, Romulus; Delegate to State Society, Edwin P. McWayne; Alternate, A. J. Frantz; Censors, Robert M. Elliott, Charles T. Ostrander, Frederick W. Lester.

Scientific Program.

"Fractures," William L. Wallace, M.D., Syracuse.
"Dementia Precox with Cases," Louis Waldo, M.D., Willard.

MEDICAL SOCIETY OF THE COUNTY OF GENESEE.

Annual Meeting, Batavia, N. Y.

Wednesday, October 3, 1917.

The meeting was called to order in the Y. M. C. A. Building, the first order of business being the election of the following officers for 1918: President, Robert M. Andrews, Bergen; Vice-President, Emery F. Will, Batavia; Secretary-Treasurer, Edith F. Ryan, Batavia.

Scientific Program.

"The Toxæmia of Pregnancy," Peter W. van Peyma, M.D., Buffalo. Discussed by William D. Johnson, M.D., Milton P. Messinger, H. A. Harvey, and Dr. Getman.

"Modern Surgery and Its Non-Technical Side." William R. Thomson, M.D., Warsaw. Discussed by Dr. John W. LeSeur.

MEDICAL SOCIETY OF THE COUNTY OF GREENE.

Annual Meeting, Catskill, N. Y.

October 9, 1917.

The following officers were elected for the ensuing year: President, Alton B. P. Daley, Athens; Vice-President, Edward H. Huntington, Cairo; Secretary, Robert Selden, Catskill; Treasurer, Charles E. Willard, Catskill; Chairman, Legislative Committee, Percy G. Waller, New Baltimore; Chairman, Public Health Committee, John L. Loutfian, Coxsackie.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

Impotence and Sterility, with Aberrations of the Sexual Function and Sex-Gland Implantation. By G. Frank Lydston, M.D., D.C.L., Member American Urological Association; Fellow of American Medical Association. London, Eng. The Riverton Press. Chicago, Ill.

The Principles of Modern Hygiene. By William A. White, with an Introduction by Smith Ely Jelliffe, M.D., Ph.D. The Macmillan Co., New York, 1917. Price, $2.00.

Elements of Pediatrics for Medical Students. By Rowland Godfrey Freeman, A.B., M.D., Adjunct Prof. of Pediatrics, New York Univ. and Bell. Hosp. Medical School; Attd. Pediatrist, Roosevelt Hosp., New York; Ex-Pres. American Pediatric Society. The Macmillan Co., 1917, New York. Price, $2.00.

The Physician's Visiting List (Lindsay & Blakiston's) for 1918. 67th year of its publication. P. Blakiston's Son & Co. (successors to Lindsay & Blakiston), 1012 Walnut Street, Philadelphia, Pa. Sold by all booksellers and druggists.

Book Reviews

HANDBOOK OF MASSAGE FOR BEGINNERS. By L. L. DESPARD, Member and Examiner, Incorporated Society of Trained Masseuses. .London, Henry Frowde, Hodder & Stoughton, Oxford University Press, Warwick Square, E. C., also 35 West 32nd Street, New York City, 1915. Price, $2.00.

The object of this book as stated in the preface is to give sufficient knowledge of massage to those who can not take a course of the usual length but wish to be of use in giving treatment by massage to wounded or disabled soldiers. The author lays stress on the fact that this should be given only by those who, after a minimum of six months' preparation, have received a certificate from the proper authorities.

On the whole the book seems well adapted for this purpose. So long as it deals with the subject of massage, the subject matter is well presented and the details logically and systematically arranged. The style is not always lucid but the many excellent illustrations atone for such deficiency.

Unfortunately, a large part of the book is devoted to descriptions of various morbid conditions for which treatment by massage is indicated. The author's descriptions are full of inconsistencies, misleading statements and definite errors. From a study of this book, the inexperienced would naturally conclude that a diagnosis of aortic stenosis or chronic gastric catarrh could be made on symptoms alone, and easily made, as there is nothing to indicate the contrary. Given the name of a disease, definite symptoms by which it is said to be recognized, directions for treating it, with nothing to indicate that the matter is not fully covered, and it is easy to see what a mistaken impression the mind of the beginner will receive and what harm might result.

MYRTLE LOTHROP MASSEY, M.D.

MANUAL OF THE DISEASES OF THE EYE FOR STUDENTS AND GENERAL PRACTITIONERS. By CHARLES H. MAY, M.D. Director and Visiting Surgeon, Eye Service, Bellevue Hospital, New York; Attending Ophthalmic Surgeon to the Mt. Sinai Hospital, New York; Consulting Ophthalmologist to the French Hospital, to the Italian Hospital, New York, and to the Monmouth Memorial Hospital; formerly Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York. Ninth Edition, Revised, with 377 original illustrations, including 22 plates with 71 colored figures. William Wood and Company, 1917. Price, $2.50.

The ninth edition of May's Manual of Diseases of the Eye is a thorough and careful revision of the previous edition. New matter has been added so as to bring the matter up to date. The essentials of ophthalmology are clearly and definitely stated. Technical terms, when used, are fully explained so as to be readily understood by the student. The illustrations have been well chosen and they will help one to gain a better understanding of the text. Although the colored plates in this handbook were not designed to take the place of those in some of the large atlasses on the subject, yet these give a fairly clear idea of the abnormal appearance of the more common diseases of the eye. Mention may be made of Fig. 239, Plate XII, which shows exceptionally well the fundus changes in arteriosclerosis, as seen by the ophthalmoscope. Finally it may be said that the popularity of May's Manual is largely due to the fact that the author has strictly adhered to the principle of "saying enough but not too much."

J. W. I.

THE TREATMENT OF WAR WOUNDS. By W. W. KEEN, M.D., LL.D., Emeritus Professor Surgery, Jefferson Medical College, Philadelphia. 12mo of 169 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, $1.75 net.

This little volume prepared at the request of the National Research Council is very opportune and a valuable asset at this time when the medical profession is preparing to take up the burden of war surgery. It is an intensely interesting little manual incorporating reports from the front. A valuable feature is the appended personal contributions in the form of letters by Dr. Joseph A. Blake, Sir Anthony A. Bowlby, Bart, Drs. Hugh Cabot, Geo. W. Crile, Harvey Cushing, Chas. L. Gibson, H. H. M. Lyle, and Fred T. Murphy.

An extract of the treatment of gunshot wounds by Sir Berkeley Moynihan from the *British Medical Journal* is also included.

The meat of these letters and extracts is incorporated for the most part in the text arranged as follows: Respects in which the present war differs from previous wars. The Carrel-Dakin Method, Removal of Foreign Bodies, Tetanus, Gas Infection and Gas Gangrene, Wounds of the Head, Chest, Joints, Abdominal Wounds and Burns.

Impressions of the chapters by the reviewer in passing are noted as follows: There is an overwhelming importance to be attached to the earliest possible removal of the wounded to hospitals. Results of Depage at La Panne and Carrel at Compèigne, who received their wounded often within a few hours, when tetanus, gas infection and other infections can be prevented, ameliorated or cured, show the enormous value of rapid transportation. A diagram furnished by Col. Henry Page shows at a glance the scheme of the American Army. One furnished by Col. Thos. H. Goodwin of the Royal Army Medical Corps shows the plan of the British Army in evacuating and caring for the wounded.

In passing Dr. Keen credits Jonathan Letterman, Medical Director of the Army of the Potomac in 1862, with this plan for the orderly transportation of the wounded from the front.

Illustrations in this chapter indicate how a touring car can be converted into a temporary ambulance, how the wounded are transported by ambulance-trolley and overhead railway. The automobile is indispensable. Cabot directs attention to the value of interchangeable standardized stretchers. Hospital trains operate in France between evacuation and base hospitals. These are provided with surgeons and nurses, traveling laboratories, X-ray outfits, kitchens and well-equipped operating rooms. The Blake Splint and the Balkan Splint contribute greatly to comfort; the latter of course is not adopted for transportation. Cushing and Cabot praise especially the Blake Splint for this purpose.

Widespread devitalizing of tissue has led to the practice of wound excision. Infections from the soil of Belgium and France cultivated since Caesar's Gaelic War transcend anything in virulence known to the present generation. Bacteriologic examination of wounds at the end of six hours show few bacteria localized around the missile or other foreign body. Twenty-four hours later the bacteria are too numerous to count. (Carrel) Delay in dressing, moreover, allows the blood to dry, the wound to become sealed and creates an ideal condition for anærobic germs of tetanus and gas gangrene. Bowlby remarks if a badly wounded man can't be removed to the field ambulance until the expiration of the twenty-four hour period, the wound is so badly infected and the patient so toxic, surgery has little chance. In view of the fecundity of the soil, the character of the missiles and of the wounds, the most important alternation in the treatment of wounds since the early days of the war is excision of damaged tissue.

Mars at the onset of the war vanquished our hopes

of antisepsis and asepsis as practiced before the war. We did not possess effective agents. This was the greatest desideratum of war surgery. Modern research workers, Dakin and Carrel, these two pioneer wonder workers have wrought a revolution. Attempts are now being made to simplify the Carrel-Dakin method affording a more stable agent less irritating the skin, easy to make and demanding less rigid technic. Reports are coming in speaking favorable of Dichloramine T. Prevention and cure of infection are apparently now ours.

Among other new antiseptics may be mentioned "Acri flavine" "Pro flavine" emanating from the Bland Sutton Institute of Pathology of the Middlesex Hospital, London, "Mercuroplen" may also find a place.

In commendation of the Carrel-Dakin method, Gibson states that he did not see one drop of pus in a series of eighty open fractures of the thigh.

Carrel, Dehelly and Dumas are quoted freely and indirectly. Dr. Keen was unable to obtain copies of these books until the completion of the present text. A full description of preparation, technic, etc., is given.

A word further about Dichloramine T. In eighty-two unselected cases of industrial accidents treated by this method they were discharged in 16.3 per cent less time than by the Carrel-Dakin method.

In the consideration of the removal of foreign bodies, Caldwell, of New York, writes upon stereo-buoroscopy in localization and extraction. Sutton's method in combination consisting of pushing a wire in a cannula through the tissues under guidance promises to be very helpful.

Acute tetanus developing among the wounded is now relatively rare, a great triumph for antitetanic serum. Delayed tetanus is not very uncommon. Bowling reports three cases developing on the 40th, 51st and 53d days. In the first case twenty-three days after injury gas gangrene also supervened and caused death. A memorandum on tetanus as issued by the British War Office Committee on the Study of Tetanus is included.

Gas gangrene and gas infection are properly distinguished. The former is a progressively developing infection, a most dangerous condition commonly due to the Welch bacillus, the latter may be due to other gas-producing bacteria. Taylor notes the presence of b-aerogenes capsulatus in 70 per cent of the cases. Flemming found it in 103 out of 127 wounds and in the clothing in ten out of twelve cases.

The reviewer has seen but a single case and that as a student in the wards of Bellevue Hospital. It is practically unknown in England. Astonishingly rapid development may occur. Gas may form in five hours and death may occur from gas gangrene of an entire limb in sixteen hours. The following points should be emphasized in treatment. Free incision and removal of focus of infection and of tissue especially muscles which favors growth; (2) destruction of the bacillus by Dakin solution or 1 per cent solution of quinine Chloryhydrate (Taylor); (3) Depage has used injections of oxygen with advantage; (4) measures to prevent destruction of muscle by mechanical pressure. Exploration of those structures by numerous free longitudinal incisions. No circular bandages should be used, nothing should obstruct the free escape of gas.

According to the latest views of Bull and Pritchett, pathogenic effect of the Welch Bacillus are due to exotoxins, one a hemolysin, the other a toxic body which acts locally, producing edema and necrosis and probably also exerting general toxic action.

With the toxins, animals may be actively immunized and an immune serum obtained. These studies are reported from the Rockefeller Institute. I have not seen the reported result of actual tests in the field. Welch, however, expresses approval of Bull and Pritchett's conclusions.

Cranio-cerebral wounds as a rule present no urgency (Harvey Cushing), special hospitals are recommended for such cases. The pulse decides whether such a case can bear immediate transportation. A rapid pulse is contradiction, a slow pulse presumes a possible recovery. Sargent states it is customary not to attempt primary removal of deeply seated missiles.

Do not operate on injuries of the superior longitudinal sinus except to control hemorrhage.

Watchful waiting should be the rule in wounds of the chest (Herringham).

The following table* is impressive and instructive as it relates to war wounds of joints: (1) Total cases of injury to knee operated on, 845; (2) With bone injury, 438; (3) Without bone injury, 407; (4) Wound excised and closed, 322; (5) Cases with wounds excised and closed requiring further operation, 82—25.5 per cent. (6) Wound excised and packed, 336; (7) Cases with wounds excised and packed requiring further operation, 128—38.4 per cent.

As regards abdominal wounds Bowlby states an operative recovery of 50 per cent is the best one can expect. Hemorrhage is the chief cause of this. Of 145 cases in which the pulse was 120, 16 recovered, 89 per cent mortality. After 36 hours, operation as a rule is unnecessary. Bowlby's table is instructive: Considered with view to operation, 1,038; No operation advised, 73. Total operations, 965. Total operative mortality, 53.9 per cent. Total hollow viscera mortality, 64.7 per cent. Stomach mortality, 52.7 per cent.† Small gut mortality, 65.8 per cent. Colon mortality, 58.7 per cent.†

Burns is the subject of the final chapter, dealing with the newer methods of treatment. Hull of the British army has obtained by experiment a preparation which experience teaches is superior to the De Sanforth secret preparation Ambrine. Hull calls it No. 7 Paraffin. It consists of resorcin or beta-naphthol, eucalyptus, olive oil, hard and soft paraffin. After washing the wound it is dried and the paraffin mixture, after heating, is applied on a brush or in a spray. This is covered with a thin layer of cotton wool and a second application made on this. Dressing is usually done every other day:

Reference is made to the following noteworthy articles, those of Paul N. Leech, Ph.D., a very full explanation of the various paraffin preparations (*Jour. of the A. M. A.*, May 19, '17, pp. 1497-1500) and of Sollmann and Beiter (same Jour. June 16, '17). The latter concludes that the application of melted paraffin is much too painful and recommend that the first application shall be petrolatum liquidum, then the cotton film applied, and melted paraffin painted over this. Bowlby states that scars are soft and supple and that there is a noticeable absence of contractures following the paraffin method.

This is a valuable contribution for those who contemplate entering military service or for those to whom is entrusted the care of industrial accidents at home.

ROYALE H. FOWLER.

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* *Brit. Med. Jour.*, June 16, 1917.
† Uncomplicated by wound of other hollow alimentary viscus.

INTERNATIONAL CLINICS, a Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Prepared Articles. Volumes one and two. Twenty-seventh Series, 1917. J. B. Lippincott Company, Philadelphia, publisher. Price, $2.00 per volume.

This series, as in the preceding ones, covers the whole range of medicine, all of the important discoveries and observations in medicine, surgery, and the specialties are noted and clearly set down.

To any one who is unable to keep a file of the important medical journals, and wishes to keep versed in the advanced medical science, the International Clinics will be invaluable.

Diagnosis from Ocular Symptoms. By Matthias Lanckton Foster, M.D., F.A.C.S., Member of the American Ophthalmological Society; Ophthalmic Surgeon to the New Rochelle Hospital; First Lieutenant in the Medical Reserve Corps, United States Army. Rebman Company, 141 West 36th Street, New York City, 1917. Price, $6.00.

In the preface, the author with extreme modesty states that this complete work falls far short of his ideals. However, the reviewer is confident that the profession will decide that Dr. Foster has written a very comprehensive and practical treatise on the science and art of diagnosis of diseases of the eye. A perusal of this work shows that the author has not only an extensive acquaintance with the literature of ophthalmology but also a practical knowledge of the subject derived from an extended clinical experience. It would be fortunate indeed if all phvsicians would give heed to the following quotation taken from the chapter on Glaucoma: "Of all diseases of the eye glaucoma probably is the one most often mistaken for some other, more curable condition, and such an error is almost invariably attended by disastrous consequences. It is unfortunately the fact that while the premonitory or prodromal symptoms which usually precede an attack of acute glaucoma may attract the attention of the patient sufficiently to cause him to consult a physician, they are often considered by him to be of no importance, and consequently the disease is neglected at the very time it is most susceptible to treatment." In conclusion it may be said that this work will prove a very valuable addition to the library of the oculist who wishes to be familiar with up to date methods of diagnosis. J. W. I.

Textbook of Ophthalmology, by Hofrat Ernst Fuchs, Professor Ophthalmology University of Vienna. Authorized Translation from the Twelfth German Edition; Completely Revised and Reset, with Numerous Additions and Otherwise Much Enlarged by Alexander Duane, M.D., Surgeon Emeritus, Knapp Memorial Hospital, New York, 462 illustrations. Fifth Edition. J. B. Lippincott Co., Philadelphia and London, 1917. Price, $7.00.

About twenty-five years ago Dr. Duane rendered the profession a very valuable service by translating into English Prof. Fuchs' "Lehrbuch der Augenheilkunde." Among American readers, this work was almost immediately recognized as a standard textbook upon the subject of ophthalmology, and although a number of other excellent treatises were published, yet Fuchs' stood *facile princeps*. In fact, it was not at all unusual for doctors to allude to Fuchs's "book on the eye" as being the ophthalmologist's bible.

A revised and enlarged edition was published in 1908. A third edition appeared in 1911 and the fourth edition in 1913.

The fifth edition, published during the present year, is, in a number of respects, a new work. Much valuable new matter has been added; the translator has, in many instances, amplified by giving explanations and notes of practical value; the chapter on "Disturbances of Motility of the Eye" has been re-written and is worthy of careful study.

The reviewer is asked to call attention to the fact that the price of the book has been advanced to seven dollars; however, the increased price of paper and labor has necessitated this advance. J. W. I.

Homoepathic Therapeutics in Ophthalmology. By John L. Moffat, B.S., M.D., O. et A. Chir. Philadelphia, Boericke & Tafel, 1916. 166 pp. 16mo. $1.25.

This handbook, by the late Dr. John L. Moffat, will doubtless be acceptable to those who use homeopathic remedies in treating diseases of the eye.

It is noted in the Clinical Index, in the back part of the book, that belladonna is the chief remedy for glaucoma. However, under the heading of "Materia Medica," the author warns against the giving of "material doses," in the severe pains of glaucoma.

James W. Ingalls.

A Practical Treatise on Disorders of the Sexual Function in the Male and Female, by Max Hühner, M.D., Chief Genito-Urinary Clinic, Mt. Sinai Hosp. Philadelphia, F. A. Davis Co., English Depot, Stanley Phillips, London, 1916. Price, $3.00.

The author is to be congratulated upon producing so excellent a work on a subject that so often receives but scant attention.

In many instances the subject of sexual disorders has been handled unscientifically, in the one under review these classes of diseases are discussed in a broad, scientific manner.

Dr. Hühner has wisely emphasized the fact that sexual diseases should be treated by the genito-urinary specialist rather than by the neurologist, although many of the symptoms are neurological the cause is generally in the genito-urinary tract.

As all physicians are apt to have patients suffering from some sexual disorder, it would be a good thing if they could have access to this up to date and scientific work.

The book contains 295 pages and is divided into eighteen chapters.

Care and Feeding of Infants and Children. A Text-Book for Trained Nurses, by Walter Reeve Ramsey, M.D., Associate Professor Diseases of Children, University Minnesota. Including suggestions on nursing by Margaret B. Lettice, Supervising Nurse Baby Welfare Assn., St. Paul, Minn., and Nann Grossman, Nurse in Charge of Children's Dept., University Hospital, Minn. 123 illustrations. Philadelphia and London. J. P. Lippincott Co., 1916. Price, $2.00.

A textbook which marshals, for the trained nurse, many of the important facts of the anatomy and physiology of infancy and childhood. The author gives excellent advice for the care and feeding of children. condemns the use of laxatives and warns against overfeeding. A short résumé of the constitutional, respiratory, intestinal, and infectious diseases is added.

Surgical and Gynecological Nursing. By Edward Mason Parker, M.D., F.A.C.S., Surgeon, Providence Hospital, Washington, D. C., and Scott Dudley Breckinridge, M.D., F.A.C.S., Gynecologist, Providence Hospital. 134 illustrations in text. Price, $2.50. Phila. & Lond., J. B. Lippincott Co., 1916.

This work is essentially a text-book for the nurse and covers in the most complete and comprehensive way the field of surgical and gynecological nursing The chapters on infection, accompanied as they are with excellent plates and microphotographs, are timely and most readable. A great deal of space is devoted to the description and uses of the instruments used in surgical and gynecological operations, and the very excellent illustrations produced are the last touch to a most excellent book. E. J. McEntee.

Materia Medica and Therapeutics: Including Pharmacy and Pharmacology, by Reynold Webb Wilcox, M.A., M.D., LL.D., D.C.L., Consulting Physician St. Mark's Nassau, Ossining and Eastern Long Island Hospitals. Ninth edition; revised in accordance with U. S. Pharmacopeia IX, with index of symptoms and diseases. Price, $3.50. P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia, Pa., 1917.

This is the same old classic that we have known so long and favorably; but improved. One might wish that certain of the unofficial drugs had been retained, but on the other hand the cross reference makes the finding of everything you may want to know of any official preparation so easy, that you can forgive the omission. Wilcox's many years of teaching, has made him a past master in lucidity and this ninth edition, is on a par with his other writings. It is a comprehensive reference of the official remedies of the last U. S. Pharmacopœia; and their physiological action.

W. H. Wallace.

A Practical Treatise on Infant Feeding and Allied Topics for Physicians and Students. By Harry Lowenburg, A.M., M.D., Assistant Professor Pediatrics, Medico-Chirurgical College, Phila. Sixty-four text engravings and thirty original full-page plates, eleven of which are in colors. Price, $3.00 net. F. A. Davis Co., Publishers, Philadelphia, Pa. English Depot, Stanley Phillips, London. 1916.

Time spent in a careful reading of this book is well spent. It is printed on good paper, the type is clear and distinct, and the publishers have spared no pains to make it attractive and have well succeeded. The illustrations are above the average, and many are from photographs. The colored illustrations of the stools are poor, however, and would better be omitted, as nothing can be gained from them in the way of information. Many excellent ideas, well elaborated, and soundly established are set forth in detail, and there are very few points that one can take exception to.

The author says in the preface: "The contents will be found to be largely clinical and practical, and to embody the author's personal experience with the problems presented. Theorizing and the presentation of a medley of different authorities have been studiously avoided." "A serious attempt has been made to emphasize the importance of breast feeding and the digestive problems which present themselves in this class of patients." "As a means of adapting milk to the individual requirements the top milk methods and the milk-and-cream mixture methods have been abandoned as being too cumbersome, and often incomprehensible to both physician and to the caretaker. The dilution of whole or of skimmed milk is advocated as simple and efficient. Where there use has given good results the author recommends a few proprietaries, not as substitutes for, but as adjuvants to cows' milk."

In the chapter on "Breast Feeding" the author has well placed in italics the following: "Neither physician nor layman possesses an inherent right to destroy a helpless babe's means of sustenance. The obligation of marriage and motherhood carries with it to the healthy woman the obligation of maternal nursing for nine months at least."

In the chapter on "Artificial Feeding" occurs the following: "'May certified milk be fed raw?' is a common query. Theoretically it should be perfectly safe and is so during eight months of the year. During June, July, August, and September, in order to make assurance more certain, it is recommended that even certified milk should be pasteurized or sterilized in the home." One cannot agree with this answer. Certified milk is not only theoretically safe, but is practically safe during every month of the year, whether that month be January or July. The reason for the existence of certified milk is that we may have a dependable *raw* milk. If we pasteurize or sterilize certified milk at any time of year, we are feeding milk insufficient for the small baby, and insufficient from the standpoint of removal or inactivation of the vitamines, and the absence of these may produce and often does produce scurvy and other nutritional disorders.

A distinct advantage over other books on Infant Feeding is a chapter on "The Exudative Diathesis." While this belongs distinctly to the Germans, its importance is frequently overlooked in the modern text-book.

In the chapter on "Pyloric Obstruction" one is first struck with the excellence of the X-ray plates, and then one is disappointed that both the author and Dr. John B. Deaver, the writer of the article on "Surgical Treatment of Infantile Pyloric Obstruction" recommend as the only operation, posterior gastro-jejunostomy. This is glaringly wrong. In the early days of operative treatment of pyloric obstruction we all advocated this operation, but whenever it was done, we came away from the operation feeling that it was too much surgery for such a small baby. In the Ramstedt operation, with the longitudinal splitting of the pyloric mass down to the mucosa, and the proper freeing of the mucosa from the mass, so the incision gapes widely of its own accord, we have an ideal operation for pyloric obstruction. It has the advantage over gastro-jejunostomy of being very much quicker, thus lessening the amount of anæstetic, lessening shock, and leaving a gastro-intestinal tract through which the food passes in the normal way, instead of an abnormal way as in gastro-jejunostomy.

Archibald D. Smith.

Hay-Fever, Its Prevention and Cure. By W. C. Hollopeter, A.M., M.D., LL.D. Funk and Wagnalls Company, New York and London, 1916. Price, $1.25.

The bibliography and historical review of the early literature of hay fever in this volume is wonderfully complete. In the discussion of "What is hay fever?" an enormous amount of material from early writers is presented. The writer has woven his own idea and experience into this material till confusion results as to who is responsible for the thought. Unfortunately this haze of earnest but unscientific effort in the prelaboratory era is not cleared up by reference to the experimental work of the past five years which has fully explained the nature of hay fever and the whole range of protein sensitization.

The chapter on "accepted causes" leaves the reader in confusion. Theories long ago discarded are placed along side of some recent logical and scientific work but the writer does not clarify the subject. As a result the reader is confused unless he has mastered the subject of hay fever before reading this volume.

The last part "forms of treatment" consists largely of lengthy or free notations from the writing of men who have done serviceable work in the treatment of hay fever. This material can be gotten at its source. It, however, excludes the most recent work done. A consideration of this recent work would demonstrate that much of the author's treatment as outlined in this chapter could not by any possible chance affect the course of an attack of hay fever. The most interesting part of this chapter is the author's description of his own method of treatment. This shows a long familiarity with the complaint but the method instituted years ago has not been modified by the recent experimental developments. The volume is valuable to the medical profession because of its collection of early literature and its bibliography.

Physiology for Nurses, by W. B. Drummond, M.B., C.M., F.R.C.P. Edin. Examiner Biology, Royal College Physicians. Late Lecturer Hygiene, Edinburgh Provincial Training College. 81 illustrations. New York, Longmans, Green & Co., London, Edward Arnold, 1916. Price, $1.00 net.

This little work is what its name implies, a rudimentary treatise on physiology, suitable for those to whom a rudimentary knowledge of the subject is sufficient. It should be acceptable to training schools, where a brief and concise statement of the facts and little theory are a desideratum. W. H. Wallace.

Deaths

L. A. Wells Alleman, M.D., Geneva, died November 3, 1917.

William Boes, M.D., Brooklyn, died November 27, 1917.

Margaret Abigail Cleaves, M.D., New York City, died November 13, 1917.

Sigmund Deutsch, M.D., New York City, died November 29, 1917.

Carl Fulda, M.D., Brooklyn, died November 8, 1917.

William F. Jolley, M.D., Troupsbury, died November 8, 1917.

Israel C. Jones, M.D., New York City, died December 5, 1917.

Francis LeRoy Satterlee, M.D., New York City, died November 12, 1917.

John L. Schoolcraft, M.D., Schenectady, died October 23, 1917.

Richard Weil, M.D., New York City, died November 19, 1917.

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NOTE.—Original articles are indexed in *italics*. Other abbreviations are as follows: Editorials (E); New Books (B).

ORIGINAL ARTICLES

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