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ORIGINAL ARTICLES.

THE UNOFFICIAL GYNAECOLOGICAL TREATMENT OF THE INSANE IN BRITISH COLUMBIA.*

By ERNEST HALL, M.D., L.R.C.P., Ed.,
Fellow of the British Gynaecological Society, Victoria, B.C.

My first attempt in gynaecological treatment of the insane was made on Jan. 5th, 1898, with such remarkable results that I have lost no opportunity of investigation in this direction. Although the work has not yielded the almost incredible results that were evinced by my first few cases, they have been fairly satisfactory, and sufficiently encouraging to justify the effort and to stimulate a more systematic and thorough investigation into the relations which exist between pathological conditions of the pelvic organs and abnormal psychic phenomena.

My examinations comprise 98 cases, and my operations 33. Of these, 42 examinations and 24 operations were in British Columbia and to these I shall confine my remarks.

None of these patients presented indications of assymetry of features, nor high arched palate, irregular ears, defects of speech, deafness, chorea, strabismus, *i.e.*, waverings of eyes or twitching of facial muscles. In the cases operated upon no hereditary taint was obtainable.

The preliminary examination was at first conducted under an anaesthetic, but latterly this was as much as possible dispensed with, using it only for violent cases. It has been my practice to open the abdomen only when external examination reveals disease, but a more extended experience leads me to consider intra-abdominal examination an essential part if there be indications pointing in that direction with an absence of determinable disease elsewhere. With modern methods such an examination should have no mortality and but a few weeks confinement, and surely a disease that would remove a patient from friends and society perhaps for life justifies such careful investigation.

* Presented at the meeting of the British Columbia Medical Association held at Vancouver, Aug. 9th, 1900.

No.	Mental Condition.	History of Physical Disease.	Condition found upon Physical Examination.
1	Three years insane, at times violent mania.	Absent.	Cystic, prolapsed and adherent ovaries.
2	Melancholia for one and half years.	Severe back ache for six months.	Rup. perineum, varicocele of pelvic plexus,
3	Religious delusions for three years also suicidal mania.	Ovaritis fifteen years ago.	Retroversion with dense adhesions.
6	Melancholia for two months. Religious mania one month.	Pelvic pain for four years.	Adherent appendages; cystic ovaries.
8	Hystero-mania recurrent, one attack lasting six weeks.	"Blood poisoning" following miscarriage.	Perineal rupture, tubo-ovarian adhesion.
11	Melancholia for one month.	Absent.	Perineal rupture, enlarged uterus with adhesions.
13	Pre-menstrual mania with delusions fifteen months.	Absent.	Pelvic varicocle, adherent and cirrhotic ovaries.
14	Delusions for three weeks.	Pain in back and side since last child.	Retroversion with adhesions; salpingitis.
16	Mania and delusions with melancholia one year.	Caught cold after miscarriage.	Rup. perineum, prolapsed ovary.
17	Dementia of six year's duration.	Absent.	Cirrhotic ovaries with adhesions.
19	Mania with delusions two years.	Absent.	Retroversion with adhesions; ruptured cervix.
21	Melancholia ten years duration.	Specific vaginitis.	Cystic ovary; retroversion with adhesions.
24	Melancholia, suicidal mania two and half years.	Absent.	Rup. cervix, retroversion, adhesions, cystic ovary.
26	Melancholia with delusions and suicidal mania three weeks	Appendicitis.	Par ovarian cyst; salpingitic adhesions.
28	Melancholia with delusions two years.	Pelvic discomfort for years.	Rup. perineum, sapingitic adhesions.
63	Delusions with mania, four years.	Absent.	Rup. perineum and cervix; retroversion with adhesions, piles.
64	Melancholia and delusions four years.	Absent.	Adhesion of clitoris, retroversion, varicocele, fungoids.
65	Delusions, menstrual mania six years.	Dysmenorrhoea and pelvic pain.	Retroversion, cystic, inflamed and adherent appendages.
67	Mania with melancholia, three months.	Childbirth.	Rup. cervix.
68	Delusions and mania, three years.	Absent.	Rup. cervix; Ovarian cyst.
69	Delusions occurring occasionally.	Pelvic pain, hemorrhage.	Enlarged uterus, endometritis.
77	Intermittent melancholia.	Dysmenarhoea.	Enlarged, prolapsed and adherent ovary. Salpingitic adhesions.
78	Mental confusion, inability to attend to household duties, melancholia intermittently.	Pelvic pain for years.	Retroversion with adhesions, varicocele, cystic and adherent ovary.
73	Religious mania and delusions two years.	Absent.	Cervical polypus, retroversion, cystic ovaries.

No.	Treatment.	Results.	
		Physical.	Mental.
1	Double salpingo-oopherectomy.	Perfect result. Gain of thirty-five pounds in weight.	Recovered within 16 days.
2	Curettage and double salpingo-oopherectomy.	Normal.	Improved.
3	Removal of right appendage. Freeing of adhesions. Ventrofixation.	Normal.	Recovered within 21 days.
6	Double salpingo-oophorectomy.	Recovered from operation. Died from meningitis nine weeks after.	Unimproved.
8	Amp. cervix. Removal of cystic ovary and ventrofixation.	Normal.	Recovered.
11	Vaginal ovariatomy.	Died.	
13	Double salpingo-oophorectomy.	Normal.	Unimproved.
14	Curettment. Removed right and resected left ovary.	Normal.	Recovered.
16	Amp. cervix. Double salpingo-oophorectomy.	Normal.	Unimproved.
18	Curettment. Double salpingo-oophorectomy.	Supurration in abdominal wound.	Improved for a time. Relapsed.
19	Amp. cervix; curettment; removed right appendage and left tube.	Normal.	Unimproved.
21	Double ovariotomy.	Normal.	Recovered.
24	Curettment; trachelorraphy, double salpingo-oophorectomy.	Normal.	Unimproved.
26	Curettment, double salpingo-oophorectomy.	Normal.	Recovered.
28	Removal of appendages.	Normal.	Unimproved.
63	Amp. cervix; ventrofixation.	Normal.	Unimproved.
64	Curettment, legation of veins, ventrofixation.	Normal.	Unimproved.
65	Curettment, removed right ovary and left appendage.	Normal.	Recovered.
67	Curettment, trachelorraphy.	Normal.	Slight improvement.
68	Removed one ovary, resected other.	Normal.	Slight improvement.
69	Vaginal hysterectomy.	Normal.	Recovered.
77	Removed right appendage, resected left ovary.	Normal.	Recovered.
78	Removed right appendage, resected left ovary, ventrofixation.	Normal.	Improving.
73	Curettment; removal polypus, resect. ovaries, ventrofixation.	Normal.	Unimproved.

RESULTS. Out of forty-two cases examined in British Columbia but two presented normal pelvic organs, these two were unmarried. Of the twenty-four placed under treatment all but two had been married. Of the married ones all but three had borne children, and, these three had salpingitic adhesions, giving evidence of former pelvic inflammation.

Of the different conditions found I report only such as pathological, that in the opinion of the ablest authorities, are capable of producing in those whose mental powers are intact, local pain, discomfort, or general systematic disturbance. Perineal laceration was present in five cases. cervical laceration in six cases. Retroversion with adhesions in seven and simple retroversion in three cases. Adhesions of the clitoris were noted but once, while salpingitic and ovarian adhesions were found in ten cases. Cystic ovaries varying from slight enlargement to that of a navel orange were found in eight cases, and par-ovarian cyst in one case. Varicocele of the broad ligament plexus was found in four cases, and uterine fungoids in one. By far the greatest number of any class were those of the inflammatory class. Next in order appears cystic disease of the ovaries.

Of the mental results I can report eight cured and two more all but cured, two very much improved, three slightly improved, one improving, in fact well, but too early to report. I have the satisfaction that, so far as I know, none have been rendered any worse by the treatment. Of the results physically all had normal convalescence from the operation but two, one had suppuration of the wound, and one died eleven days after the operation, the post-mortem showing acute cerebral congestion with a slight focus of suppuration at seat of ligature. One case died of basal meningitis nine weeks ofter the operation wound had healed and nurse discharged at the usual period.

With a gradually increasing knowledge of pelvic pathology, we realize that the sacrifice of normal tissue is by no means necessary. With modern methods resection of cystic ovaries with retention of the healthy part is preferred to the sacrifice of the organ as was formerly practised. It is very rarely that the whole of both ovaries is removed. Nothing is more certain that the removal of a healthy organs contributes in no possible manner to a restoration of the mental health. The pelvis in these cases must be subjected to the same treatment that would be given a patient whose mental condition is not in question. The disease and that only is to occupy the attention of the operator.

The post-operative treatment of these cases differs little from that of ordinary abdominal cases. Occasionally one requires to be bound to the bed, but in the vast majority of cases the nurse can control the patient's actions with but little trouble. The selection of the nurse is a matter of no little importance. She should be strong in mind and body and possess sufficient tact to enable her to cope with, conquer and dispel the slightest indication to former abnormal habits of thought or expression. An additional nurse is required to take alternate duty.

These patients as a rule are anaemic. As soon as the digestive system is in proper condition they are placed upon an easily assimilated ferruginous tonic. Regular evacuations and blood rich in hemoglobin are the best eliminators of ptomaines with which the tissues have been saturated during the years of impaired function and systematic depression.

The old proverb *mens sana in corpore sano*, has long been recognized as standard of normal health. But how close is the relation be-

tween the Mens and the Corpus it may be that few of us have even yet dreamed. Certain it is that as investigations into the physical realm are continued, startling facts are being constantly brought to light concerning the very intimate relation between the psychic and the physcical. Is it not more than probable that we are just here treading the borderlands of a new world. Surely what we already know, though dimly, of the correspondence between the mental and the physical is sufficient to convince us that there are yet great discoveries to be made along that line. And let us not overlook the fact that to the active physician belongs the duty of jealous investigation in that direction. In fact he must be to the forefront in the scientific investigation of these opening problems or he will become the butt of ridicule for those whom he, in his complacent self-sufficiency, is inclined to designate as quacks and religious cranks, and for their increasing number of sympathizers among thoughtful people.

Prof. Foster tells us that "changes in what we call the body bring about changes in what we call the mind." Demonstration is unnecessary to show that the sexual system, while in direct sympathetic connection with other organs. has also a unique connection with the physical, nor to trace the relationship between a given psychological state and that of local pelvic congestion, and the channel through which this is made possible is the same channel through which a local pelvic irritation may produce abnormal cerebral activity with disordered cortical functions giving rise to and indicated by abnormal mentality. These influences from peripheral irritations of the sexual organs may at times be inhibited by a strong mentality, but they may, if severe and persistent, eventually overcome the strongest subjective effort. Given a certain environment of a strongly sexual character in a robust person, certain alterations of form and function follow in response to such stimuli in spite of efforts of the will to the contrary. To obviate the result the environment, or stimuli, which may be purely physical, must be removed. Now if such stimuli, not necessarily objective, are sufficient to produce organic change in defiance to the will, so may a local pelvic irritation or stimulus, acting upon the higher nervous centres cause abnormal physical action, also in defiance to will power, to cease only when the abnormal environment or peripheral irritation is removed. This is illustrated in the experience of my first case, who after her recovery gave me a somewhat detailed history of parts of her insane life, stating that she experienced and recognized within herself a force totally distinct from herself which compelled her to speak and act directly against her better judgment. This force, formerly called Satanic, is but the unconquerable abnormal physical reflex from a sensitive and diseased periphery, and the patient vacillates between reason and insanity as the force is subservient to and dominated by the will or becomes the ruling power in the organism.

With this conception of insanity comes a new responsibility, especially to those who had formerly considered its development the limits of their medical jurisdiction. We must now consider insanity but the indication of a serious physical lesion, demanding the utmost care and skill on the part of the attendant to discover, to determine and treat such

lesion. At times such disease may be easily found, but frequently and unfortunately it will elude his grasp. To consign to the asylum without giving the patient the benefit of modern therapeutics is unjust to the patient and cruel to the friends. To be sick may be unfortunate, but it is not necessarily a disgrace, neither should the occurence of insanity in one member of the family be the instance of casting reflection, but so long as such erroneous conception exists in the public mind we cannot be too careful in this matter. To those in whose family this affliction has fallen, and who live in perpetual dread lest through some mysterious visitation that they also may become victims, we can bring hope, assuring them that the conception of "mental disease" as distinct from physical lesion has passed away, that insanity is not the result of some vague demoniacal influence, nor the indication of disfavor upon the part of an offended Deity, but the direct result of physical disease, and only follows where physical degeneracy leads. And to our female patients who, under the burden of life's duties and oppressed by its sorrows, harassed by the customs of society and irritated by disease, whose mentality at times indicates the result of constant peripheral irritation, whose reflexes refuse to submit to the subjective guidance and become temporarily dominant, and who reasonably look to us for relief, what shall we say? Is asylum life with its unpleasant associations, its stone walls, iron bars and uniformed keepers, the atmosphere calculated to restore jaded nerves, to recuperate a wearied body and remove local disease. On the contrary, admitting the utmost kindness on the part of those in charge, is not such an invironment comparatively as irritating to a sensitive nature as her local disease is abnormal? Only after all methods have been exhausted, and not until then, should we permit our patients to be removed to the care of the state. Let us look at this matter fairly and if necessary in the concrete. In view of what has been accomplished in the modern treatment of insanity, and in view of the true conception of insanity, how would you or I act with regard to those who are nearest to us in ties of affection? Let us consider such symptoms as formerly but fingerposts pointing to the asylum as indications for the necessity of closer examination and more skilful treatment, remembering that every case committed is a painful admission upon our part of inability to locate or remove the physical disease. If such care were habitually exercised, the asylum commitments would be appreciably less.

However satisfactory it may be to report recovery after the removal of physical disease, it is not to be compared to that experienced when we also have restoration of the mental. To remove physical disease and at the same time to minister to "minds deceased" is the highest ideal of surgery.

It has been urged that disease of the gential organs in women cannot be a prolific cause of insanity, and the reason offered for the statement is because the ratio between the male and female insane is about equal. Have the causes of insanity among the males been determined, and has it ever been shown that disease of these parts is not a factor in its production? Are not these organs undistinguishable in their early embryological developments? Are not the nerve and blood supply analagous?

Are not the ravages of disease in the parts recognized by well known lesions, and may there not yet be much to be learned in this particular field? Again, who are the men who largely recruit the asylum ranks? Are they not the young men who in the period of functional activity have excelled in abuse of their sexual system? We shut our eyes to this too often. The excessive waste of highly vitalized fluids, with its accompanying exhaustion, the inflammatory conditions, acute and chronic, which are the product of the gonococcus, to say nothing of the grosser pathological results—abcesses, strictures, etc. Must nature bear this outrage without revenge? Our asylum reports state self-abuse as a cause of insanity in a certain proportion of cases. When an elongated and constricted pepuce, adhesions and retention secretions are a recognized cause of nervous disturbances in male children, it is but reasonable to suppose that undue irritation and exhaustion may cause the most grave nervous disturbances in adults, but when we have added to this condition one of specific infection, with all its train of results, it is within the limits of the probable that one cause of insanity in the male may be analogous to that in the female, and if the cause, then it follows that the treatment should be as direct and radical.

Lest any careless reader or superficial observer, whose thoughts follow but beaten tracks, and whose memory hovers over "mutilating operations upon the insane," "wholesale mutilation of helpless lunatics," and other absurd phrases, might conclude that it is within the meaning of this paper that the cause of insanity among women is found alone in diseased pelvic organs, or that surgical measures are advocated as a panacea for mental abnormality we wish to emphasize that no such erroneous conception exists either upon the part of the writer or in the minds of those who have appeared before the public as workers in this department. But one thing we do believe and shall advocate so long as there are additional worlds of conservatism to conquer: That the principles of surgery and humanity unite in demanding that the insane receive at least the measures of consideration and treatment that their diseases call for; that these hapless sufferers from pelvic diseases have extended to them the benefits of modern treatment; and that our insane mothers sisters and wives receive treatment equally skilful to that given in daily practice by hundreds of our educated physicians. If this be done a small per cent. of the asylum population may be sent to their homes, households united, family ties restored, and given "beauty for ashes, the oil of joy for mourning, and the garment of praise for the spirit of heaviness." This is no idle dream, no strain of imagination, but a fact in our city. What has been done here can be repeated in any city in Canada It is an opportune moment, in view of the evidence submitted for the profession to unite in this new crusade and extend to these unfortunate invalids the measures of mercy that an enlightened sentiment desires and the spirit of justice demands

In order not to prolong this paper I will give a brief history of but a few of the cases.

Case I.—Mrs. ——, a former patient, aged 35, of execellent family history, no hereditary taint, had been committed to the Provincial Asylum

during my absence in Europe. She had enjoyed excellent health until, after attending to her household duties and acting as nurse to her two children she became considerably debilitated. This, with the shock of the younger child's sudden death, precipitate intermittent melancholia lasting eight months. Symptoms of pronounced insanity with suicidal tendency developed. After a month's treatment under the care of a nurse she was committed to the provincial hospital for the insane, April 1st, 1895, where she remained until January 3rd, 1898. During this period she was at times violent, would attempt to scratch and bite her attendants, exhibited a most obstinate disposition, was considered by the late matron as one of the worst cases, and by the authorities as hopeless. No encouragement was given as to her recovery. The patient was placed under chloroform and a pelvic examination made. The right ligament was thickened, left ovary prolapsed uterus fixed, and perineum partially ruptured. Upon this data I recommended operative measures.

Operation. Right ovary was found cystic with tubal adhesions, left ovary adherent in cul-de-sac, fimbriated extremity closed. The appendages were removed, uterus also curetted. The operation was brief and practically bloodless; post-operative history normal; stitches removed on the twelfth day. The mental condition remained unchanged for some days. She persisted in sitting up in bed, tearing the bedclothes, and endeavouring to bite and scratch the nurses. It was necessary to tie her hands on either side of the bed, and place a heavy bandage over the lower part of the body. Upon the fourteenth day after the operation she became calm and recognized her mother. On the following day she conversed a little and appeared to appreciate the kindness of her nurses. Upon the seventeenth day the patient seemed more rational, did a little sewing, and took an interest in her surroundings. The following day I allowed her to see her little daughter, now a bright girl of eleven years, whom she had not seen since entering the asylum. The meeting was one not soon to be forgotten; it was one of those periods in a physician's life when his remuneration is beyond computatism, an experience that lives. The patient acted and spoke as only a reasonable mother could. Day after day, as the physical strength increased, the mind became capable of more extended effort. Thirty-five days after the operation the nurse accompanied the patient to her home and remained with her a few days; and to-day the patient is managing her own household and attending to her social duties with all the reason and energy of her former self.

Case 2.—Mrs. C., aged 57; married; several children; no history of inflammatory action; family history excellent; experienced some financial troubles; for several years has suffered from pain in back and pelvis, and underwent treatment without relief. Melancholia developed, when she was committed to the asylum where she remained a year. Examination made under anaesthesia showed lacerated perineum laxity of the vaginal walls, but nothing else. Upon this examination I did not recommend operation. After conference with friends who desired nothing to be left undone, I concluded to explore the abdomen, and found large varicocele of both broad ligaments with calcareous deposits and cystic degeneration of the pelvic peritoneum. Appendages were removed with as much of broad ligament as possible.

Post-operative history normal, physical condition much improved, mental condition considerably better, so much so that she is managed at home, and takes an interest in domestic affairs. Does considerably sewing for grandchildren and, in fact, is much better than we expected.

Case 3.—Mrs. R., aged 52; no children. Had an attack of ovaritis fifteen years ago. Examination showed retroversion and general pelvic adhesions, insanity of a suicidal and religious type. She was in the asylum for three years. Operation, October 8th, showed adhesions of the clitoris, retention of the smegma on account of dense adhesions. Replaced womb. Insanity was completely cured and physical condition improved.

Case 14.—Mrs. D., aged 27, one child six years old, not pregnant since, convalescence from confinement slow, has not been strong since, had delusions of her husband trying to poison her; would frequently wander from home and be found in houses of acquaintances in different parts of the city. Examination without anaesthesia showed retroversion with adhesions, condition of appendages could not be made out. Operation; right ovary contained cyst the size of a walnut, was removed with its tube, also left tube removed; adhesions broken up. Convalescence normal, left hospital upon 18th day. For a week after returning to her home had occasional desire to get up and go out without her clothes on but since one month from operation has been perfectly normal mentally with the exception of two occasions for a few days previous to menstruation when she had a return of delusions.

Case 24.—Minn H., age 18. For several months had acted in an excitable and strange manner, worse during menstruation. For three weeks before I saw her had manifested decided mania at times suicidal.

Previous history. Had an attack of typhoid fever with inflammation of the bowels four years ago, complained of pain in right side increased by walking. Had leucorrhoea.

Examination; no hymen; retroversion with adhesions, right ovary enlarged, general salpingitic adhesions, profuse leucorrhoea.

Operative treatment, March 7th. Removed appendages with exception of part of right ovary, small par-ovarian cyst, also removed elongated and congested appendix.

Result: better for two days after operation, worse again but improved and at the end of four weeks was perfectly sound physically and mentally.

Case 65.—Mrs. ——, never pregnant. Kindly referred by Dr. McNaughton of Vancouver. For six years complained of pain in side. For several years she suffered from mental confusion previous to and during menstruation. Became worse would throw away her clothing, would scream loudly, threaten suicide, etc. She had passed through the usual ordeal of treatment for misplacement, etc., etc. Examination showed masses upon both sides of the uterus with dense adhesions. Operation. Right ovary enlarged, cystic and containing mass of hard blood clot size of marble; left ovary enlarged, stroma destroyed, tubes disorganized by inflammation, universal adhesions. Convalescence normal.

Case 77.—Mrs. ——, aged 27, two children. For fifteen years suff-

ered from pain in right side, worse the week following menstruation. Pain frequently excruciating. Local treatment gave relief only temporarily. For two years suffered from intermittent melancholia.

Examination showed enlarged, prolapsed and inflamed ovary with adhesions.

Operation. Removal of right appendage and restriction of left ovary.

Perfect recovery, physically and mentally.

Case 78.—Mrs. ——, aged 33, two children. Complained of "womb trouble," for several years with severe back and headache. For last few years she would become mentally confused, would forget herself while engaged in domestic duties, and would be unable to continue the household work. Coupled with this were periods of melancholia.

Examination showed ruptured perineum and retroversion with adhesions.

Operation. Right ovary enlarged and cystic removed; left ovary cystic, resected; varicocele of veins ligated in two places and ventrofixation. Is progressing favourably but too recent to report.

These last two might fitly be called borderland cases, as they could hardly be included as coming wholly under the classifications suggested. Nevertheless they are evidently examples of the class from which the demented ranks are not unfrequently recruited and who require our most careful consideration.

Conclusions,—(1) That the prevalence of diseases of the pelvic organs, and the absence of any other determinable organic disease in many patients who manifest psychic abnormality, coupled with the fact that in a by no means small percentage of cases the removal of the pelvic disease is followed by a rapid return to the normal mental condition, justly lead us to the conclusion that between pelvic diseases and mental aberration there exists some correlation, but as to its exact definition we cannot yet speak.

(2) That in all cases of mental abnormality in both sexes which develop from the advent of puberty onwards, the condition of the pelvic organs with their functions should be made a matter of searching enquiry.

(3) That whenever possible before committment to the Hospital for the Insane, the pelvic organs should be examined and if any abnormal conditions be found such condition should receive appropriate treatment.

(4) That gynaecological treatment should be recognized as a most important part of Asylum therapeutics.

REFLECTIONS.

It has been stated that man is a complexity of delicately poised reflexes, but it is more than this since we have the power of the origination and direction of action and to a limited extent that of inhibiting reflex action. This something which controls we call the Ego. To the extent that the Ego directs the activities and controls the reflexes to that extent is the ideal human life exhibited. The ideal life as distinct from that of the mere animal is exhibited only when the activities of the organism are

less the result of reflex action than those resulting from the direction and domination of the Ego. So long as the organic structure is intact, so long as the system is free from disease, so long are the reflexes normal, but with a diseased periphery, nerve tract or centre, we expect abnormal reflex results. When this arc is confined to those parts of the body which are not intimately concerned in psychic phenomena, we have but abnormal physical reflex, as evinced in the exaggerated knee jerk of lateral sclerosis but if the reflex arc includes the basal ganglia whose function is to exhibit psychic reflex, and if there be organic disease at any point in the continuity of the arc then we must expect abnormal psychic reflex. The exaggerated knee jerk we call a symptom of physical disease, but we call the abnormal psychic result insanity while in reality it also is a symptom of physical dis ase, differing from the former only as the functions of the parts diseased are different.

As the Ego can realize that exaggeration or absence of the knee reflex is abnormal so also it is capable to a limited extent of recognizing abnormal psychic reflex.

In the early stages of mental disease is that of hallucination in which the patient is still conscious of the unreality of the psychic reflex, the second delusions in which the Ego has been limited and clouded, but yet exerts a measure of mental control, the third definite insanity in which the Ego has been completely subjugated by the intensity of abnormal reflexes. Insanity is the psychic sum of physical abnormalities. The focus of irritation may be in the blood, in any of the large ganglia or at the periphery of the sympathetic system in any of the large cavities or in fact wherever nervous tissue is found, but is very rarely found in the cause of sensory nerves.

1. To recapitulate we may conclude that insanity exists when the Ego is dominated and controlled by the influences from a diseased periphery, nerve tract or centre.

2. Since disease is subject to variation of intensity, a patient may oscillate between sanity and insanity as the Ego dominates and controls the organism inhibiting abnormal psychic reflex or is dominated and controlled by the intensity of such reflexes.

3. Since the intensity or degree of the abnormal psychic action is the measure of the sum of the physical abnormalities, the removal of a small part of the physical disease might result in the restoration of the balance of power to such an organism and diminish if not remove the abnormal psychic phenomena.

A CASE OF JACKSONIAN EPILEPSY WITH OPERATION.

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The history of the case which I have the honour to show this evening is as follows :—

R. W., farmer, aet 20, entered my private hospital on Dec. 16, 898.

Family history.—Father and mother alive and well, aged 67 and 65 respectively. Has five brothers and two sisters living, all of whom are nervous, but their general health is fairly good. Patient says that

all his brothers will laugh till they cry, and that he has seen his sister laugh until she would shudder and scream. Two great uncles died of tuberculosis—no insanity nor other nervous disease in family.

Previous history.—Patient had ordinary diseases of childhood, and at three years of age a severe attack of congestion of the lungs. No scarlet fever. At his confinement the labour was severe, and it was feared his mother would die. Previous to his birth his mother helped to take care of an epileptic patient, restraining him in his attacks.

Present illness.—When about five years of age he was struck on the head by a branch falling from a tree. He is uncertain on what part exactly of the head he was struck, but it was near the vertex anteriorly. It bled furiously for a time but was soon stopped. He was dazed from the blow but did not lose consciousness, and he is not aware of any ill effects from it.

Between the age of five and seven years patient first experienced symptoms of his present trouble. He then felt a numbness through the muscles of the left forearm at times only, but especially when the arm was bathed. Spasms in the arm were gradually added to this sensation, and these attacks would come on about once a week. He suffered from very severe headaches and cramps in the stomach until about ten years of age, and since this both headache and cramps ceased until six months ago when he had a severe headache, from which he said he thought he would "go crazy." For the past six months, headaches have been slight and infrequent. He never vomited during any of these headaches, nor at any time. From the age of ten until two years ago, the attacks occurred about once a week, but he would sometimes have a month entirely free from them. He says from the time he was seven or eight until two years ago the attacks would begin by a rotatory sensation in left arm, and that a tonic spasm would follow. Generally, attack was confined to left arm, but at times it would extend to head, turning it to the left, the left leg also would become involved and then right arm would be affected. Consciousness was not at any time lost. He found that various methods would check or prevent an attack, such as extending the arm if it were flexed, or seizing left hand with his right around the fingers About two and a half years since, he worked very hard for three months for an examination at school. He then returned to farm work and he soon noticed his attacks becoming more frequent, but of much the same intensity, or perhaps they were less severe for a time. They increased steadily in frequency until about ten weeks ago, he having had as many as fifty in a single day.

Physical examination shows a well developed young man of good intelligence. He is usually bright, except when his attacks have been numerous. In regard to his education, he says he passed the examination for a second class certificate when fifteen, and only failed in one subject on trying for a first after three months' preparation. His muscular development is everywhere good, and he has been very fond of football and out-door sports. He says he never had an attack while playing football nor while driving. Patient had an attack during the examination. It began by loss of power in left arm followed in about

ten seconds by a tonic spasm in this arm and turning head and eyes to the left. The spasm in the arm then became clonic and ceased, the whole attack lasting about thirty seconds. There was no change in pulse or pupils and no disturbance of consciousness, the patient being able to discuss each new phase of the attack as it occurred. There is no disturbance of any form of sensibility in any part of body. Dynamometer gives R. 105 L. 90, triceps reflex more marked on left side. No muscular inco-ordination in arms. On standing with feet together and eyes closed patient inclines to fall backward and to the left. He never frothed at mouth nor passed urine during the attack. The aura he describes always is felt as a revolving sensation which begins invariably at one spot on the postero-external surface of the left fore arm about two inches below the elbow. Knee jerks equal and normal. Pupils equal and react to light and accommodation; no optic neuritis; urine normal; eye movements good; fields of vision show slight concentric contraction, more marked in left; other organs healthy.

Dec. 30—Patient asked me, on coming into his room to-day if I would like to see an attack, as he felt one was coming on by the sensation in his arm. It began as usual in the left arm, then a slight tonic spasm of muscles of legs, and the right arm was adducted and wrist flexed. He says if he had compressed left wrist with his right hand the attack would have been limited to the left arm. His Romberg symptom has disappeared. His attacks have varied from three to thirty in twenty-four hours.

Patient tells me to-day that when a child he remembers running to his mother, saying his left fore arm had a revolving sensation in it just below the elbow. This sensation was at once followed by rotation of the wrist, and then arm would drop to side and turn palm backwards, the arm stiffening at first, and then jerking. This revolving sensation would go downwards from the elbow to the hand, and then ascend to the shoulder, and with this latter, the whole left arm would be convulsed and the head turned towards the left side. The arm sometimes would be limp after an attack. He never had any giddiness during any attacks. The patient was shown at the Toronto Clinical Society on Jan. 11.

Jan. 19th. Patient says he has two tender spots, one on either side of the vertex in the middle third of the parietal region, and about equidistant from the median line. They are very limited in extent and are about the size of a finger tip. Patient has had about 30 spasms in the past 24 hours, after some of which he was greatly exhausted. There was no loss of muscular power in any of the extremities, nor any disturbance of external sensibility. On bringing finger tips together, eyes closed, there is a slight difficulty in approximation, about half inch of difference. He has also a slight difficulty in touching end of nose with finger tips, eyes closed; with left fore-finger, reaching at first from half to one inch of desired point. There is also slight difficulty in doing same with right fore-finger, but not nearly so marked. Idio-muscular contractions on tapping muscles of left arm very marked present, also in right, but not so distinct, but triceps and wrist reflexes are more marked in left arm. A slight erythema follows a stroke of percussion hammer,

lasting about thirty seconds. A tap over left biceps muscle induced a distinct wheal. Patient says that tapping on the upper part of the fore-arm brought on a slight attack characterized by slight clonic spasms of arm and fore-arm and lasting about five seconds. He said when these ceased the attack was still "working in his head," but no movements were visible. Epigastric reflexes active and equal. Knee jerks slightly increased and equal. No ankle clonus nor plantar reflex on either foot. Pupils active and equal. Opthalmoscope shows engorgement of veins, but I could detect no papillitis. No disturbance of smell or taste. Tongue protruded in centre.

As patient's attacks were growing more severe and more frequent in spite of all treatment he decided to have an operation. The operation was performed by Dr. Grasett, assisted by Dr. Peters and Dr. Crawford Scadding, who gave the anæsthetic. A horse shoe flap about four inches in diameter was raised over the right parietal region. The skull was then trephined, the centre of the trephine (the diameter of which was $\frac{7}{8}$ inch) being placed two inches from the median line, and $\frac{1}{4}$ of an inch in front of the five of the fissure of Rolando. On removal of button the dura appeared perfectly healthy with two large veins, running across its upper and lower limits, respectively. There was no bulging or any visible pulsation. I then applied an electric current to the dura with very satisfactory results, producing distinct movements in left fore-arm and hand. The dura was then opened and the pia bathed with antiseptic solution. The convolutions appeared quite normal and I applied electricity to the pia with much the same result as was obtained outside the dura. A small opening was then made in the pia and a probe inserted for one and a half inches without abnormal resistance. As nothing abnormal had been found a short consultation as to what had best be done was held. I advocated excision of the centre and this Dr. Grasett did, excising about one half inch of the cortex from the centre of the trephine opening. The wound was then closed, no stitches being put in the membranes. The bone was not replaced. A drainage tube was passed through an opening made in the flap. The patient did well, recovering from the operation without a bad symptom.

In regard to the variety of electricity used I may say I employed a mild current from a faradic battery with a slow vibrator. The insulated handle, which was provided with an interrupter, was fitted with two electrodes the points of which were 5 m.m. apart. The slow vibrator I found very satisfactory. As to the distance the electrodes were apart, I found 5 m.m. was most suitable, a better result being obtained than when these were closer together. The results of the application of the current were practically the same when applied to the dura as to the pia. When electrodes were applied to the centre of the trephine opening, marked contractions of the extensors of the left fore-arm were produced, whilst from the parts of the opening adjacent to the centre, various movements were produced in the thumb and all the fingers, the long flexor of the fingers acting very distinctly. No movement took place in the muscles above the elbow, nor in any other part of the body, the muscles of the fore-arm and hand alone being stimulated by the electricity. On account

of the small size of the trephine opening ($\frac{7}{8}$ inch), it was impossible to stimulate any further muscles. We had, however, been fortunate in exposing the exact centre we were seeking, otherwise the small size of the trephine might have proved an objection. A larger trephine might have been useful to delineate the fissures, it being impossible to do this at all accurately with the one employed, had it been necessary. As to the immediate results of the operation, which was concluded at 1.15 p.m., the first noticeable one on recovery from the anæsthetic was an entire inability to use the hand or fingers, the patient being able to exert voluntary power only in the arm muscles. At 3.40 p.m. of the same day (Jan. 20) patient had a spasm of the left hand and fore-arm muscles which, though not severe, was decided. At 4.30 p.m. patient said attack was coming on, and a slight tremor of muscles of fore arm was visible. At 6, 7.15 and 9 p.m. he had distinct attacks in paralyzed muscles. Jan. 21st, no disturbance of sensibility to touch, pain, temperature or location in paralyzed parts. He recognizes fully different position in which fore-arm, hand, thumb or fingers may be placed. He now has slight extension of wrist and slight power of rotation, but no flexion, nor can he perform any movements with thumb or fingers, the paralysis being complete. He answers questions without hesitation. At 2.20 p.m. he had a spasm in left hand and arm at the end of which the thumb jerked violently, attack lasting about five seconds. At 5.25 spasm, left wrist being strongly fixed. No external evidence of spasm higher than left fore-arm.

Jan. 22nd at 3.30 p.m. Patient had spasm of left forearm and hand which was clonic in its nature, lasting about ten seconds. Movements were almost confined to paralyzed muscles. Voluntary rotation of fore-arm can now be accomplished by the patient, also feeble extension of wrist. Shoulder movements good as well as flexion and extension of elbow. Patient has had seven slight seizures in past 24 hours.

Jan. 23rd, 10 a.m. Slight attack in left hand, at first tonic and then clonic, lasting about ten seconds and affecting the fingers almost entirely.

Jan. 24th. He tells me that yesterday, when he was about to yawn the fingers extended involuntarily although there was no evidence of an attack at the time. Paralysis still absolute in hand and fingers. Extensions of wrist stronger but there is still no flexion. Sensibility of all kinds is decidedly acute but there is no hyperæsthesia.

Jan. 25th. Patient says attacks have never begun since the operation in spot in forearm where they always previously commenced. For past three days the attacks have been slighter and less frequent varying in number from two to five each day.

Feb. 3rd. First power returned in long flexors of left forearm to-day. If one's fingers are placed in his hand he can grasp them. Extensors of wrist stronger and there is now some flexion of the wrist. No disturbance of sensibility. In regard to muscular sense, he can recognize position in which fingers are placed approximately, but cannot recognize the exact position of a finger unless it be fully flexed or fully extended. The muscular sense would appear to be slightly impaired, but very slightly so.

Feb. 15th. Wrist jerk is marked in left wrist. Some flexion and extension of thumb. Movements of fingers almost entirely through long flexors and extensors. Individual muscles of hand still have but little power. When he contracts the muscles of left hand with much effort, the muscles of the right hand involuntarily contract.

Feb. 18th. Had a spasm on the 15th, none on 16th and one on 17th. Left hand stronger, the patient now doing with dynanometer L 45 R 133. Patient continued to improve, the left hand growing steadily stronger, and went home Feb. 23rd.

I heard nothing further of him until he called at my hospital Sept. 7, 1899. He said that after his return home the attacks became more frequent for about six weeks mostly limited to the left arm. They would run he said to the site of the operation and then stop. He never lost consciousness. The fits gradually became less frequent until about six weeks ago since which date they have entirely ceased. He has been doing ordinary farm work and uses his left arm and hand for all purposes experiencing no inconvience except for a slight difficulty in some of the finer movements of the fingers. All the muscles are well developed and of good strength. He said that the attacks after his return home began in little finger or the thumb of left hand. No disturbance of any form of sensation He says he feels perfectly well in all particulars being able to do as good a day's work as ever and expresses himself as much pleased with the result of the operation. I have not seen him since.

In regard to the site of the operation. As the attack was always announced by an aura consisting of a sensation beginning in the left forearm, to be followed by a contraction of the forearm muscles and those of the left hand, I considered the centre of irritation to be in the middle third of the ascending frontal bonvolution of the right hemisphere. In order to reach this centre I located the site of the trephine by the measurements mentioned and Dr. Grasett kindly trephined for me in this location, contraction of the extensor muscles of the forearm resulting from stimulation to the cortex in the centre of the trephine opening.

There resulted from the operation: (1) A complete paralysis of the hand, wrist and forearm which gradually all but disappeared. (2) No disturbance of sensibility of any kind either of touch, pain, location, temperature or of muscular sense if we except a slight diminution of this latter some days after the operation. (3) A recurrence of the attacks in the left forearm and hand while these were completely paralyzed. (4) The aura did not begin in same location as before the operation. (5) The cessation of the attacks as above mentioned. In regard to the first and second results just mentioned, that paralysis would result from excision of a portion of the Rolandic area was naturally expected but this case is of interest in view of the question of this area being a centre of sensation as well as of motion, a hypothesis which has excited endless controversy for the past few years. Some of the various hypothesis in regard to this area may be interesting: Schiff holds that this region is the centre of tactile sensibility, Munk thinks it a general sensory area, Nothnagel and Hitzig that it is related to muscular sense, Bastian that it is kinæsthetic, Horsley that it is a centre for muscular sense, with tactile

sensations to some extent, while my former teachers, Prof's. Charcôt and Ferrier, hold that this area is a true motor zone in which centres for movement which involve conscious discrimination are represented. This case shows that with the excision of a portion of the Rolandic cortex (presumably a portion of the middle third of the ascending frontal convolution) that motor paralysis alone results, the various forms of sensibility including those of touch, pain, temperature and muscular sense remaining absolutely intact. While this is the only one I think the clear results which have here followed an excision of a small portion of the Rolandic area, viz., a complete motor paralysis which was not accompanied by any disturbance of sensibility in the parts implicated is worthy of note. In regard to the third result above mentioned the recurrence of the attacks in the paralyzed muscles. It would here seem that the theory of Hughlings Jackson that epilepsy is due to an interference with inhibition through irritation of the higher cells of the cortex is not alone sufficient to account for the phenomena of epilepsy, at least in the case under consideration since here these cells were destroyed. It would however tend to establish the experimental conclusions of Nothnagel that there is a lower convulsive centre in the floor of the fourth venticle. In regard to (4) it was remarkable that the aura after the operation never began in the same location as it had invariably done for several years previously but would first be felt in different portions of the arm either about the biceps or posteriorly. This is the more noteworthy since there had been no disturbance of sensibility in the parts paralyzed by the operation. In regard to the course of the attacks after the operation. He continued the bromide treatment during his stay in my hospital but gave up all medicines soon after his return home. That his attacks had entirely ceased for some time before he last saw me in September and the fact that he was able to follow his usual vocation at this time without inconvience was gratifying but the period which had elapsed since the operation was not sufficiently lengthy to allow a definite conclusion to be formed of the ultimate result.

SELECTED ARTICLES.

THE HOT-AIR TREATMENT OF ECZEMATOUS, GOUTY, RHEUMATIC AND OTHER AFFECTIONS.

The Lancet of August 18, 1900, has in it an article by Walsh, in which he states that the free interchange of opinions and observations being at the root of medical progress there need be little hesitation in bringing forward a brief description of a comparatively new therapeutic method. In the present instance it is proposed to relate from personal experience the chief points of interest with regard to the superheated air treatment of eczematous, arthritic, and other diseased conditions. The special treatment consists in the local application of dry hot air at an exceedingly high temperature. The therapeutic results of this increased administration of heat have been, to say the least, remarkable. In this way many chronic and painful conditions have been brought within the range of relief and sometimes of cure, and there can be no doubt that a new therapeutic agent of value has been placed in our hands.

The apparatus consists essentially of a cylinder in which a part of the patient's body, say an arm or a leg, is enclosed and fastened in by an air-tight curtain. Heat is applied by means of gas, oil or electricity until the air inside the cylinder reaches the desired temperature. Before the treatment is applied the patient is stripped and wrapped in blankets, while the part placed inside the cylinder is covered with a layer of lint. After a varying period there is free acid sweating, together with increased frequency of pulse, while the body temperature is raised 2° or 3° F. In addition to these changes there is often an immediate and striking relief of pain, and the range of movement is increased in stiffened joints. These two last mentioned facts point to a deep therapeutic action beyond the obvious surface diaphoresis. It will also be observed that although the application of the heat is local, yet the effects upon the body are general, as shown by the quickened pulse, the free sweating, and the raised temperature. For that reason pain in a foot may be relieved by placing an arm in the apparatus, and a stiff elbow may move more freely after local treatment of a leg. These are things that admit of definite statement. The free action of the skin is accompanied by increased elimination from the kidneys. Dr. Chrétein, of the Laennec Hospital in Paris, has recorded the fact that in a case of long-standing gout the daily elimination of uric acid by the kidneys was found to rise from 57 centigrammes after the fourth bath to 89 centigrammes after the ninth. It is to this increased kidney action that the benefit of the superheated air in gouty conditions is doubtless to some extent due.

It will naturally be asked, What cases are suitable for superheated air treatment? Generally speaking, the treatment is likely to do good in (1) painful nervous affections; (2) many painful and stiffened joints;

(3) other diseases—*e.g.*, anemia and Bright's disease; (4) eczematous skin trouble; and (5) arthritic diseases, rheumatism, gout, and their allies.

NERVOUS AFFECTIONS, SCIATICA, LUMBAGO, WRITER'S CRAMP, CHOREA, LOCAL ATROPHY.—The relief of pain often obtained by the hot air naturally suggested the treatment of nerve pains. It was found that some obstinate neuralgias and sciatica yielded readily to a few applications. At the same time it should be noted that a few cases of sciatica resist this, as they do every other form of treatment, from simple massage up to heroic nerve stretching. On the other hand, the hot-air treatment now and then cures obstinate sciatica in a rapid and brilliant manner after the failure of other remedies. This uncertainty of result is probably due to the varying origin of the pain in a structural neuritis or a functional neuralgia. The effect of the hot air may be aided by passive motion to break down adhesions, followed by a period of complete rest. Writer's cramp is a neurosis that in several recorded instances has been quickly cured. In one case under the author's care the patient was able to write a newspaper article after being treated a few times. Chorea, even of a severe type, may be cured with a quickness and success rarely known to drugs.

PAINFUL AND STIFFENED JOINTS.—The immediate relief to pain is one of the most remarkable results of the hot-air treatment. Were there no other good effect that alone would justify the existence of the cylinder. Narcotic drugs are only in a limited sense curative; they dull the perceptive centers, but leave the seat of active mischief untouched, while they are apt to do a great deal of mental and bodily harm. With the Tallerman treatment, on the other hand, the relief is often rapid and permanent, and when it fails to relieve it has the great advantage of doing no harm. With regard to stiffened joints, the amount of good effected by the superheated air depends to a great extent on the nature of the limitation. Where there is bony union, of course no good can be done so far as movement is concerned. Neither can much be hoped for when the joint is hopelessly disorganized, as in a Charcot's joint or in the later stages of osteoarthritis. Where the limitation of movement, however, is due to fibrous ankylosis, to synovial thickening, or to adhesions generally in or around a joint, the results of the Tallerman treatment are often brilliant. After a single application the range of movement may be visibly increased and pain abolished. In some cases it is advisable to break down adhesions under chloroform. In dealing with joint stiffening, therefore, it is necessary to make a careful diagnosis as to the structures that are at fault and the stage at which the diseased process has arrived. In early osteoarthritis it is possible to arrest the malady, whereas at an advanced period, when the articular surfaces are eburnated and there is a large amount of periarticular deposit, all that can be hoped for is to diminish the pain which is now and then so prominent a symptom. Where the mischief in a joint is no longer active the hot-air treatment may be applied irrespectively of the origin of the malady, whether that be gouty, rheumatic, osteoarthritic, gonorrheal, or traumatic, and so on.

GONORRHEAL RHEUMATISM.—As every one knows, gonorheal rheu-

matism is often most rebellious to ordinary treatment. Under the hot-air treatment, however, it often yields in a way that is not less rapid than satisfactory.

ANEMIA, BRIGHT'S DISEASE, ETC.—Without entering into details it may be stated generally that cases of anemia often benefit to a marked extent under the hot air treatment. This may be to some extent due to the fact that chronic constipation is often markedly relieved by the treatment, especially when applied to the abdomen by what is known as the "hip bath." Asthma, chronic bronchitis, dropsy, Bright's disease, dysmenorrhea, and some forms of heart disease may be benefitted by the treatment.

THE ARTHRITIC GROUP.—It is curious that in such well defined diseases as gout, rheumatism, and osteoarthritis we know so little that is definite with regard to their origin. We are agreed that an excess of uric acid is constantly present in the blood of a patient who has gout, but we cannot say whether it is produced by, or even whether it is the cause or the result of, a damaged kidney. Nor is the etiology of rheumatism less obscure, although recently there has been a tendency to attribute the malady to a bacterial origin. In osteoarthritis we are more than ever at fault, as we have a condition in which gouty, rheumatic, vascular, and nerve troubles may be present singly or together in a malady that destroys the joints progressively. Acute gout and acute rheumatism we are able to control by drugs—by colchicum and saline aperients in the one, and by salicin and the salicylates in the other. Few medical men, however, would claim a definitely curative action in either case. When we come to subacute and chronic gout and rheumatism most of us will admit that there is little hope of controlling, and still less of curing, by means of drugs. It may be said of both diseases, as a recent writer has said of gout, that "as regards diet, exercise, and even drugs, each case must be treated more or less experimentally, and later by the light of such knowledge as experience of the individual case may give."

When we come to osteoarthritis the confession of helplessness is still more emphatic. As a rule a patient attacked by that disease has nothing to look forward to but a life of progressive misery and suffering. Acute gout can be controlled by the hot-air cylinder. Acute rheumatism, so far as one knows, has not been thus treated. Subacute and chronic conditions of both gout and rheumatism are often either benefited or cured by the treatment. Last, but not least osteoarthritis may be checked in its early stages, while later pain may be relieved, the movements of crippled joints restored, and the progress of the disease arrested. In making these general statements as to the chronic joint stiffenings due regard must, of course, be paid to the condition of the joint. At the risk of some repetition it may be pointed out that in an advanced stage of disorganization all that can be hoped for is to relieve pain and check the progress of the disease.—*The Therapeutic Gazette.*

THE DANGER OF SPINAL ANESTHESIA.

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Shortly after the introduction of cocain as a local anesthetic, Dr. J. Leonard Corning, of New York, demonstrated that it was possible, under its influence, to remove large tumors and perform amputations. Continuing his researches, he developed, in 1885, a method of injecting the drug into the vertebral canal between the spinous processes where it "should become absorbed by the minute plexuses of veins and so carried to the cord." Quite recently, Professor Bier, of Kiel, has advanced one step in this practice and deposited a solution of cocain within the subarachnoid space. His example was speedily followed by Oberst, Seldovitch and other European surgeons, and, above all, by Tuffier.

This practice is now extending to the United States and other countries. Various reports have been published, narrating its successful application in major operations involving the lower extremities, genital organs and abdominal cavity. Anesthesia ensues within five to ten minutes and continues for half to nearly an hour, or has even been prolonged to five hours in cases of parturition.

Mixing with the cerebrospinal fluid the solution of cocain speedily affects the sensibility so profoundly that, although the sense of touch remains unimpaired or at least is not obliterated, the perception of pain is destroyed,

The subarachnoid space should be quite as good an absorbing medium as the subcutaneous cellular tissue. On one side is a delicate serous membrane and on the other a mesh of capillary blood-vessels, the whole being in direct communication with both spine and brain. It is known that the cerebrospinal fluid is both produced and absorbed with great rapidity. There would seem, therefore, to be every reason why the characteristic physiological action of cocain should be quickly manifested and, indeed, with accentuated power, inasmuch as it is injected in such close proximity to important nerve centers. One writer, Dr. S. Marx, of New York, explicitly says that in a case when he had injected 1/6 of a grain into the canal he got dangerous symptoms of morphin poisoning, "showing how strong is the absorbing power of the spinal fluid." What is true of morphin must be equally true of cocain.

The drug is liable, in excessive doses, to disturb seriously the innervation of the heart and lungs, to depress the circulation, cause rapid and weak cardiac action, and render the respiration labored and shallow, while in some instances it produces thrombi and emboli. Severe toxic manifestations are not always fugitive. The phenomena of acute cocainism have been known, from ordinary hypodermic injections of moderate doses, to extend over a considerable period of time and cause severe dis-

tress, if not danger to life. Constant headache, habitual insomnia, vertigo, syncope, dejection of spirits and presentiment of approaching death, prickling and numbness, with other serious symptoms, lasted for several months as a consequence of a single injection of 1/8 grain. Death has resulted from the incautious employment of cocain. It must be remembered, moreover, that this is a treacherous drug. In many individuals there is a peculiar sensibility to its influence and a small dose may be followed by a severe reaction. I recall the case of a young lady to whom a moderate dose of cocain was given in the form of a suppository. Very pronounced intoxication occurred, with marked intellectual confusion, anxiety and decided depression of the heart's action. If such unexpected results follow the administration by mouth, rectum or hypodermic injection of a quantity far within the limits of supposed safety, I can not but be apprehensive that the successful course of the new operation of spinal anesthesia will be vehemently interrupted by dangerous and even fatal accidents. It is now thrown into the subarachnoid space in a 2 per cent. solution and the quantity usually introduced is equivalent to 1/6 of a grain, although I read of larger amounts—1/5 to 1/4 grain—being employed, or of repeated injections being made.

The operation, indeed, is not always so easy as it has been represented. I have myself been an eye witness on more than one occasion to prolong efforts before the vertebral canal and subarachnoid space could be entered, the operators being men of eminence and manipulative ability. Dr. S. Marx, who writes approvingly of the procedure in obstetrics, says: "As a rule a puncture is very easily done, but in some few cases there has been the greatest difficulty in its performance. In one case six distinct punctures were made before the tap revealed fluid. In one case with an antecedent lumbar disease I failed absolutely, and was compelled to make the injection in the dorsal region, and then with good success." When we consider that this author's latest report embraces only 23 cases, the few cases of difficulty will swell into a large proportion. The same writer, furthermore admits that "explorations, versions, extractions, placental removals were readily done, not with quite as great ease as under chloroform, but with greater facility than in a non-narcotized woman," I have seen a single injection give ris to alarming symptoms of respiratory failure. The procedure is likewise productive of marked pain, and in order to avoid this effect, Bier and others have employed Schleich's infiltration anesthesia as a preliminary measure.

A number of writers have made allusion to inconveniences attending the method. In some cases chill and fever have followed the injection. Severe and long-continued headache has been noted in other instances and, in fact seems to be a common manifestation. Distressing nausea and vomiting have also been excited. In exceptional instances staggering gait and sharp spinal pains were experienced on the day following the injection In some patients free sweating and in others marked debilit have occured Numbness and tingling are other accidents which have been mentioned. In some cases anesthesia was not produced by the operation. Writers have generally presumed that this failure indicates that the fluid had not entered the subarachnoid space,

but this is scarcely a sufficient explanation. Injections into the subcutaneous tissue cause local anesthesia, and the solution must have been absorbed, although perhaps not so rapidly as if it had penetrated the selected space.

Dr. John B. Murphy, writing in the *Chicago Clinic*, for September, 1900, includes among the advantages of spinal anesthesia, "the avoidance of one of the greatest dangers to surgical procedures at the present time, namely, the primary, intermediate and secondary sequences of the anesthetic, as cardiac phenomena, pulmonary lesions and renal disturbance." Nevertheless, some fatal cases have already occurred from medullary narcosis. Tuffier, reporting to the Thirteenth International Medical Congress in regard to this operation, stated that death had taken place in five cases. In four of these the fatality could not, in his opinion, be attributed to the operation. The fifth patient had died of asphyxia, due to pulmonary congestion complicating a mitral insufficiency. Gumprecht believes that as a rule the operation is unattended with danger, yet he cites a dozen or more cases in which death had followed. Most of the cases collected by Gumprecht were of intracranial tumor and death was caused almost invariably by respiratory paralysis. Although in any circumstances the patients could not have lived long, yet it is admitted that the puncture was undoubtedly the determining cause of death.

It is conceded by all that the operation should be practised under the most rigid aseptic precautions. In the present state of surgery, however, the proviso is a matter of course and applies alike to every intervention.

I would not be understood as condemning absolutely the production of spinal anesthesia or as denying that it may have a field of usefulness. It is our duty, however, to be cautious in this matter. One hundred odd cases by one surgeon without a death has a very promising sound, yet experience has been too short and the total number of cases is still too few to warrant positive conclusions. Every operation should be regarded in the light of an experiment. The danger signals should not be underestimated. It is not wise to teach that this procedure is easily performed, painless and free from danger. Such statements do not accurately represent the subject in question. If we reflect on the number of times that a general anesthetic is administered far more often than any statistic exhibit; when we consider, moreover, the number of parturient women who may require more or less anesthesia at different stages of their accouchement and for various reasons, we must acknowledge that a few hundred cases constitute but slender evidence for positive assertions. Gurlt, in his studies of general anesthesia, tabulated 14,506 cases in which ether was used by German surgeons without a death. Julliard collected data relative to several hundred thousand administrations of ether and chloroform. In the presence of such figures we should be extremely circumspect in promulgating advice.

Dr. Corning himself is the latest writer on this subject. From a paper entitled "Some Conservative Jottings Apropos or Spinal Anesthesia," I select the following passages:

The most recent physiology favors the close reciprocal relations

between the cerebrospinal fluid and the circulation of brain and cord . . . And now a further word or two as to the danger of expecting too much from this discovery and of bringing it once more into neglect certain to follow in the train of disappointed hopes. First and foremost, it is necessary frankly to look at facts and confess that there is nothing in those till now brought forward remotely to warrant the belief that the days of cerebral or general anesthesia are numbered. Some curtailment in their use there may, ay, doubtless will be, but abdication of their broad dominion—never. Again, it is absolutely necessary to remember that, despite all apparent conformity with the exactions of technique, spinal anesthesia sometimes leaves one in the lurch. To what is this failure to appear ascribable? I do not know nor have I yet come upon a convincing explanation. Cases are on record, too, in which the anesthesia was not of sufficient duration, and the injections had to be repeated, always a deplorable circumstance. Every one at all conversant with the serious results inevitably following infection of a serous cavity must be profoundly impressed with the necessity of a rigid asepsis. This point has been insisted upon by most if not all recent writers. Yet I foresee that amid the indiscriminate slitting by irresponsible persons, sure to follow in the wake of the conservative achievements of the judicious and the competent, there is likely to be a neglect of those necessary and elaborate rules of antisepsis so necessary to the safety of the subject. Then a procession of gory tales; and a great and useful principle cast into shadow by the misadventures of a herd of venturesome empirics. There will be fatalities; but let there be a concerted effort by the invocation of every known precaution to keep the precentage of mortality as low as possible. Let there be less rivalry of the knife—less endeavor of one to outslit the other—and more attention to improvement of method.

THE ADVISABILITY OF EARLY OPERATION IN CASES OF ACUTE INFLAMMATION OF THE APPENDIX. *(a)*

By CHAS. W. MANSELL MOULLIN, M.A.Oxon., F.R.C.S.,
Surgeon to and Lecturer on Surgery at the London Hospital.

After giving a brief account of the pathology of inflammation of the appendix, showing that it always originated from the invasion of the mucous surface by septic organisms from the interior of the bowel, Mr. Mansell Moullin divided the cases so far as surgical treatment is concerned, into three main groups. The first, which is by far the largest, includes all those mild attacks which subside of themselves or under the simplest treatment. In these the organisms are destroyed or removed before they can do any permanent harm; the lymph which has been poured out disappears again without leaving any adhesions, and the appendix regains its normal size, shape and mobility. These need no surgical treatment. In the second group are comprised all those cases in which the absorption of the exudation is incomplete. It soon becomes

(a) Abstract of paper read before the Harveian Society, Oct. 18th, 1900.

organized. In others it breaks down into pus. In others again a concretion is left behind. But all agree in this one particular, that perfect recovery is impossible without operation. Finally, there is the third group, fortunately by far the smallest, in which acute septic peritonitis breaks out, and in which the only possible chance of recovery is immediate operation. In all acute attacks it is absolutely essential to group the case in one of these three classes within 36 hours of the beginning of the symptoms, or it may be too late. It is known that the interior of the appendix is full of septic micro-organisms. It is known that, if the conditions are favourable to them, they can penetrate through the wall, and infect everything. And it is known the appendix is hanging free in the peritoneal cavity. The danger is not in performing a simple exploratory operation, but in delaying to do so. All that is necessary is an incision an inch and a half long, and the introduction of the finger, in order to ascertain exactly what is the condition of the appendix and the peritoneum around it. Mr. Mansell Moullin then discussed the symptoms by which the cases which would recover of themselves might be distinguished from those in which operation would be required, sooner or later, either because of diffuse septic peritonitis, or because of the formation of adhesions, strictures, and concretions. The pulse was the most valuable of all. If the pulse rate at the end of 36 hours, while the patient was lying in bed, was over one hundred in the minute, or if, in the course of the last few hours, it had increased much in frequency, there was no doubt the attack was a severe one, and that operation would be required. The temperature was no certain guide, unless it continued to rise. The intensity of the pain was of great significance, and so were also, but, perhaps, in less degree, local tenderness, muscular resistance, and a sense of fullness in the right iliac fossa. Vomiting, constipation, and the other symptoms usually present could not be relied on in the same measure. Mr. Mansell Moullin laid great stress upon the fact that the absence of any individual symptom was of no account, and that operation should be performed in any case in which the pulse was rapid, even if the other symptoms did not point to any great degree of severity. If morphia had been given this rule should be even more stringent. The limit of 36 hours, Mr. Mansell Moullin admitted, was a perfectly arbitrary one. All could not wait so long. Some might wait longer without undue risk. Each case must be judged upon its merits, and this must be regarded merely as an average. The point to bear in mind is, that at the beginning of a severe attack we cannot as yet distinguish cases which might be allowed to wait from those which cannot; that they will, all of them, have to be operated upon at last, some for adhesions, some for abscesses, some for concretions or other causes (for severe cases do not recover without some complication being left); and that it is wiser that a simple, and practically safe, operation should be performed at once upon all of them, rather than that the disease should be allowed to run its course, and that those in whom diffuse septic peritonitis occurs should be allowed to die, in order to save the others from an operation they will have to undergo later. It is merely adopting the general principle that when there is a grave possible danger ahead, and there are no means of finding out the condition

of things, or of controlling the issue, it is wiser to see how matters stand provided it can be done without undue risk, than to trust to chance. But a preventive operation of this kind must be clearly distinguished from what are commonly called early operations, those performed on the fourth or fifth day, which nearly always are too late, and simply serve to bring surgery into discredit.—*The Medical Press and Circular.*

PREVENTION OF INSANITY.*

BY BROOKS F. BEEBE, M.D., Cincinnati.

Professor of Mental Diseases, Medical College of Ohio (Medical Department University of Cincinnati).

If there is one mission on earth higher and holier than another, that mission is the prevention of disease. It not only lessens the pain and suffering of the individual directly, but indirectly it contributes to the greatness of a nation by fostering a happy and healthy people.

One of the greatest anomalies of human conduct, considered in the light of the ordinary ways of the world, is that the physician is one who not only heals the sick and alleviates suffering, but is ever striving to prevent disease, though by so doing he is conscious that he reduces his income to a minimum. No other profession or walk in life is so imbued or so conditioned. How is this accounted for? Explanation is to be had in the fact that he is a conscientious seeker after the truth, a true scientist in the best sense of the word. Thus it is that he learns that the interests of self are, more or less, the interests of all; and all interests are so woven together in the tangled web of life that he knows not his own thread. "Lose yourself in the oneness of nature," and "Love your neighbor as yourself," have a depth of meaning far beyond the ken of ordinary man. They are the basis not only of a happy and successful life, but they give a healthy tinge and tendency to those who follow. They who have no altruistic feelings beget degenerate offspring, if they beget at all, for it is the anti-social characteristics of mankind in the home and among the people that breed insanity, crime, disease and death.

We are what we are from three principal causes—heredity, education and environment. Therefore, see to it that they are what they should be. I believe that experience is the source of all knowledge, either directly or indirectly, *i.e.*, personal or ancestral. At any rate, it is only by knowing our relations to the external world that we are enabled to adjust ourselves to a happy and satisfactory end, and he who cannot so adjust himself is unsound, either in body or mind.

What a pity it is we cannot know the final effect of our every act, and have the power to do or not to do! There would then be no sin or sorrow, no sickness nor suffering. But let us not be faint hearted. When we but recall and appreciate the great advance that has been made in our science during the lifetime of some present here to-day—too great, in fact, for a pen as frail as mine—may we not look forward with the hope

* A paper read before the Miami Valley Medical Society, at Loveland, O., October 23, 1900.

and assurance that the future has in store for humanity a future more delightful than is dreamed of in our philosophy? There is nearly one-half, or 50 per cent., less sickness in Cincinnati, in proportion to the population, than there was forty years ago, we are told by good authority. While this is true of public health in general, and that longevity is also increasing from year to year, it is, unfortunately, not true proportionately of insanity and allied diseases. They are on the increase the world over, and it becomes the duty of the physician to see to it that the people, individually and collectively, learn more of the causes and thus be enabled "to turn from the error of their ways," as the preacher sayeth.

What are the causes and what the prevention? For in considering the one we must look to the other. You are aware, as I am aware, that the subject is a comprehensive one, and as complicated as comprehensive; but I shall confine what I have to say to a few of the most important etiological factors.

Were it not for the fact that the lineage of insanity, stupidity and perversity is a short one, for, as is said, "civilization is a vast instrument for the killing of fools"—were it not for the fact that the very constitution of the nervous system is so delicate and highly organized, and, like the tender twig, easily swayed by the lightest breeze, but a few short years would be required to sweep humanity from the face of the earth.

The most powerful cause in the production of insanity, and the one most constant in its operation, is to be found in heredity. As is well known, the fundamental law of heredity is that every attribute of the parent *tends* to reproduce itself in offspring. If not present in the first generation, it is expected to appear in later ones. It is the first law of our existence. Why, we do not know; but it is so, else man would bring forth cats and dogs and monkeys as offspring, rather than his kind.

Disease itself is not inherited, with a very few exceptions perhaps; but we do inherit, from defective parents, a peculiar type of constitution that will take upon itself disease with the slightest provocation.

It is said that "he is a wise child who knows his own father." The child of the future will have more wisdom than those of to-day or those of the past, and it is not beyond the possible that then he may address his father something after this style:—

"My paternal ancestor, I have the stigmata of degeneration, of congenital cause; my teeth are all on edge, and evidently, sir, your appetite for fruit in the past must have been for a kind that was excessively acid. Look at my dentine structures—pegged and notched, and too numerous for my oral cavity, though it is of abnormal dimensions.

"My ears are deformed, unequal in size and out of place, and one to my neck has grown; the other is large and the folds all lost. O God! why was I ever born?

"My nose is crooked, the septum's bent, the bridge is low and broad. My eyes oblique—the almond kind. Oh! I *wish* I were under the sod.

"My lip is cleft, and palate too; my feet are clubbed, and webbed my hand; one eye looks here and the other looks there, and I have the blues 'to beat the band.'

"My stature is short and very ill-shaped, entirely too weak to carry

my head, which is big and square—hydrocephalus. Say, *what a life you did lead!* Now the devil's to pay."

In baseball parlance, the young fellow had gotten on to the curves of his father's balls and made a *home strike.* Here was a case of a degenerate son of a degenerate sire—a physical deformity from a moral obliquity.

Huxley says: "There can be no alleviation of the sufferings of mankind except in absolute veracity of thought and action, and a resolute facing of the world as it is." There is no need railing against the so-called severities of life, for we must admit the justice in "the survival of the fittest," and in the tyranny of organization. God is good, but He is merciless. Nature is the same for all. Survival of the fittest does not, however, always mean the best, but it means the fittest or the most suitable for the environment in which it is situated—a savage in a savage state, or a civilized man in a civilized state.

But not only is *physical* development determined to a great extent by heredity, but what is more important, psychic peculiarities are also impressed. And not only does good or bad quality appear as a result of this fundamental law, but *form of feature and body may be deformed, or dehumanized, by the brutish and immoral natures in parents,* though they may be of *perfect form themselves.* This is a point that is not generally understood, much less impressed, by our profession, and, of course, it is to the medical profession, and particularly to the general practitioner, that the people must look for instruction and future improvement.

First, then, it is the duty of the physician to do what lies within his power to have only suitable marriages sanctioned. Physicians should not only instruct their *clientelle* as to the dangers that follow the wedding of disease, but also assist in the formulating and passing of such laws by the State as will prohibit those marrying who, from defect of body or mind, are liable to bring forth degenerate progeny.

A confirmed or habitual criminal has no more right to marry and propagate his species than a person in the last stages of tuberculosis. The one is diseased in mind and the other in body. It is cruelty to the newly-born and to the parents; it is cruelty to the State, which is forced to support such people. In my humble judgment, the greatest kindness to this class of human being, producing the most happiness and good to them, not even mentioning the rest of the world, would be to pen them up in well-ordered institutions, compel them to work enough for their own maintenance, and then force them to an education; force them to know and realize not only their rights, but the rights of others.

The ordinary jails and workhouses, as now conducted, are more of a place for the dissemination of criminal impulses, which in reality constitute disease, than it is for corrective good or even the protection of society.

Another feature that I think is too much neglected by the physician is the care of the impregnated woman. Man does not hesitate to take extraordinary care of blooded animals on a stock farm, but fails to see that direful and everlasting impression may be made on his own progeny

by improper treatment of his wife, especially during the period of gestation. Too often he defines "marriage as a prose translation of the poem entitled 'Love,'" and makes practical the saying that "familiarity breeds contempt." From the day of conception—nay, from the very commencement of the formation of the human ovum—to the day of birth of the fully-developed fetus, the young is susceptible to maternal impressions modified in various ways by the male element.

When we know, as we do, that 75 per cent. of idiots, for instance, are so damned at the moment of impregnation by parents under the influence of alcoholic intoxication, and that monstrosities may be produced at will in the chick by injecting a few drops of alcohol under the shell of the hatching egg or by subjecting it to alcoholic fumes while incubating, it is high time that men who have any scientific attainments at all should hoist the flag of danger to its topmost limit.

Not one tenth part of the ravages produced by alcohol has ever been told to, much less appreciated by, people in general; and only when Mr. A's or Mr. B's or Mr. C's neighbors learn that his idiotic or defective child was the outcome of his vicious conduct or depraved condition will he wake to the realization that he has been guilty of a monstrous crime. The time is coming, and is not far away, when the fingers of derision and scorn will be pointed at the authors of more diseases than those of venereal character.

The next step in the prevention of insanity is in regard to the rearing and education of children. Everyone knows that this is a tender age, that the child's mind as well as his body is very easily moulded; and yet how few are conscious of what is really going on from day to day right under our very eyes and nose! The condition, politically and scientifically, smells to heaven, and with imploring eyes and outstretched hands it is continuously addressing prayers of supplication, finding but little relief. Very few people know that home quarrels and scoldings and bickerings are the starting point, and always a furthering cause when degeneration already exists, that make a child a true neurotic, a mental cripple, often, for life

Heaven and hell are states of being; happiness is heaven and misery is hell. How few parents ever realize that they are directly and indirectly responsible for sending their children to hell? See to it that there are more happy homes.

On the subject of improper schooling whole libraries might be written, but I presume a halt will never be called in our latter-day school methods until the medical profession can succeed in trepaning the heads of those in authority with a trephine of object-lessons or clinical illustrations.

We know that the great preponderance of insanity—barring hereditary depravity—comes from the cultured and refined. The cause certainly is not far to seek. "Greatest care must be exercised, else in the refining process, little will be left of the metal of knowledge."

We know that insanity is appearing at an earlier age than formerly. We see more precocious children to-day than ever before, and both

parent and teacher, ignorant of the harm they do, are wont to push them along more rapidly, and show off their accomplishments and advanced proficiencies, which are too often the evidence of over-strained degeneracy. Precocity is in fact, abnormally—inferiority. When such is observed in a child immediately "the breaks should be applied." Such children should be turned out to pasture, so to speak, like blooded colts, and allowed to run wild until such time as their physical bodies are most likely to endure the strain of the race for life. The metal is there and it requires a good judgment for proper development.

When we recall the fact that one-third of the blood of the body is required for *ordinary* brain use, if greater demands are made from that organ by the cramming process so universally in vogue in our city schools, it is easy to see that the rest of the body is insufficiently supplied with nourishment. With what result? That there is developed a puny, peevish, anemic weakling, in whom *cannot exist that equipoise of thought and feeling and will power that constitutes true character*, and enables the individual successfully "to face the world as it is."

These three functions or faculties of the mind—emotions, intellect and volition—we say are always the basis for diagnosis of mental condition, and only when properly balanced and properly developed can we pronounce sanity. Overstrain is always a tearing-down process, while a limited amount of exercise, of muscle or mind, is ever a building-up performance. The same studies, it is true, do not have the same effect upon all pupils, and hence the greatest care must be exercised by school authorities in the courses prescribed. The physician alone is the one who is able to decide the pupil's condition, and he should be ever alert in school matters. No studying of lessons should be permitted out of school; abundance of fresh air and plenty of amusements should be provided; regular hours and plenty of sleep should be enforced, no stimulants, like tea, coffee or alcoholic beverages, should be allowed—in short, hygienic school houses and methods are essential. Then, when boys and girls have arrived at the age of puberty, especial oversight should be exercised, not only as to their studies and hygienic surroundings, but general conduct, for this is the period

> "When the blood runs riot
> With the fever of youth and its mad desire;
> When the brain in vain bids the heart be quiet,
> And the breasts seem centres of lava fire."

Remember that nerve centres may be exhausted by thoughts and emotions as thoroughly as by muscular action—in fact, action within certain or rational limits is often a safety valve. As President Jordan, of the Leland Stanford University says of the Salvation Army man: "Better let him beat his big drum and make night hideous with his unmusical song than to settle down to the dry rot of reverie or the wet rot of emotional regret." Give him something to do, but do not let him overdo.

The pathologists demonstrate for us that a nerve cell may be exhausted only for a certain length of time, or to a limited degree, if we would have it repair itself to its normal state. Beyond this indefinite

but definite point lies its death and disintegration. How are we to know when we have reached that point? By the prenomena that result from the deranged functional activity, just as we know when any disease has run its course—by the different set of symptoms and signs as they present themselves. These phenomena, collectively, are called neurasthenia or nervous exhaustion. This is an invariable prodrome of insanity, and hence always of immense importance to an early diagnosis. *If taken in time no disease is more susceptible to cure than insanity,* as later knowledge and methods have plainly demonstrated.

Mental disease being but a symptom of somatic brain disease or brain defect, and psychic phenomena or mind being inseparably associated with the so-called "novvle or pyramidal cells of the brain, we have simply to study the condition and activity of those cells, together with correlated causes, in order to appreciate what to do in the prevention of insanity.—*The Cincinnati Lancet-Clinic.*

SOCIETY REPORTS.

TORONTO CLINICAL SOCIETY.

The adjourned meeting of the Toronto Clinical Society was held in St. George's Hall on the evening of the 14th of November, the president, Dr. W. H. B. Aikens in the chair.

A CASE OF POST-HEMIPLEGIC MOTOR APHASIA, with exhibition of patient. Dr. W. H. Pepler.

The condition occurred in a man aged 42 years, who complained of intermittent attacks of aphasia following right hemiplegia. The family history was particularly free from nervous diseases. The patient has always enjoyed good health until 1891 when he was suddenly attacked with severe headaches lasting for a couple of weeks, followed by weakness of right arm and leg and difficulty in speech. There was no paralysis of facial muscles and no loss of consciousness. In a couple of days he improved and in a week he was able to work and use his arm a little. Speech also gradually improved. He returned to work in a month's time, and remained well for two years, when he had another attack. At that time he remained in the hospital three weeks, perfectly insensible. At the end of that time he regained consciousness and left. There was no paralysis at that attack. Following that, about six months after, he had a series of attacks of temporary insanity, lasting from two days to two weeks at a time, and six months to eight months lapsing between the attacks. For the last two years, these seizures have altered in character, being ushered in with fulness in the right frontal region. During these attacks he cannot speak voluntarily nor answer any questions. He cannot repeat words and cannot read aloud nor write. Can see objects and people. In most of the attacks he uses "dead propositions," *i.e.*, oaths and unintelligible gibberish. He has tried to continue his work during these attacks. These attacks are very frequent, varying from one to eight in twenty-four hours and lasting a minute or less. If attacked during the night they always waken him up. The patient is of good muscular development although the general expression of face is somewhat dull. Hearing is acute and vision, good. The patellar reflex is slightly exaggerated; pupils re-act well. There is no paralysis remaining now, but there is slight rigidity of right leg. Walking is defective He cannot turn round quickly with ease. The urine is normal in quality and quantity. The patient has been taking iodide of potash and is now taking a drachm three times a day. No doubt the case was either originally a hemorrhage or an embolus into the first or second branches of the middle cerebral, with some injury to the posterior part of the third frontal convolution.

Dr. Meyers in discussing the case thought he would be inclined to class it with pure motor aphasia, or it probably might be a form of petit mal.

TRAUMATIC PARALYSIS OF THE RIGHT RECURRENT LARYNGEAL NERVE. Dr. H. E. Tremayne, Lambton Mills, who was present by invitation, read the report of this case and presented the patient, a boy aged 15 years. The family history was unknown. The father was a laborer and had suffered from rheumatism; the mother was healthy. One sister was a deaf mute. The patient was under-nourished and emaciated; pupils dilated; thyroid gland enlarged; somewhat short of breath. Had diphtheria, eight years ago; tonsilitis, typhoid fever and rheumatism. Has always been troubled with cough in the winter-time. About ten weeks ago while going up a lift his neck was jammed and following that his voice became very hoarse with slight tenderness on the right of the right sterno-mastoid muscle. The skin was not broken anywhere. When first seen by Dr. Tremayne he was complaining of cough. On examination his heart appears normal. Vocal resonance is increased on the right side. Examination of the throat showed that the right cord was immovable.

Dr. Ryerson examined the patient and said that the whole of that side of the larynx was immovable and that there was complete paralysis, but the arytenoidx on that side moves. He instanced a similar case in a South African soldier who was shot through the neck in whom it was a matter of wonder how it had escaped the arteries.

Dr. Peters said that the presentation of this case recalled one he had seen with Dr. Thistle, a case of ex ophthalmic goitre with a large cyst situated on the right side and close to the nerve. The paralysis which followed after operation for removal of the cyst was probably the result of scar tissue pressing upon the nerve fibres, although it was not complete paralysis.

TUBERCULAR DISEASE OF THE TUBES WITH ACUTE PERITONEAL INFECTION. Dr. H. A. Bruce. This process is usually primary in the tubes although in a few instances the tubes may be involved secondary to the peritoneum. Dr. Bruce recited some of the anatomical and clinical features of the disease. The case reported by him occurred in a woman aged 26 years, who had always been healthy and doing heavy work at service, during which time she was suddenly taken with pain. At first the temperature was 100 and the pulse 110. The abdomen rapidly filled with fluid which was greatly extended with well-marked ascites. Nothing could be felt through the abdominal wall on account of distension. There was no disease in the lungs or in other organs. The diagnosis was tubercular peritonitis or malignant disease. On opening the abdomen it was found filled with dark greenish fluid of which several quarts were removed. There were no small tubercles to be seen or felt. The peritoneal surface was red and soft and looked like granulation tissue. The tubes were removed and subsequently examined pathologically by Dr. Goldie and pronounced tuberculous. Speaking of the treatment of this disease, Dr. Bruce quoted Treves who had reported 300 cases treated by abdominal section, who is of the opinion that good prospects of cure can be promised in from 60 to 80 per cent. of cases operated on. He has secured the best results when the fluid has been simply extracted.

Dr. Primrose spoke about the permanency of cure. He had observed

in his own experience that not infrequently that symptoms recurred even after prolonged intervals. He thought that very frequently the cures were not permanent.

Dr. W. B. Thistle emphasized the necessity of giving larger doses of creasote in both surgical and medical cases of tuberculosis. He thought the surgeons particularly neglected this branch of the treatment. If larger doses, say from 30 to 40 minims three times a day were employed, he thought there would be more permanency to the cures. His method of administering these large doses was in capsule form with bismuth. In support of this he quoted from an article in the *British Medical Journal* where drachm doses of creasote had been given three times a day, and also where several patients had taken 100 minims three times a day.

(*a*) ALOPECIA UNIVERSALIS. (*b*) ATAXIC PARAPLEGIA.

Dr. Graham Chambers presented both patients and read notes of the respective cases.

Alopecia Universalis.—The patient was a female of twenty years of age. She said that her hair began to fall out in patches when she was five years of age. From this first attack she completely recovered. At the age of twelve she again became bald in patches and since that date she has never been free from the disease. The patient was admitted to St. Michael's hospital in March, 1898. At that date the lesions had the appearance of those of common form of alopecia areata. She was treated by local applications of chrysarobin, trikresol, carbolic acid, etc., and tonics internally. The condition of her scalp improved for two or three months but it then gradually grew worse. The hair fell out not only from the scalp but also from the eyelids, eyebrows and from all parts of the body surface and she is at the present time devoid of hair except two hairs on the anterior part of the scalp. While in the hospital in 1898, she was treated by Dr. Roseburgh for interstitial kerstitis.

A Case of Ataxic Paraplegia.—A young girl aged 17 years was admitted to St. Michael's hospital on June 1st, 1900. Family history negative except that her only sister when fifteen years of age had curvature of the spine from which she completely recovered. Patient had measles when five years old. Menstruation commenced at the age of fourteen but since has been very irregular. In March last, the cellar of the house where patient worked was flooded with water and she not knowing that she was menstruating took off her shoes and stockings and waded through the water which came up to her knees. Two days after she complained of feeling tired and that her left leg felt so heavy that she could scarcely lift it. About a month after the disease extended to her right leg and it was about this date when the patient was first examined by Dr. Chambers. She then complained of numbness and heaviness in the legs, but suffered no pain in the legs or back. Patellar jerk is increased. Both ankle clonus and knee clonus present in the left leg; tibial reflex present. Romberg's sign is present; and patient complained that she had to support herself against the wall while washing her face. Since that date the patient has become gradually worse and sensory symptoms have develop-

ed. Patient cannot distinguish hot from cold on the plantar surfaces of the feet and on the sides of the ankle joints Several patches of the skin between the ankles and the knees are anaesthetic. Sense of locality is disturbed ; field of vision normal in both eyes ; pupils re-act to light ; retina and optic nerve healthy. The sphincters of the bladder and rectum normal. Patient is now unable to walk without aid.

Dr. Thistle discussed the latter case and concurred in the diagnosis of Dr. Chambers. In the case of alopecia, he thought that the loss of the eyebrows meant syphilis.

Dr. Leslie spoke of a similar case of alopecia where a girl was quite bald for a year and a half. Her hair has come back better than before.

Hydatid Cyst of the Pancreas.—Dr. George A. Peters reported this case which occurred in the practice of Dr. McKinnon, of Guelph, and upon which Dr. Peters was asked to operate. It occurred in a young man Spanish by birth, a resident of the Argentine Republic, who in May of 1900 came under the care of Dr. McKinnon. For two or three years the patient had suffered from attacks of pain obscurely located in the stomach and bowels, and latterly had his appendix removed, at which time a tumor could be felt in the left hypochondriac region, which at times was the seat of great pain. The cyst was aspirated and 20 ounces of a limpid fluid of sp. gr. 1013 withdrawn. Much relief was experienced but the cyst slowly filled, and the temperature and pulse showing that a septic process was proceeding it was decided to operate. On examination a rounded tumor could be felt below the ribs on the left side about midway between the nipple and sternal lines. Its relation to the pancreas were determined by stomach resonances above the tumor and between it and the liver as well. Between the spleen, kidney and tumor, resonance was also present. The operation was done from behind, the incision being made along the margin of the erector spinae, three inches long. Considerable difficulty was experienced in its removal owing to the toughness of the walls. An examination of the fluid shows numerous daughter cysts with their attached embryos as well as many separate hooklets. The specimens were exhibited by Dr. Peters and the hooklets were well seen under the microscope. A search of the literature so far by Dr. Peter, reveals no other reported case of hydatid cyst of the pancreas.

In discussing the case, Dr. Bruce thought that it might possibly have been connected with the liver, as these are extremely common.

Replying to this, Dr. Peters stated that the stomach resonance was distinctly to be made out all along the line between the liver and this tumor, and such being the case, he could not see how any one could make it out to be a tumor of the left lobe of the liver.

MISCELLANEOUS.

Kernig's Sign.

Roglet (*Journ. de Méd.*, October 10th, 1900) has made an extensive series of observations on the subject of Kernig's sign. As is now generally known, this sign consists in the impossibility of completely extending the leg on the thigh when in the sitting posture in a patient suffering from certain meningeal diseases. There is a certain amount of contracture of the flexors of the leg. This contracture, on the other hand, disappears, and complete extension can be obtained when the patient is lying on the back. It is easy therefore to elicit the phenomenon if, after having ascertained the absence of all contracture in the supine position, the patient is made to sit up, his legs hanging free, or even sitting up in bed. Certain precautions are therefore necessary. The observer must see that the patient sits straight upright and does not lean to one side or the other, and that the thighs form a right angle with the trunk, certainly not less. Disregard of this point may lead to considerable error. The attempt to obtain Kernig's sign is sometimes attended with considerable pain. The amount of extension obtained at the knee varies considerably. When Kernig's sign is well marked it is impossible to exceed a right angle; when slight an obtuse angle equal to 135 degrees; but intermediate degrees may be obtained. Nor is the sign always bilateral; occasionally it has been observed on one side only, or to an unequal extent in both limbs. The intensity of the phenomenon may vary from day to day, or may even disappear completely To be therefore sure of its non-existence several observations are necessary. Kernig's sign may appear at the same time as the other symptoms rigidity of the neck, ocular symptoms, contracture, etc., most usually but it appears about the third or fourth day of the disease. In tuberculous meningitis its appearance is most delayed. It is very rare for it to be the only symptom present. Kernig's sign may disappear at variable periods. In meningitis ending fatally it may persist up to the end, but in other cases it may disappear shortly before death, especially in cases where, owing to coma, there is general flaccidity, and all contractures give place to paralysis. It is under such circumstances that Kernig's sign has been missed in several cases of meningitis. The diagnostic value of this sign is considerable, as it has been met with in 85 to 90 per cent. in cases of meningitis. It is, however, present in other conditions with meningeal inflammation—for example, meningeal hæmorrhage and cerebral abcess—but this seems to be exceptional. Its value is reduced, therefore, by the fact that it rarely appears at the beginning of the case or occurs alone. The diagnosis is consequently in many cases apparent independent of this sign. Roglet explains the phenomenon as follows: In a person in a sitting posture with the thighs flexed to some degree and the trunk of the legs extended, the flexor muscles are on stretch,

and their elasticity is soon exhausted. If under the influence of spinal irritation and irritation of the spinal roots, where this may be due to increase of intraspinal pressure or to the presence of purulent exudation, there is naturally produced some increase of muscular tonicity. This diminishes the elasticity and length of the flexor fibres, which then become too short to allow of extension of the leg on the thigh, and thus the sign is produced. B. M. J.

Curability of Suppurative Cerebrospinal Meningitis.

Archives of Pediatrics, Sept., 1900, quotes from *La Presse Medicale* 1900, No. 39, that lumbar puncture has provided a means of accurate diagnosis of meningeal lesion, so that it is no longer possible to doubt the accuracy of the statement that cases of meningitis are curable. All the forms of simple meningitis may recover; and, while the serous and serofibrinous varieties usually end in cure, recovery from suppurative meningitis is by no means exceptional. Thus Netter is able to report seven, cases of suppurative meningitis (seen since May, 1899,) which recovered. The diplococcus meningitidis of Weichselbaum was cultivated from the fluid obtained by lumbar puncture in every case, the fluid being cloudy and having a sediment of pus. The puncture was repeated from one to ten times throughout the course of the disease, the fluid containing fever bacteria in the later punctures and sometimes remaining sterile. Improvement was marked within three to four days in some cases, in ten to fifteen in others; while in one case the disease lasted two months. and more than three months in another. Rigidity of the neck was the predominating symptom in all; ocular paralyses were frequent and were cured perfectly. One child retained some trouble with her hearing, the final outcome of which cannot, as yet, be foretold. The good results are to be attributed above all else to the systematic use of warm baths (38° to 40° C.) given every three or four hours, day and night, lasting twenty to thirty minutes. In order to sustain the strength, subcutaneous injections of the serum were given when the children took food badly. The treatment was used in eleven cases; seven recovered, and of the four who died one was brought into the hospital in a moribund condition.— *Virginia Med. Science Monthly.*

Obstetrics in Paris.

In the October number of *Obstetrics* there appeared a very interesting paper by Dr. N. I. Ratchinsky before the Society of Obstetrics and Gynaecology of St. Petersburg The title of this paper was "Obstetrics in Paris." The writer had spent last summer in Paris studying the methods and practice of the art in that city. In speaking of the obstetric charities he says that in nine of the thirty municipal Hospitals in Paris there are wards specially set apart for obstetrics, besides two special institutions viz., Beaudelocque's clinic in charge of Pinard and Tarniers' clinic in charge of Budin. These institutions admit women in labor or in the last months of pregnancy. In addition there are two asylums for pregnant women only. All these institutions belong to the city and are under the department of public charities.

The head physician and head surgeon as well as an assistant intern and three assistant externs are appointed by competitive examination which is said to be most rigid; therefore these men are described as showing great ability. In these clinics there are in all about 500 beds. The following tables give the number of births, the morbidity and the mortality in the municipal lying-in institutions as a whole.

TABLE I.—MUNICIPAL LYING-IN INSTITUTIONS OF PARIS.

Maternité, Two University Clinics, and Nine Hospital Departments.

Years.	1894.		1895.		1896.		1897.		1898.	
Total births	13,511		14,172		15,154		16.643		17,724	
Cases and deaths	C	D	C	D	C	D	C	D	C	D
Hemorrhage, pose-partum	47	11	293	8	50	16	35	13	45	5
Septicemia	128	69	40	22	162	110	134	88	106	89
Metroperitonitis, puerperal	39	16	41			16	12	8	17	14
Albuminuria, eclampsia	62	27	11	1	44	32	41	36	61	31
Phlegmasia alba dolens	18	2	13	7	6	1	1	0	10	2
Mastitis, puerpéral	10	0	0	0	10	0	10	1	11	0
Miscellaneous	229	13	243	109	330	20	391	27	318	35
Total	523	138	641	176	632	195	624	173	568	176
Percentage	4	1	4	1	4	1	3.7	1	3	0.8

The second table shows the statistics of Beaudelocque's clinic from its foundation in 1889:

TABLE II.—BEAUDELOCQUE'S CLINIC.

Years.	Total.	Total mortality, including gravidæ.	Per cent.	Mortality from septicemia, including premature labor.	Per cent.
1889	106	1	1	0	0
1890	1,244	9	0,72	4	0,32
1891	1,654	20	1,20	6	0,36
1892	1,834	8	0,49	5	0,27
1893	1,920	14	0,72	8	0,42
1894	2,139	9	0,42	4	0,18
1895	2,077	12	0,57	5	0,24
1896	2,270	12	0,52	5	0,22
1897	2,314	11	0,47	5	0,21

The solicitude in France for the pregnant-woman is so great that there are institutions where she and her children (if any) are taken and cared for, where she is not expected to do any work. When labor is to take place she is sent to another institution; and afterward there are special institutions where the women are allowed to convalesce after labor. The children are similarly cared for. They are inspected weekly by a member of the staff and ordered if required, sterilized milk regularly free of charge.

In the Charité the mortality among inspected children is 7.3 per cent. while in Paris as a whole it is 21 per cent. This solicitude is said

to be due to two causes. Firstly, the fear of the depopulation of the country since the birth rate has been diminishing so rapidly. Secondly, the humanitarianism which characterizes some public institutions in France.

The teaching of obstetrics in the universities and clinics in Paris is described as both theoretical and practical and most efficient in character. Each student is given three months for the study of obstetrics only, when he is subjected to an amount of very hard work and severe examinations. The results show 40 per cent of failures after these examinations although the students are said to be very hard workers. There are no special courses for physicians who wish to perfect themselves in obstetrics. They must present their diplomas, pay a fee of 30 francs. They may then avail themselves of extra courses as follows: An extra course on operative obstetrics 50 francs. During the summer months the chiefs of clinics give special courses. Budin gives three courses of a month each 50 francs each; Pinard two courses of six weeks each, 50 francs each. Besides these there are private courses to which physicians are admitted; these are more practical in character and more useful to physicians.

For midwives there is the School of the Maternite, a two years' course. The women live in the building, get tuition, board, lodging, etc., for the sum of 1000 francs. Dr. Ratchinsky speaks very highly of the system of residence in clinic in comparison with the system of university instruction given in most countries. He then describes the arrangements of some of the lying-in-institutions, He speaks in high terms of praise of their laboratories, disinfecting rooms, gynaecological operating rooms, isolation rooms, etc.—A description of some of the instruments used in the clinics is then given. Especially the Tarnier's forceps which seem to be used by all. The following rules are laid down for the use of this instrument:—

1. The forceps must always be applied in the transverse diameter of the head. Pinard applies them in this diameter even if the head lies transversely across the pelvic inlet, and at the same time he tries to flex the head as much as possible by pressure with the hand. Budin, however, makes an exception in such cases and applies the forceps in the oblique diameter, a method which is, generally speaking, more rational in view of the fact that the distance between the promontory and the symphisis is the narrowest diameter of the pelvic inlet.

2. Forceps are regarded in France not only as instruments used for traction but also as a means for rectifying the position of the vertex. Pinard rectifies both face presentations by means of the forceps. In occipito-posterior positions he first tries to convert the position into a transverse, by pressure with the hand, and then he brings the occiput forward by means of the forceps, in other words, he rotates the head through an arc of 95°. In cases in which the occiput is in the hollow of the sacrum, Pinard extracts with forceps in the occipito-sacral position, but Budin rotates the head in an occipito-anterior position with the forceps, thus changing the position of the head 180°. This rotation is accomplished by means of the *tiges de prehension* (grasping handles) which describe a broad half-circle and by the application of the *tour de maitre*.

3. Once applied, the position of the forceps in relation to the head is not changed. Therefore, for instance, when the head is rotated with the occiput forward by means of the forceps the latter are not taken out but the head is extracted with the pelvic curve of the instrument directed downward.

4. Pinard does not apply high forceps in a contracted pelvis of the second degree, i.e., when the conjugata vera is less than 11 cm. In these cases he uses symphysiotomy.

Great stress is laid on the external examination of the woman before labor. It is carried out as follows by Pinard. One of the patient's legs is in the extended position, the other bent at the knee, the examining hand passes under the latter. Gentle manipulation is recommended, a "caressing the abdomen" as Pinard calls it. In Pinard's clinic a 5 per cent. solution of citric acid or the juice of a lemon is syringed into the newly-born infant's eyes as a prophylactic against ophthalmia.

The perineum is not supported by the hand in Paris. The tissues are stretched as much as possible to allow the largest diameter of the head to pass under the pubic arch first. The rectal method is not used. The treatment of postpartum endometritis is as follows:

The uterus is irrigated with mercuric bin-iodide solution. The cavity is then dried with a strip of gauze, then an application of iodine made to the endometrium, then the bin-iodide irrigation repeated. The cavity is then dried and tamponed with iodoform gauze.

The anti-streptococcus and anti-staphylococcus serums though used extensively in puerperal affections are described as yielding doubtful results.

D. G. G.

Nasal Hydrorrhoea.

At a debate upon this subject before the Amer. Lar. Rhin. and Otol. Soc. (Laryngoscope for Oct) it was brought out that this disease was not at all infrequently met with, and that while cleansing of the parts was imperative, the use of the suprarenal capsule extract in powder or in watery solution had been uniformly attended with success. The use of the extract in powder form has in our own experience been found to produce irritation, nor can we think that it is wise to use a powder in this way which undergoes decomposition so readily when placed in water. The solution should always be made with Dobell's solution or with the addition of carbolic acid when plain water is used.

GIBB WISHART.

Laryngeal Tuberculosis.

Vacher (Laryngoscope, Oct.) advocates the treatment of this condition by curettement of the vegetations as an imperative necessity. Following this he uses the following intra-tracheal injection: iodoform, ether to saturation 100, guiacol 5, eucalyptol 2, menthol 1; of this up to 2 c.c. for each injection. These are well borne, the patient experiencing a sensation of warmth in the entire thorax, almost no glottic spasm the pains are lessened, taking food easier and breathing more ample.

GIBB WISHART.

Difficult Intubation.

At the International Medical Congress of August last Escat of Toulouse (Laryngoscope, Oct.) made the following remarks about entanglements occurring in the course of intubation in a child. These may occur, 1st, in the inter-crico-thyroid space—the axis of the tube making with that of the laryngo-tracheal canal an angle opened backwards; 2nd, in the right or left ventricle of the larynx, as a result of a deviation from the median plane, either of the tube, or of the laryngo-tracheal canal itself.

To overcome these he suggests that as a first manoeuvre the left thumb be applied to the external crico-thyroid space immediately above the cricoid eminence, exerting there a slight pressure, while the right hand forcibly lowers the handle of the applicator.

The object of this manoeuvre is to reduce as much as possible the angle of such backwards and forwards by the intersection of the axis of the tube and most of the laryngo-tracheal axis.

As a second manoeuvre—the tube being well engaged in the vestibule and the applicator held in the median plane by the right hand, the left thumb and forefinger are used to grasp the larynx and give it lateral movement which will modify the laryngo tracheal axis, and place it in a line with the prolongation of that of the tube.

GIBB WISHART.

An Aversion to Science.

The person with a microscope, he's always hanging 'round,
And scaring everybody with his vision so profound.
If I had paid attention to the various things he said,
I'd surely be so frightened that I might as well be dead.
There isn't any limit to the deadly germs he'll spy
Whene'er he takes his lenses out and winks the other eye.
I might face the jungle tiger and imagine it was fun,
But this microscopic terror truly has me on the run.
He writes about bacilli who your tissues will explore,
Of the marching microbe millions who are searching for your gore;
He tells of the persistence of these ministers of death,
Till you nearly have a spasm every time you draw a breath.
He even gets up pictures of the surreptitious germ,
Who is solely in existence to cut short your earthly term.
And life is strangely bitter and devoid of any hope,
All owing to this croaker with his maddening microscope.

—*Washington Star.*

CHRONIC ECZEMA.—

℞. Aloini ..... gr. $\frac{1}{5}$.
Tinct. nucis vom.
Ext. hamamelis fl. ..... aa gtt v.
Tinct. gentinæ comp. fl. ..... ℥ j.

M. Sig. Capiat haustus ter die.

Give an alkaline bath three times a week, composed of two handfuls of soda to twenty gallons of water, and apply the following ointment:

℞. Bismuthi subnitratis .....3 ij.
Glycerini.
Aq. calcis.....aa fl. ℥ iv.
Creosoti.....gtt. iv.
Zinci carbonatis (impur.).....℥ ss.

M.—*Shoemaker, Ex.*

HEMORRHOIDS. A writer in the *Nord Medical* gives the following ointment for hemorrhoids:

℞. Cocain. hydrochlor .....gr. 15.
Ergotine.....gr. 60.
Ichthyol.....gr. 65.
Calomel .....gr. 45.
Vaselin.
Lanolin .....aa gr. 225.

M. Sig. A portion as large as a small nut to be inserted into the rectum after each evacuation.—*Canada Medical Record.*

CONSTIPATION IN INFANTS.—

℞. Tinct. nuc. vom ..... *m* ss.
Tinct. belladonnæ.....*m* j.
Inf. sennæ .....*m* xx.
Inf. gentianæ.....ad 3 j.

M. ft. haustus. Sig. To be taken three times a day before meals by a child from eight to twelve months old.—*Ex.*

DYSENTERY. The following prescription has been used with marked success in the Mandoli Regimental Hospital at Bhurtpore in cases of acute dysentery:—

℞ Quinin. sulphat.....gr. ij.
Pulv. ipecacuanh.....gr. v.
Ammon. chloridi.....gr. x.
Tr. opii.....*m* xij.
Aquæ, q. s. ad.....℥j.

M. Sig.: To be given every four hours.

LUMBAGO. The following mixture is often useful in some forms of lumbago:—

℞ Acidi salicylatis .....gr. x.
Potassii iodidi .....gr. v.
Ext. sarsaparill.....fl., 3ij.
Aquæ, q. s. ad .....℥ss.

M. Sig.: To be taken in water thrice daily, after meals.

VAGINISMUS. Dr. Touvenaint advises the following:—

℞ Stront. bromid.,
Potass. bromid.,
Ammon. bromid., of each.....3i¼.
Aquæ dest .....℥viij.

M. Sig.: Tablespoonful twice a day.

Or :—

℞ Zinci valerianat.....gr. 5-6.
Quinin. valerianat.....gr. iss.
Ext. opii,
Ext. belladonnæ, of each .....gr. $\frac{1}{6}$.

M. et ft. pil. No. j.

Sig.: From three to six pills daily.

Locally :—

℞ Ext. krameriæ .....gr. iss.
Morphin. hydrochlor.....gr. $\frac{1}{3}$.
Ol. theobrom .....ʒj.

Ft. suppositoria vaginal.

Or :—

℞ Cocain. hydrochlor .....gr. iij.
Ext. belladonnæ.....gr. iss.
Strontii bromid.....gr. iv.
Ol. theobrom .....ʒ$\frac{1}{4}$.

M. et ft. suppos. vaginal. — Journal of the American Medical Association.

INGROWING TOE-NAIL. For that very painful affection, ingrowing toe-nail, the following treatment is very strongly recommended by Dr. Kinsman in the *Columbus Medical Journal.*

1. Remove all pressure from nail by cutting away a piece of the shoe.
2. Disinfect with hydrogen dioxide until no more "foam" appears.
3. Apply a drop of strong solution of cocaine in the base of the ulcer.
4. Apply a drop of Monsell's solution to the ulcer, then cover loosely with gauze. Repeat this process every second day until the edge of the nail is released by the retraction of the hypertrophied tissue. The patient suffers no pain from the application, and all pain has disappeared the second day. The cure is effected in a week or two without inconvenience or interference with business.

POINTS IN SURGERY. The following "catchy phrases" are from the pen of Dr. William V. Morgan, of Indianapolis :

1. A soft chancre burneth away fast.
2. An uncut felon should be considered a felony.
3. For lacerated perineum septic repair is worse than neglect.
4. "Milk fever" belongs to the suckling stage of obstetric practice.
5. "Delayed shock" means either hemorrhage or sepsis; decide quickly and act boldly.
6. The golden rule for the passage of urethral sounds or catheters is, "Begin with the larger size."
7. Prolapsed funis calls for podalic version. Funis repositors should be left in repose. Delay means death.
8. Chloroform given near an open flame is likely to be decomposed into irritating and poisonous vapors.
9. In cases of obstruction of the bowel, with stercoraceous vomiting, lavage of the stomach, both before and after surgical interference, will greatly enhance the patient's chances of recovery.

10. One thing about which it is good to be "cranky" is adherent prepuce. Let no such pathologic condition escape you unrelieved. In convulsions of children, male or female, the prepuce should always be examined. Ten good digits in two good minutes suffice to overcome the resistance of the most adherent prepuce that was ever hung to a boy.

11. A 10 per cent. solution of antipyrine is a sovereign remedy for vesical hemorrhage. From four to eight ounces may be allowed to remain in the bladder for thirty minutes.

12. Don't be too quick to promise a perfect result after dislocation at the shoulder. The circumflex nerve passes closely around the surgical neck of the humerus, and often takes serious and lasting offense at the traumatism. Paralysis of the deltoid prevents abduction of the arm, permits gradual elongation of the capsular ligament, and recovery from it is usually slow and incomplete; hence the wisdom of a lagging prognosis.—*The Atlantic Journal-Record of Medicine.*

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EDITORIAL.

A SERIOUS CHARGE AGAINST TORONTO CORONERS

The Undertakers' Gazette (Nov., 1900), contains an article which reflects in the most serious manner on the honor of the coroners of Toronto. It reads as follows:—"There is an undertone of dissatisfaction among some of the undertakers of Toronto over the fact that the coroners are not above accepting a bribe, and many of *the profession* (italics are ours) are not above giving one. An instance was cited to us only the other day where a coroner came to one of the leading undertakers and in a very suave manner indicated his willingness to hand cases over to him for about five dollars a head. We will not repeat verbatim the reply he received, but, although rather forcible, it was little more than he deserved. Bribery is bribery, no matter where or under what circumstances it occurs, and the undertaker who countenances this kind of thing is just as much a rogue as the coroner who accepts the money. The very fact that there is such fear evidenced on the part of those who follow this practice that anyone will find it out is proof enough of what they them-

selves know it to be. Some indulge in this kind of bribery on a wholesale scale, and include, beside the coroner, nurses, doctors and anyone else whom it is possible to place in the category. It is certainly time some pronounced effort was made to put a stop to such proceedings not only in justice to the honest undertakers but also to the public generally."

It is little less than an outrage that an unsupported general charge of this sort should be made against any body of men. If any coroner has been guilty of such unprofessional and altogether reprehensible conduct, he should be publicly exposed, and the authorities should remove him from the position which he has disgraced. That the charge as applied to the coroners of Toronto, as a class, is absolutely false and without foundation, no one who knows the professional reputation and standing of many of these gentlemen, will for a moment doubt. We sincerely hope that some action will be taken by them to have the evidence upon which such an accusation is made thoroughly sifted. They owe it, not only to themselves, but also to their professional brethren and to the public, that the matter should not be passed over without the fullest investigation. It is surely humiliating to the medical profession that they should be lectured on matters of honor and ethics by members of the undertaking trade. That bribery, on a wholesale scale, has been indulged in, is only conceivable on the ground that the complainants are very willing, not to say anxious, victims. It is, indeed, rare that honest men are insulted by the offer of bribes.

SPINAL ANAESTHESIA.

During the past month medical journals on this continent have devoted much space to the discussion of the subject of spinal subarachnoid injections of cocaine for surgical anæthesia in operations beneath the diaphragm, with the result that the limitations of the usefulness of this method are becoming pretty well defined. The number of cases in which it has been used has multiplied rapidly, with a remarkable absence of fatalities so far reported, although it has been freely hinted that these have been more frequent than reports of cases would indicate. The method has many obvious disadvantages and is quite unlikely to revolutionize anæsthetic methods to the extent predicted by some enthusiasts. Cocaine is a notoriously unsafe and uncertain drug, minimal doses often producing the most alarming symptoms. The onset and duration of the anæsthesia are both uncertain, and in many operations the necessity for a second injection would not only be inconvenient but practically impossible. The unconsciousness of the patient and consequent absence of

mental distress is one of the greatest boons of ordinary general anæsthesia, so that one advantage which has been claimed for spinal anæthesia is probably a most undesireable feature. The injection itself even with experienced operators, is sometimes a tedious and difficult matter. The disagreeable, not to say alarming, after-effects, and the dangers to which the spinal cord itself is necessarily exposed, will cause conservative practitioners to go slowly in the adoption of the method, The article by Dr. Corning, of New York, (*N. Y. Medical Journal,*) who really discovered the method some fifteen years ago, makes one of the most thoughtful, modest and conservative estimates of the value of spinal anæsthesia we have yet seen. It would be well for those, who have had no experience with the matter, to give heed to the teaching of the discoverer.

A MEDICAL CO-OPERATIVE SUPPLY ASSOCIATION.

The prospectus of "The Physicians' and Surgeons' Supply Association, Limited," an organization with an authorized capital of $100,000, officered and controlled entirely by members of the Medical profession, has just been issued. The scheme evidently has the endorsation and active support of influencial members of the profession, the list of provisional directors including some of the best known physicians of the Province. The headquarters of the Association are to be in Toronto, and stock, not exceeding $500 each, is to be allotted only to physicians and surgeons in active practice, so that any profits in the business will revert to members of the profession. The aims of the Association are well set forth in the prospectus, "the cardinal principles and essence of the movement," it is stated, "being professional co-operation for professional advantages." The supply house of the Association is to open in Toronto for business on January 1st, 1901. The success of this organization will be watched with much interest by the profession. Similar associations in England and the United States have been well received and have become firmly established. That there is, in existing conditions, ample justification for such a departure, there can be little doubt. The Medical profession has too large a following of commercial parasites that feed by turning to their selfish interests the results of their self-sacrificing labors for the advancement of medical science or the relief of suffering. Whether such associations as this will help to obviate the difficulty remains to be seen. Any legitimate and sincere attempt with that end in view, however, is sure of generous support.

THE ANNUAL BANQUET OF TRINITY MEDICAL COLLEGE.

The annual banquet of Trinity Medical College was held November 15th at the Temple Café. Trinity Medical College has held twenty-three annual dinners, many of them elaborate, and all enjoyable, but none quite so admirable as this the last one of the century. Programme, music and catering were all that could be desired.

The banqueting hall was beautifully decorated, one of the most striking features being the arrangement of the tables, which were spread out in the form of a Union Jack. The Trinity College Colors were arranged in the centre of the tables, with single and clustered candelabras, palms, chrysanthemums and cut flowers giving a most artistic effect. Almost every portion of the walls was hidden from view with large streamers of red, white and blue bunting, intermingled with the College colors. The president of the Dinner committee, Mr. S. Johnston, ably filled the chair.

Among the guests present in addition to the Faculty were: Hon. R. Harcourt, Mr. A. Pattullo, M.P.P., Rev. Prof. Clarke, Rev. Provost Street-Macklem, Dr. McKay, M.P.P., Surgeon Lieut.-Col. Ryerson, Dr. O'Reilly, Rev. Dean Rigby, Dr. R. B. Nevitt, Mr. Walter S. Lee, Mr. A. MacMurchy, Principal Embree, Prof. Wilmott and many others, including representatives from sister institutions.

The chairman, in proposing the toast to the Queen, alluded to the outburst of patriotism over all Canada at the outbreak of the South African war, and referred to the Trinity Undergraduates, Anderson, Farrell, Macdonald, Irving and Robertson, who had gone to the front. Hon. R. Harcourt, the Minister of Education, replying to the toast of "Canada and the Empire," spoke of the nobility and generosity of the medical profession. Mr. A. Pattullo also suitably responded to this toast. Dr. McKay, M.P.P., predicted a brilliant future for his Alma Mater.

UNIVERSITY OF TORONTO MEDICAL FACULTY DINNER.

The Fourteenth annual banquet of the Medical Faculty of Toronto University, held in the University Gymnasium on the evening of December 6th was one of the most successful and enjoyable in the history of the institution. Among the guests were: Rev. E. B. Macdonald, Dr W. P. Cavan, Dr. O'Reilly Prof. W. R Long, Rev. J. R. Teefy, Dr. Ellis, A. E. Kemp, M.P., Dr. Peters, J. K. Kerr. Q.C., Walter S. Lee, Prof. G. M. Wrong, Mr. Cameron, Dr. Kitchen, Dr. Reeve, Dr. Parkin, Hon. Justice Moss, Dr. J. F. W. Ross, Hon. George W. Ross, Dr. Oldright, Dr. Britton,

Dr. McPhedran, Hon. Justice Rose, Sir John Boyd, Dr. McKinnon, Dr. Primrose, Dr. Jordan, James Brebner, Dr. J. J. McKenzie, Dr. Clark, Prof. Ramsay Wright and Dr. Bruce.

Much regret was expressed by the chairman at the unavoidable absence of Dr. A. H. Wright through illness, from which however he was glad to learn he was recovering. The usual toasts were heartily proposed and responded to.

WESTERN MEDICAL COLLEGE.

The Annual Banquet of the Western Medical College was held at the Tecumseh House, London, on Thurday evening, December 13th. Mr. A. F. Grant presided and Mr. W. F. Ball acted as secretary of the dinner committee.

TORONTO POST GRADUATE SOCIETY.

The officers of the Post Graduate Society for this year are: Hon. President, Dr. H. A. Bruce; Hon. Vice-Pres., Dr. J. T. Fotheringham; President, Dr. A. T. Stanton; Vice-President, Dr. F. W. Marlowe; Secretary, Dr. A. J. G. Macdougall; Executive Committee, Drs. Parry, Stubbs and Dittrick.

The Executive hope to keep up the good record of their predecessors and to introduce into the meetings more of the practical than heretofore.

PERSONAL.

Dr. A. H. Wright, who has been seriously ill with septicaemia, is now on a fair way to recovery, a matter of much satisfaction and pleasure to his medical friends.

Dr. Chas. A Page, Trinity '98, formerly resident assistant in the Toronto General Hospital, and now practising at Castleton, Ontario, was married on December 13th to Miss Tudhope, of Toronto.

Owing to increased work at his private hospital and in order to devote more time to clinical research in his laboratory, Dr. Campbell Meyers has given up his Simcoe street office for the present, and may be consulted at his hospital, Deer Park, from 10 a.m, to 1 p.m.

CORRESPONDENCE.

ELIMINATIVE AND ANTISEPTIC TREATMENT OF TYPHOID FEVER.

To Editor of "CANADA LANCET":

DEAR SIR,—In the reported proceedings of the Canadian Medical Association meeting published in the LANCET there appears under the heading of "Eliminative and Antiseptic Treatment of Typhoid Fever" a brief abstract of my paper. I had in that paper protested against the misrepresentation I had received in certain quarters. Your reporter furnished an apt illustration of what I complained of, and in this short abstract has managed to distort and misstate what I said to an extraordinary degree. For example, I am reported in this abstract as holding "the opinion that the drainage from the intestinal wall following upon the action of a purgative, such as calomel and magnesium sulphate, would tend to get rid of some of these bacilli in the *intestinal walls*, but would not effect their exit from the liver, etc."

I had in the first part of my paper quoted from the recently published Gullstonian lectures, delivered before the Royal College of Physicians of London by Dr. P. Horton-Smith, on "Typhoid Fever and the Typhoid bacillus," to show the correctness of my contention of seven years ago that the specific bacilli were present in the intestinal contents during the first days of the fever—not absent from the intestinal contents as has been asserted—and consequently that the soundness of my theory of their being swept out by the action of purgatives, thus limiting the infection of the body and of the glands in the intestinal walls, became perfectly obvious. Then followed the paragraph referred to, which I shall quote in its entirety.

"Elimination must not be confined to simply clearing out the intestine, but must apply to a much wider process; the clearing of poison from the body by way of the intestine e ther in the toxic bile or contained in the serous fluid poured from the intestinal wall.

"It is amusing after having made so many explicit statements and having drawn attention so many times to this feature to find Prof. Osler gravely pointing out to his readers 'that, unlike cholera, the typhoid bacilli are not confined to the intestine, but are to be found in the spleen, intestinal glands, etc., and consequently that they cannot be dislodged by the use of purgatives.'

"I shall again be explicit in the statement that the eliminative plan of treatment does not contemplate removal of bacilli from the spleen, intestinal wall and various tissues of the body, but does contemplate *elimination of bacilli and poisons from the intestine* and of *toxin from the body by way of the intestine.*"

A second example: I am made to say that I had never had a fatal hemorrhage and that I had had but few perforations. What I did state, after pointing out that twenty per cent. of the mortality of typhoid fever had been attributed to perforation and hemorrhage, was that "in my own experience I had never had a *fatal hemorrhage* and but few hemorrhages, nor had I in all these years a *single perforation.*"

I am sure you will agree with me that it is most unfortunate when mistakes like the above occur, utterly false impressions are received by an immense number of readers, and it frequently happens that this impression remains since many who have read the report will fail to notice the correction.

171 College Street, November 1st, 1900. W. B. THISTLE.

BOOK REVIEW.

A MANUAL OF OTOLOGY.

By Graham Bacon, A.B., M.D. Second edition. One 12mo. volume, 422 pages, 109 engravings and three colored plates. Lea Bros. & Co., New York and Philadelphia, 1900.

This 2nd edition is published within two years of the 1st. The present edition gives extended consideration to the Schwartz Stachie operations and to the use of the normal saline solution in intravenous injections, and increases the text by some 25 pages.

The size and efficiency of this excellent manual makes it a most useful book for the use of students, and the price places it within the reach of every one of these.—GIBB. WISHART.

IMPERATIVE SURGERY.

For the general practitioner, the specialist and the recent graduate, with numerous illustrations from photographs and drawings. By Howard Lilienthal, M.D., Attending Surgeon to Mount Sinai Hospital, New York City. The Macmillan Co., New York. $4.00.

By those to whom the author appeals this book will be much appreciated. It deals only with the diagnosis and treatment of conditions which demand immediate operative measures and it presupposes the absence of a surgeon and the impossibility or inexpediency of removing the patient or of waiting for expert assistance. In carrying out this plan the author has been careful not to crowd the minuteness of detail so essential to those unaccustomed to the daily routine of surgical technique, nor does he spend time in discussing the pros and cons of the various procedures, but chooses in most instances one method, describing it in detail, and where the text can be elaborated introducing illustrations taken from work in his own practice.

This makes a very practical volume of 386 pages clearly printed on heavy paper with over 150 illustrations. The early chapters devoted to the choice and preparation of instruments and dressing materials and the preparation of the dwelling room for operation will prove especially valuable, while the chapters devoted to the more acute surgical emergencies are full of all essential detail.

The claim in this work is its simplicity and practicability.—C. J. C.

THE MEDICAL NEWS VISITING LIST FOR 1901.

Weekly (dated, for 30 patients); monthly (undated, for 120 patients per month); perpetual (undated, for 30 patients weekly per year); and perpetual (undated, for 60 patients weekly per year). The first three styles contain 32 pages of data and 160 pages of blanks. The 60, patient perpetual consists of 246 pages of blanks. Each style is one wallet-shaped book, with pocket, pencil and rubber. Seal grain leather, $1.25. Thumb-letter index, 25 cents extra. Philadelphia and New York; Lea Bro's & Co.

The Medical News Visiting List for 1901 represents the most complete, compact and useful form of what is now regarded as an essential convenience to the busy practitioner—a good visiting list. It contains, besides blanks adapted to all the routine of ordinary practice, 32 pages of the most useful and carefully selected text, furnishing information of value in emergencies, etc. It is handsomly gotten up and altogether will be found entirely satisfactory.

PATHOLOGY AND MORBID ANATOMY.

By T. Henry Green, M.D., F.R.C.P., revised aud enlarged by H. Montague Murray, M.D., F.R.C.P. Ninth American from ninth English edition. Edited by Walter Martin, Ph.B., M.D. Lea Bro's & Co., Philadelphia and New York.

The appearance of a new edition of this work in so short a space of time proves that it has lost none of its popularity as a text-book. On account of its conciseness and dogmatic teaching it will always be a favorite with students.

This edition has been thoroughly revised so as to bring the subject matter up to date and nearly half the volume has been re-written by its English editor. The text has in many places been re-arranged, several new sections have been added and one hundred and eighty new illustrations. Dr. Mott has written the chapter on the nervous system, which greatly enhances the value of the volume. The American editor has added sections on malaria, the blood and a brief chapter on the preparation and staining of tissues for microscopic study.

The work more than ever fills the place which demands it.—C. J. C.

A TREATISE ON DISEASES OF THE NOSE AND THROAT.

By Ernest L. Shurly, M.D. 744 pages, with 6 colored plates, including 34 drawings and 223 illustrations. D. Appleton & Co., New York, 1900.

Where so many books are issuing from the press, devoted to diseases of the special organs, the reading medical public has a right to demand that the appearance of a new work shall have a *raison d' être* sufficient to justify its appearance.

The present volume is especially strong in the matter of "history," and the marshalling of the views of investigators and observers is excellent and indicates years of careful and diligent reading on the part of the author. We would have preferred to find in it a larger amount of the author's own personal observations on diagnosis and treatment. For the

average student the subjects are treated at too great a length. It is worthy of note that the author advocates the local treatment of diphtheria by antiseptic douches applied with a syringe,—the post nasal syringe in nose cases, and in severe cases by swabbing with Lœffler's solution. A thorough local treatment with a view to check the toxæmia by attacking the seat of the generation of the poison. He also advises hypodermic injections of muriate of quinine in secondary poisoning in diphtheria. The illustrations are excellent—those which are colored being chiefly from the well known plate of Grünwald.

We cannot understand why Dr. Shurly makes use of such an illustration as No. 31, p. 41, as it is anatomically incorrect and impossible.

GIBB WISHART.

MUSSER'S DIAGNOSIS. NEW (4th) EDITION.

A Practical Treatise on Medical Diagnosis. For the Use of Students and Practitioners. By John H. Musser, M.D., Professor of Clinical Medicine, University of Pennsylvania, Philadelphia. New (4th) edition, thoroughly revised. In one octavo volume of 1104 pages, with 250 engravings and 49 full-page colored plates. Cloth, $6.00, net; leather, $7.00, net; half morocco, $7.50, net. Lea Brothers & Co., Publishers, Philadelphia and New York. October, 1900.

This well and favorably known work has not reached its fourth edition undeservedly.

Every one of its eleven hundred pages, is filled with useful and essential information and in perusing them one cannot but feel that the time when medicine will be included amongst the exact sciences is fast approaching. The first half of the book is denoted to general diagnosis; here the author discusses the various symptoms of disease, their etiology, means of recognition and the relation they bear to diseases of special organs or systems.

In the latter half the author discusses, very fully, the special diagnosis of diseases of the various organs of the body. Throughout the work much prominence is given to the various chemical and mechanical aids to diagnosis and the laboratory and its methods and technique are kept well to the front.

The engravings and colored plates are well executed and the whole work reflects much credit on the publishers.—F. F.

A WAIL OF DISAPPOINTMENT.

An Eastern concern, which makes an imitation of Gude's "Pepto-Mangan," and, for years, has traded upon the reputation which this preparation has earned for itself, has recently sent broadcast to the medical profession of America a circular letter, in which, after bewailing the enormous returns brought by the "unethical methods" of other manufacturers, modestly refers to its own "ethical" virtues, and expresses the belief that, in spite of present non-appreciation of these virtues by the doctors, "the day will come when physicians will realize the importance

of ceasing to be the *instigators and propagators* of the popularity of certain proprietaries" and will patronize "*ethical* preparations"—like *theirs*, for instance.

This, to say the least, is a very left-handed compliment to the great body of the medical profession, who will not be slow to catch its drift, or fail to enquire wherein consists the "ethicalness" of the methods of the concern who thus sharply takes them to task for preferring a genuine to a spurious article.

Druggists, as a rule, are not much interested in the quibbles of the doctors on questions of "ethics," but in this matter most of them will recognize in the circular referred to, a wail of disappointment and an effort to draw attention away from the methods adopted by its authors to supplant the preparation thus covertly assailed by them with their own imitation thereof.

The time has gone by when either doctor or druggist can be deceived by any such false play. Every member of both professions knows that "Gude's Pepto-Mangan" is a preparation of genuine value, manufactured on scientific principles, by reliable men, and introduced to physicians in an ethical manner, solely on its merits, and for these reasons physicians will continue to be "instigators and propagators" of its popularity, just as the druggists will continue to keep in stock an article for which there is a steady demand and a ready sale.—*The National Druggist, St. Louis, Mo., November, 1900.*

HUNTER M'GUIRE'S OPINION.

The late Hunter McGuire, the most celebrated surgeon of his time in the United States, if not in the world, was asked for his opinion of Antikamnia by Dr. Thos. C. Haley, of Riceville, Va. Dr. Haley, in writing of this circumstance to The Antikamnia Chemical Company, says as follows:

"I recently wrote to Dr. McGuire and gave him my experience with Antikamnia in my own case and that of others. Of myself, I said that I had been using the five-grain tablets for four or five years consecutively and always with great and signal relief to my sufferings. I vouched for it as being the grandest succedaneum for morphia. While I entertained these opinions personally, I still felt that the quantity taken should be justified by consultation. Hence the letter to Dr. McGuire, and I am pleased to hand you herewith his reply."

The following is Dr. McGuire's reply:

St. Luke's Home, Richmond, Va., Nov. 8, 1894.

Thos. C. Haley, M.D.:

My Dear Doctor,—I don't see any reason why you shouldn't continue to take the remedy (Antikamnia Tablets) of which you speak and which has done you so much good. I don't believe it will do you any harm. With kind regards and best wishes. Very truly yours,

(Signed) HUNTER MCGUIRE.

Wemalta Food for Infants received the highest award at the Toronto Exposition.

COMPOUND FRACTURE OF HUMERUS.

By T. J. BIGGS, M.G., Stamford, Conn.

Joe Pettig, Stamford, Slav; age 30; first seen September 29th, 1898. On this case of compound fracture of humerus resulting from a violent blow I was called in consultation by two professional brethren, and on account of the extent of the injury and the poor surroundings for nursing, I advised coming into the hospital, but this the patient refused, so the treatment and operation were carried out at his home. September 30th, assisted by Drs. Phillips and Hoyt, I cut down over the humerus, the incision extending from the insertion of the deltoid down to the lower end of the shaft. After reaching the bone a careful search was made for spiculæ, and six were removed. The wound was then thoroughly washed out and the bones were brought in apposition and drilled for wiring together. Instead of silver wire I used silkworm gut and brought the bones together in three places, fractures being just below the insertion of the deltoid, about the middle of the shaft. After separating the cavity with the bovinine hydrozone reaction and Thiersh wash, and thoroughly drying it, a piece of plain bi-sterilized gauze was inserted and packed gently all around it at different points of fracture, carefully adjusted, and bovinine pure was poured into the wound; then an ordinary bandage was placed over it. The arm was put up in an anterior-posterior splint, and dressed according to the method in fractures of the humerus. Over the dressing was applied a plaster of paris bandage, which was allowed to dry and a trap-door cut through it to admit the application of bovinine which was made freshly every hour for the next forty-eight hours, just sufficient to keep the gauze within moist. At the end of forty-eight hours the gauze was removed and depuration and dressing repeated, with gauze packing, which was moistened with bovinine as before once in two hours. After the next forty-eight hours all this was repeated again, and so on until October 10th when the gauze packing was discarded and bovinine pure was directly applied, dropping it into the wound once in two hours and depurating over again twice in every twenty-four hours. On the 21st the plaster of Paris cast was removed and an ordinary tin splint was employed. By the 25th the bones had become firmly reunited and the strands of silkworm gut used to keep them together had been mostly absorbed and removed. The wound was now closed and dressed with bovinine twice a day. On the 31st the wound was entirely healed, a light plaster of Paris splint was applied to give support to the arm, and the case was discharged cured.

Points of great interest in this case are the short time in which the bones thoroughly united and the wound healed, usually six weeks being required for ordinary transverse or oblique fractures to unite; while here and there were two or three points of fracture, and compound at that, yet the whole repair was completed in thirty-four days. From my experience in the treatment of this case with applied blood, I am convinced that if all fractures were treated by the open wound method, using bovinine blood to hasten repair, no such thing as deformities or ligamentous unions need ever result.