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DOMINION MEDICAL MONTHLY

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Vol. XII.

TORONTO, JUNE, 1899.

No. 6.

Original Articles

No paper published, or to be published elsewhere as original, will be accepted in this department.

MISTAKES IN GYNECOLOGY.*

By G. R. CRUICKSHANK, B.A., M.D., L.R.C.P. (Edin.), Windsor, Ont.

Some time ago I had the pleasure of listening to a very interesting paper on this subject by a distinguished specialist from Buffalo. I remember how he pointed out mistakes of omission in neglecting to examine cases suggestive of grave disease of the pelvis and in failing to diagnose simple pathological conditions; mistakes of commission in using septic instruments and the abuse of uterine sounds and pessaries. Most of the errors complained of were so gross that they must have been made by untrained men, so that I felt the paper referred to mistakes of so-called practitioners from the point of view of a gynecologist.

I propose to speak of the same subject but to call attention to mistakes of so-called gynecologists from the standpoint of a general practitioner. I fear this is presumption; but I must beg of you to consider that I am not criticising gynecologists but the doings of those who profess this specialty without qualification, and that my criticisms are largely conveyed in quotations from the writings of men of acknowledged ability. Competition is so keen that means of increasing popularity are sought after by

*Read before the Windsor Medical Association.

the struggling medical tyro. He soon learns that the public loves the marvellous, and the intelligent patient pines for distinction as the heroine of an operation. To enhance her own importance she must boast of the danger of the case and the special skill of her doctor. The admiring public accordingly seeks his office for advice about everything from a headache to a bunion. For this reason some practitioners, who find they can operate a little, spread among their patrons their fame as gynecologists. And it pays.

These are the men who think it wise to make a vaginal examination of every female with backache at any age from six to sixty, and who invariably find some malposition, laceration or inflammation, etc.

Patients who were suffering from general systemic causes have been operated upon for some imaginary or secondary local complaint and where the usual failure did not result, recovery was due to altered regimen. Pseudo gynecologists have become so used to regarding all diseases through a certain kind of spec's (?) that they have lost all power to diagnose simple cases. A familiar figure suggests itself to us of the specialist who, about nine years ago, electrified this city by curing all diseases with ring pessaries.

In the *American Journal of Gynecology* (March, 1899), Palmer Findley writes:

"Disorders of the general circulation from an incompetent heart, and increased resistance to the general circulation from lesions in the lungs, liver and kidneys will frequently determine the sub-inflammatory lesions of the pelvic viscera. The uterus is increased in size and weight, then follows backache, a sense of weight in the pelvis, leucorrhœa and dysmenorrhœa—the clinical picture of passive engorgement of the uterus associated with catarrhal endometritis. The line of treatment is perfectly well defined. Local treatment could be of little avail and might infect the uterus.

"The simple primary and secondary anemia in pernicious anemia, leukemia and chlorosis, the uterus and its adnexa may be imperfectly nourished and developed, and in consequence the menstruations become irregular or absent; usually there is a mucous discharge from a catarrhal endometritis and dysmenorrhœa is rarely missing. Here, again, meddling interference is to be discountenanced.

"The urea, uric acid and other waste stuffs formed in excess of the normal, or inefficiently eliminated by the kidneys, are vicariously eliminated from the respiratory, gastrointestinal and genito-urinary tracts and we have bronchitis, gastroenteritis, and endometritis caused directly by the waste stuffs eliminated from the mucous surfaces. We have a familiar picture in a woman of sedentary habit, eating freely of nitrogenous food, the urine of high

specific gravity, the bowels habitually constipated and the ever-present leucorrhœa, pain in the back and side. Here we have a catarrhal endometritis and sub-inflammatory metritis that a properly regulated diet, exercise and baths, diuresis and catharsis will restore to health without any local interference whatever.

"The same pathological conditions exist in diabetes and the treatment is for diabetes."

So in other cases constipation, dress or habits are responsible. I can easily understand how a patient might be operated upon and cured really by the douching, catharsis, diet, rest in bed, yet attribute her recovery to the operation. I am satisfied, too, that the pseudo-gynecologist who did the job would claim the entire credit for his surgery.

Hysteria is the happy huntinggrounds of the pseudo. He fails to diagnose this disease and makes the mistake of a vaginal examination, finds a disease that is not there and finally commits the blunder of local treatment. In this connection let me quote again :

"I know of nothing more prejudicial than local examinations for the supposed pelvic affections of hysterical girls. So strongly am I convinced of the perniciousness of this practice that I have for a long time absolutely refused to examine such cases except under an anesthetic and then not until I was perfectly satisfied that all efforts in the way of medication and general management failed to give relief, and consequently that there must be some organic lesion."—Skene (*Medical Gynecology*, 1895, page 299).

"Tampering with the pelvic organs when there is nothing the matter with them increases hysteria tenfold."—*Ibid* (page 300).

"In hysteria the brain rather than the uterus is the organ involved. A very large number of the diseases of women of all classes is of hysterical origin. This explains the marvellous results from the many and various treatments in vogue."—Magillicuddy (*Functional Nervous Disorders*, 1896).

These pseudo-gynecologists may be considered in three classes: The fellows who repair lacerations, those who take out ovaries and those who take out everything. The repairers of cervical lacerations are most common. The risk is small and the glory great. With them every torn cervix needs an operation. Moreover they think it necessary to tell the patient (if not attended by themselves at confinement) that their doctors tore them all to pieces, or at least that they are the victims of neglect. Madden (*Clinical Gynecology* 1893), quotes Emmet and Thomas in support of his contention that the true state of affairs cannot be ascertained just after labor. *American Text-Book of Gynecology*, 1894: "It is not proper, in view of our light and methods of to-day, to attempt the immediate repair of cervical tears."

Parvin (Science and Art of Obstetrics, 1895): "Lateral tears of the cervix almost invariably occur in a first labor. Lacerations of the vaginal cervix are physiological in the great majority of cases, neither immediately or remotely demanding professional interference."

Davis (Treatise on Obstetrics, 1896, page 414): "Nervous and anemic women, if they know they have a tear of the cervix, no matter whether it occasions trouble or not, are very apt to ascribe to that lesion pains or pelvic distress often purely neuralgic in character."

Kelly (Operative Gynecology, 1898, vol. 1, page 494): "The mere fact of the existence of a tear, however deep, by no means constitutes an indication for operation. I constantly receive patients who have been sent long distances for surgical treatment of harmless injuries of this kind."

The ovariectomists are more dangerous but fewer. In large cities this class is rapidly disappearing, but in remote places it still flourishes. A patient from a neighboring village in Michigan assured me that nearly every woman in her vicinity, had an operation of some kind, mostly ovariectomy, and that many had mortgaged their homes to pay for it. Recently I attended at a birth where the happy and healthy mother assured me that at a sanatorium in Michigan, eight years ago, she was urged to permit both ovaries to be removed; that the surgeon who wanted to do it claimed eighty-six cases without a death! A young woman of this city suffered from hystero-epilepsy. She was able to assist at housework but her ovaries were removed with a view to a cure and recently she was sent to the Provincial Home for Incurables.

The man who is able to remove with more or less skill the uterus and its adnexa has, unfortunately, a record of so many operations with such a low death rate. He wants more cases and fewer deaths. What a temptation to extirpate a comparatively healthy uterus. Against this sort of thing Dr. Kelly devotes an interesting chapter (vol. ii, page 163). He says: "Gynecological conservatism has come to have a new meaning within the past ten years. It is now the distinctive attitude of the newer and better surgery as contrasted with the widely prevailing radical methods of the last decade. Conservatism is the effort to spare as much as possible of the pelvic organs during an operation."

Operative skill alone cannot make a man a competent specialist. He should be a physician of experience, sound education and good judgment.

I do not pretend to say when to operate and when not to do so, nor do I question the wonderful benefits which so often result from surgery in gynecology: but I protest that the influence of other pathological causes is overlooked and neglected, and that before

operating the patient should be thoroughly examined and suitable treatment administered.

The diseases of women are now treated by operations almost exclusively, and general practitioners, whose patients are pretty comfortable without such radical measures, must conclude that the uterus is made the scape-goat for the shortcomings of all other organs.

CLINICAL NOTES FROM JOHNS HOPKINS HOSPITAL.—CLINIC OF DR. KELLY.

BY ERNEST HALL, M.D., VICTORIA, B.C.

APRIL 5TH.

CASE 1.—Woman, aged 36, complained of pain in right side, abdominal exploration, pelvic organs normal, small omental hernia found; part of omentum removed.

CASE 2.—Acute retroflexion, ventro-suspension; two silk ligatures inserted through peritoneum and sub-peritoneal tissues, half an inch behind the intratubal line. The advantage of this operation above other methods is its simplicity, its effectiveness as a support, and the fact that the operator has the pelvis open before him, and can manipulate and inspect the different structures. In many cases there are adhesions to be broken up, and occasionally a condition is found not previously diagnosed. In one case, Dr. Kelly found a small papillary cancer of the ovary, which he was able to satisfactorily remove without recurrence. The saving of this one life would influence him in no small measure to do the open operation. In over five hundred cases there has not been a case of strangulation, or hernia of the bowel, in connection with the newly-formed utero-abdominal ligament.

CASE 3.—Mass in left side of pelvis, crowding the uterus to the right, abdominal section; a small cyst of the urachus removed. The mass was covered with adherent and oedematous bowel. In attempting separation, thin pus oozed out. As enucleation of this dense, inflammatory mass, including ovary and tube, would risk laceration of the bowel, the coat of which was so oedematous that it would not retain sutures, the abdominal route was abandoned and the abscess punctured and drained through the vagina. A gauze drain was also inserted through the abdominal incision. If necessary, a complete enucleation will be done later.

CASE 4.—Young lady with pyuria presented for diagnosis. Complained of pain in various parts of abdomen, not localized over either kidney. An examination under anesthesia was made of the whole urinary tract, urethral glands, urethra, bladder and

kidney. An inspection of the interior of the bladder showed the mucus membrane normal, except the part directly around the opening of the right urethral orifice; here a marked hyperemia was seen. The urethral catheter was passed directly into the pelvis of the kidney and the urine, tinged with blood, collected in a test tube, to be subsequently examined. The presence of blood in the urine after catheterizing the pelvis of the kidney is suggestive of some form of pyelitis. In case of suspected stone, the end of the catheter is tipped with wax, which, if impinged upon stone in the kidney, is marked by the rough edges. In this manner the presence of stone in the pelvis of the kidney is easily determined. Irrigation of the pelvis of the kidney is done by forcing sterilized water through the catheter inserted directly into the pelvis; the return current is around the catheter, back into the bladder. Dr. Kelly instanced several cases of pyelonephritis, in which great benefit was derived from such irrigations. In case of obscure abdominal pain, in which the kidney is suspected as the offending organ, Dr. Kelly injects sterilized water into the pelvis of the kidney with sufficient force to bring on nephritic colic. If the pain thus caused is identical with that previously experienced by the patient, a diagnosis of kidney trouble is made. Once this method failed, the patient stating that the artificial colic was identical with the usual pain; while an abdominal section showed a normal kidney attached to a diseased gall bladder. The diagnosis and treatment of diseases of the bladder and kidneys has, by the ingenuity and ability of Dr. Kelly, been brought to a satisfactory degree of exactness. To see this work is worth a visit to Baltimore. The profession will await with interest the appearance of Dr. Kelly's book on diseases of the urinary tract.

CASE 5.—Elephantiasis of clitoris and labial mucoræ, with ulceration of anterior two-thirds of urethra, of syphilitic origin. The mass removed measured seven inches in length by two and a half in width; urethra to be repaired by plastic operation at a later stage. The distinctive points of interest in this clinic are: the use of rubber gloves by the operator and assistants; the frequent use of the Trendelenburg position and electric hand-lamp, and the enema of two ounces of whiskey with one quart of saline before the patient leaves the operating table; and, lastly, not less than his skill, the genial nature of Dr. Kelly and the kind consideration with which he treats his assistants, the patient and visitors.

APRIL 10TH.

CASE 1.—Complete perineal tear, involving both sphincters; objective points: to restore to normal condition and to normal function. In the retraction of the sphincter muscle after laceration, there are usually little depressions, or whirls of tissue, that

mark the position of the retracted ends, and also a slight depression directly posterior to the anus, caused by the contracted part of the muscle. After disinfection, iodoform gauze is inserted into the rectum. A transverse cut is made in front of the anus, and the mucus membrane dissected back towards the rectum, but not excised. The scar tissue anterior to this is removed, as in the ordinary operation, varying with the relaxation of the vagina. Sections are made backwards and outwards on either side of the rectum over the retracted ends of the sphincter muscles and dissection carried on until the retracted ends of these muscles are isolated. The ends of the internal muscle are next approximated by several gut sutures, the tissues about and over it brought together by several figure-of-eight sutures. The ends of the external rectus are approximated with gut. The upper vaginal mucus membrane is approximated with gut. One silk-worm gut suture is passed from within the vagina deep into the parts, and another is passed upon the surface as binding sutures. The superficial parts, including the fold of mucus membrane that was turned down, are stitched with gut, and the parts are restored to their normal relation. This is the ideal operation in complete laceration, and has been done sufficiently often to give satisfaction.

CASE 2.—Showed case of syphilitic stricture of rectum, with a history of twenty dilatations and a sigmoid anus, in which seven inches of lower rectum was excised and the bowel freed and attached to a resected sphincter, perfect freedom and control of bowel resulting.

CASE 3.—Pan hysterectomy for cancer of cervix. As a preliminary measure, catheters were inserted; both ureters well up past the pelvic brim. This enabled the operator to locate these structures during the ligation of the lower part of the broad ligaments. It is desirable in these cases to remove as much tissue as possible, necessitating the location of the ligatures as wide of the cervix as possible; with the catheter in the ureter it is easy to do this, and certain that the ureter has not been implicated in the suture.

CASE 4.—Vesical tuberculosis. Case had been passing cloudy urine, containing pus and blood. A bacteriological examination showed tubercle bacilli in the urine. Direct examination showed a wide area of ulceration of the mucus membrane of the bladder. Irrigation with antiseptic solutions, and the direct application to the part of a 10 per cent. solution of nitrate of silver was made through the speculum. Case rapidly improving under treatment. After a few applications of the nitrate, the strength of the solution is diminished. The condition of the bladder wall was clearly seen by the visiting physicians. In cases where the ulceration extends into the submucus tissues, Dr. Kelly resects the infected area.

CASE 5.—Advanced carcinoma of the cervix, invading the body. Thorough curetting and application of chloride of zinc. In cases where the bladder is not implicated, and where the uterus is freely movable, Dr. Kelly is inclined to attempt hysterectomy, cutting as close to the pelvic walls as possible.

Another case of examination of the interior of the bladder, and one of removal of internal hemorrhoids, completed the clinic.

APRIL 19TH.

CASE 1.—Multinodular myomatous uterus; enucleation by continuous incision from left to right; patient aged 43. Large abdominal incision; omentum adherent to myoma; ovaries adherent. In electing to perform hysterectomy in this case, Dr. Kelly was guided by the age of the patient and by the fact that myomectomy entails greater risk than hysteromyomectomy, and in a case so near the menopause there was no corresponding advantage to be gained, although in this case the tumors could have been without difficulty removed, as the anatomical elements of the uterus were not widely separated, indicating that the tumors were somewhat superficial. Method of operation: left ovarian ligament, round ligaments; vesicouterine fold of peritoneum, push this down with a sponge; uterine vessels brought plainly in view; ligature of uterine artery; cervix cut across; right uterine artery exposed, right broad ligament clamped; uterus removed; no hemorrhage; time required in enucleation, four and one-half minutes. In this operation Dr. Kelly always begins upon the easier side. As the enucleation is less difficult from below upwards than from above downwards, "the greater difficulty being upon the easier side." Before closing the abdominal incision, Dr. Kelly explored all the abdominal organs, finding in this case the left kidney freely movable. The wound closed in tiers with catgut, silver foil applied directly to skin, then the usual dressing.

CASE 2.—Myomatous uterus with salpingo ovaritis and adhesions, similar to former case. Time, four minutes and forty seconds.

CASE 3.—Deep ulcer at vertex of bladder clearly demonstrated; application of 10 per cent. nitrate of silver. If this treatment proves unsatisfactory after a few weeks' trial, Dr. Kelly will open the abdomen and resect the diseased portion of the bladder wall. Case reported of young lady who suffered for several years with severe pain in bladder. Cystoscopic examination showed defined ulcer of anterior wall; resection of affected part with excellent results.

CASE 4.—Retroversion, with enlarged and cystic ovaries. The cystic disease was removed from both ovaries, leaving about one-fifth normal ovarian tissue, edges approximated with fine catgut; uterus suspended by two silk sutures. Time, fifteen minutes.

CASE 5.—Relaxed vagina ; curetted ; usual operation for this condition, using silk-worm gut in positions of tension. Abdomen opened ; adhesions of appendages, with occlusion of tubes. Left tube severed from uterus, and its other end located by passing a probe through it leading to bottom of pelvis, where it was found adherent, freed and removed. Plastic operation was suggested with the other tube, but it was found contracted to a fibrous cord. Ovaries were not removed. Appendix was found adherent, and removed. Dr. Kelly said that in the majority of cases conservative operations were disappointing ; but it is only right to give the patients a chance, especially when the desire for offspring is intense.

CASE 6.—Dermoid of left ovary removed ; tube healthy, allowed to remain. Right tube adherent to ovary ; these were separated, and raw surfaces covered with peritoneum.

CASE 7.—Curettage in case of suspected malignancy, scrapings to be examined by microscopist ; report at next clinic.

CASE 8.—Large sloughing, intra-uterine fibroid had been diagnosed as malignant before coming under Dr. Kelly's care. Cervix was split ; attachments freed with scissors, and tumor removed by tarsion ; cavity packed with iodoform gauze.

Special Selections

THE FAILURE OF ANTITOXIN IN THE TREATMENT OF DIPHTHERIA.*

BY J. EDWARD HERMAN, M.D., BROOKLYN, N.Y.

In a statistical study of the antitoxin treatment of diphtheria it must not be forgotten that in late years there has been a decline in the death rate of other infectious diseases than diphtheria, against which no new remedy has been directed. Thus the typhoid fever death rate from 1877 to 1894 in German cities of over 15,000 population averaged 29 deaths per 100,000 inhabitants ; but between 1895 and 1898 it fell to 10. Gottstein¹ gives the diphtheria mortality, from 1877 to 1894, in these same cities, as 106 per 100,000 population. During 1895 to 1898 the rate was 44.

	1877-94.	1895-98.	Decline.
Typhoid fever.....	29	10	65 per cent.
Diphtheria.....	106	44	59 "

* Read before the Brooklyn Pathological Society, April 13th, 1899.

Thus while the present diphtheria mortality is still 41 per cent. of its former rate, the typhoid fever death rate is only 35 per cent. of what it was during 1877 to 1894.

In St. Petersburg, between 1886 to 1889, as Verekindow² points out, the typhoid fever mortality was 7 per 10,000 population, and only 4 during 1890 to 1894.

Kassowitz³ shows that the scarlet fever mortality in the German cities was very much lower in 1895 than in 1896. Below the number of deaths from diphtheria in these two years is contrasted with that from scarlet fever :

	1895.	1896.
Diphtheria	7,634	6,237
Scarlet fever	2,852	1,993

From this it is seen that the scarlet fever mortality decreased 30 per cent., and that of diphtheria only 20 per cent.

Much of the decrease in the infectious disease mortality is due to sanitary improvement, and this is one factor which is usually ignored when the antitoxin question is considered. There can be no doubt, as was clearly pointed out by Deming,⁴ that "good results are shown in many localities in the reduction of the mortality rate from diphtheria by sanitary measures alone."

Another thing which should be kept in mind is this : Antitoxin statistics are based on the treatment of cases which have been diagnosed as being diphtheria by the microscope ; and comparison is made with the results of treatment in the past, of cases which were diagnosed on their merits as being examples of clinical diphtheria.

Bretonneau⁵ said : "The fear which exaggerated the danger magnified the slightest attack of sore throat into the epidemic affection. This circumstance contributed not a little to obscure several important questions relative to therapeutics." History repeats itself when the results of antitoxin treatment are based on bacteriological examination. Such a firm believer in antitoxin as Jordan⁶ concedes : "It is probably true that the basing of the diagnosis of diphtheria upon a bacteriological examination has led to the inclusion of cases which would formerly have been classed as simple sore throats." Another ardent advocate, Kortright,⁷ admits : "Probably part of this decrease may be due to improved methods of diagnosis, by means of which cases formerly called tonsillitis are now classed as tonsillar diphtheria." This factor in increasing the number of cases reported and thus reducing the case fatality is admitted by Lotz⁸ and Tavel,⁹ and others, and it is a fatal admission ; it cuts off the last leg of the antitoxin argument. Winters feels¹⁰ "absolutely confident that at the Willard Parker Hospital the mortality has been much higher under the

antitoxin treatment than it was before, if we were to exclude the numerous light cases, such as were never seen in the hospital before the use of the serum treatment." The words of Niemeyer¹¹ should also be heeded: "The reputed successful remedies have usually originated in the last stage of epidemics, at which time the cases are usually milder and recover more frequently even without treatment."

It must be remembered that the diagnostic value of the Klebs-Loeffler bacillus has not been indisputably established. Its presence is not an infallible indication that diphtheria exists. For instance, Allen,¹² while treating a case of diphtheria, took swab-bings for culture from the throats of other people in the same house. He says: "The report was returned that they contained the diphtheria bacillus, much to my disgust, and the bacilli continued to be there for three or four weeks longer, with no clinical signs whatever." Dr. Gross, of the Boston Children's Hospital, found the bacilli in eight per cent. of normal throats. On the other hand, Hennig¹³ in a series of 35 cases of clinical diphtheria, carefully examined bacteriologically for him by Professor Esmarch and Dr. Czaplewski, found the Klebs-Loeffler bacillus in only 57 per cent. In 4,054 cases sent to the New York Board of Health for diagnosis, the examination of 951 was indecisive.¹⁴

In Basel, Switzerland, notwithstanding there is now a low case fatality, the death rate is higher than it was in any year back to 1881. To make clear that the low case fatality is due to the greater number of mild cases reported, Kassowitz shows that while, for the ten years before antitoxin was used, an average of 245 cases was reported each year, at once in 1895, with the introduction of antitoxin, the number reported jumped up to 645, and in 1896 the number had reached 835. "And yet at the present time the mildness of the disease is admitted." Referring to this fact Tavel¹⁵ confesses that during these antitoxin years every case showing inflammation of the throat and membrane was reported, but he still clings to the belief that the use of antitoxin is partly responsible for the low case fatality. The average yearly death rate from 1885 to 1894, in Basel, was 29 per 100,000 population. In 1895 it went up to 65, and in 1896 it was still 49. This conclusively demonstrates, to say the least, that antitoxin has no power to save life.

To show that more patients now apply at the hospitals for treatment, Purjesz¹⁶ gives the following particulars: More cases were reported in the city of Berlin in 1886 than in the first serum year, 1895. In 1886, 6,988 were reported, and in 1895 only 6,106. In 1895, with 300,000 greater population, 862 less cases were reported than in 1886. He argues that, as the epidemic has fallen off in the number of cases occurring, the disease has become milder

in character. Yet, with this comparatively small number reported from the whole city in 1895, we find 306 patients entered the Charité Hospital, whereas in former years only about 160 were brought to this institution. It follows that many of these 306 patients in 1895 had the disease in a mild form, and others no doubt had only bacterial diphtheria, *i.e.*, were cases diagnosed as diphtheria because Klebs-Loeffler bacilli were present. Formerly it was usual for the severe cases especially to be sent to the hospital. After antitoxin came into use we must conclude, in view of the fact that while the disease had not spread in the city the applications to the hospital at once nearly doubled, that very many mild cases were now taken to the hospital. The table below shows the result:

CHARITÉ HOSPITAL.

	Entered.	Died.	Mortality.
1894-95	306	41	13 per cent.
1895-96	265	39	14 "
1896-97	115	20	17 "
1897-98	156	34	20 "

In brief, the case fatality has increased year by year from 1894 to 1898 under antitoxin treatment.

In Trieste during 1895, through an agreement between all the physicians of the city, almost every case, in some months every case, was treated with antitoxin. Yet the number of deaths this year, Kassowitz¹⁷ points out, was greater than ever recorded. The deaths ranged from 98 in 1889 to 222 in 1893. But in the antitoxin year 1895, 271 died. Antitoxin was never subjected to a fairer test than this. With practically all the diphtheria cases in the city treated with this reputed specific, nothing can explain away this pitiable result.

The following table gives the mortality rate in some cities during antitoxin years, contrasted with the rate which prevailed in the same cities during a corresponding number of years before antitoxin came into use:

DEATHS PER 10,000 POPULATION.

WITH ANTITOXIN.				WITHOUT ANTITOXIN.			
Baltimore ..	2 years	1896-97	6.4	Baltimore ..	2 years	1888-89	5.3
Boston.....	2 "	1896-97	9.8	Boston.....	2 "	1891-92	8.2
London....	2 "	1896-97	5.7	London....	2 "	1886-87	2.4
St. Louis...	3 "	1895-97	7.5	St. Louis...	3 "	1890-92	5.9
Philadelphia	4 "	1895-98	11.0	Philadelphia	4 "	1887-90	5.6

Recently Dr. John B. Cosby appeared before the Assembly Committee on Cities in opposition to the bill to prevent the New York City Board of Health from selling antitoxin, with the preposterous argument that the reduction in the diphtheria death rate in New York City during the past four years was due to antitoxin. He probably did not remind the committee that the general death rate from all causes is now phenomenally low, that there is a decline in the diphtheria epidemic, that an immense saving of life should be credited to the late Colonel Waring's efficient and admirable system of street cleaning, and that much good must have come from the new system of medical inspection of school children. All these facts were passed by and antitoxin did it all. Yes, it is true the death rate in New York City fell from 15.8 in 1894 to 4.4 in 1898—a difference of 11. But the committee might have learned some further very interesting history. Dr. Cosby might have told this fact: the New York City diphtheria death rate fell from 24.8 in 1864 to 7.4 in 1867—a difference in these four years of 17 deaths per 10,000 population, compared with the smaller decline of only 11 in the four antitoxin years, 1894 to 1898. This is clearly illustrated in an accompanying diagram.

Those cities which now have a low general death rate from all causes also show, as would be expected, a low diphtheria death rate. This is true of Chicago and Milwaukee. New York City, which at present has a very low general death rate compared with many years in the past, naturally has a corresponding low diphtheria mortality.

The next table contrasts the number of deaths in different cities during antitoxin years with the number of deaths in the same cities in past years before antitoxin was introduced:

NUMBER OF DEATHS IN CITIES DURING

ANTITOXIN TIMES.			BEFORE ANTITOXIN TIMES.		
	Per Year.	Deaths.		Per Year.	Deaths.
Trieste.....	1895	271	Trieste.....	1888-90	100
London.....	1895-97	2,533	London.....	1886-95	2,047
Brooklyn.....	1895-98	1,126	Brooklyn.....	1882-85	486
St. Petersburg..	1895-97	1,276	St. Petersburg..	1892-94	579

The deaths from diphtheria in St. Petersburg numbered 333 in 1892 and 378 in 1893. In 1896 the number of deaths from this disease was 1,118, and in 1897 1,905. Yet, in the summer of 1897, despite these disappointing figures, Baginsky, with assurance unwarranted even by his own experience, told an American physician

that he had no more dread of diphtheria since he was using antitoxin than he would have had years ago of "any simple ordinary constipation."

It is a common assumption that the mortality from diphtheria used to be 40 per cent. before antitoxin times, which is as absurd as it is untrue. Certainly at times 40 per cent. of the patients died. The mortality was very much higher than 40 per cent. in some epidemics. Ferrand, in 1827,¹⁸ related that in an epidemic all of the 60 patients died. Bretonneau in 1826 quoted Carnevale as saying that in Chiaja near Naples the greater part of those attacked succumbed. Ozonam's summing up of 39 epidemics from 1559 to 1805 showed 80 per cent. mortality. Then the table of epidemics from 1805 to 1830, made by the Académie Royale de Médecine, gives the death rate as 25 per cent. But Beauquin in 1828¹⁹ lost only 4.6 per cent. of 300 cases. Daviot²⁰ had only 8.6 per cent. mortality in 461 cases. Roll in 1850²¹ said that in Drontheim, Norway, of some 700 cases only about 7 per cent. died. Lespeau in 1854²² wrote that, in one regiment, of 200 cases only 6 per cent. were lost. And Mackinder²³ reported in 1859 a death rate of only 0.25 per cent. in 400 cases in Gainsborough, England. Were this great disparity in the diphtheria death rate before antitoxin times kept in mind, perhaps we would not so often be treated to the amusing argument that because the death rate has declined a few degrees in some places since antitoxin has been introduced, therefore antitoxin is responsible for the improvement. In London, for instance, some enthusiasts waxed eloquent over the new preparation, and gave Lennox Browne²⁴ the opportunity to prove that the decline in fatality in the London Asylums Board hospitals for two antitoxin years was only about 2 per cent. from what it was in 1894.

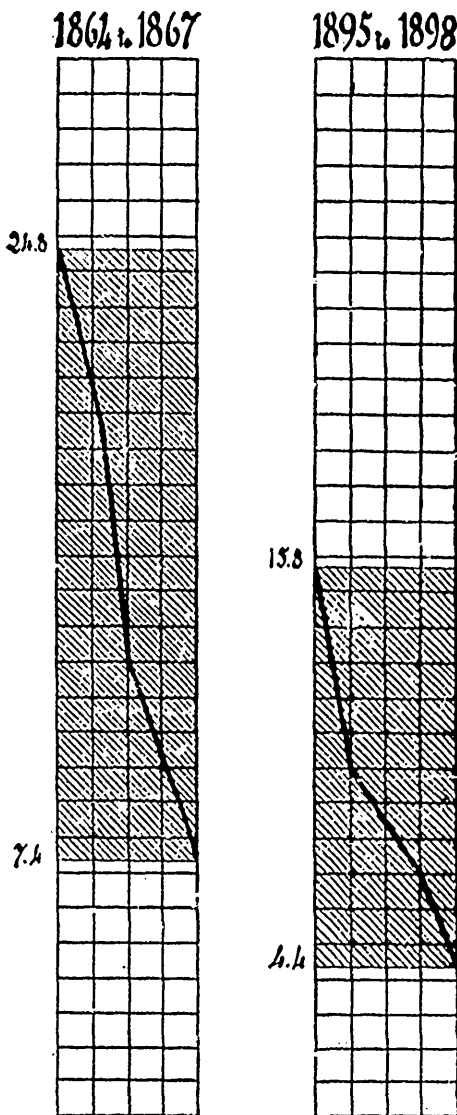
Another unjust way of reasoning is to compare the results in a few cases treated with antitoxin in a short space of time, with a very much greater number of cases treated without antitoxin during a considerably longer period. Gray²⁵ has adopted this argument. He reports 9,851 cases treated in German hospitals from April, 1895, to March, 1896, with 15.5 per cent. mortality. Then he states that from 1883 to 1894, 157,721 cases were treated in these same hospitals without antitoxin, with 26.7 per cent. mortality. From this he gravely infers that the death rate has been reduced from 26 per cent. to 15 per cent. on an average in ordinary cases. No account is taken of the fact that during the years 1883 to 1894 all the cases, good and bad, were included, while during the antitoxin months, from April to March, the statistics were generally based on selected cases. And he compares the result in 9,851 cases treated during eleven months, with 157,721 cases coming under treatment during eleven years. It is

a fact open to any one making a close examination of the reports of cases treated with antitoxin soon after the use of that article was introduced; that always only some cases selected for one reason or another were treated with serum, while another set of cases did not receive it. The moribund cases were generally put in the latter class. This is true of the very first report presented by Baginsky to the Berlin Medical Society.²⁶ It is there stated that 23 cases were not treated with serum. In the first series treated by attending physicians with free antitoxin²⁷ from the New York City Health Board some were not even bacteriologically diagnosed, and the whole number of cases, 375, on which the statistics were founded, was obtained by omitting 34 cases on account of imperfect data. The same thing holds true, and to a much greater extent, of the statistics of the London Asylums Board hospitals.

How can a thing be considered a specific which gives 11.8 per cent. mortality in the Berlin Kaiser and Kaiserin Friedrich Kinderkrankenhaus, and at the same time allows a mortality of 23

DIAGRAM SHOWING FALL IN DEATH RATE DURING

Four Antitoxin Years and Four Years Before Antitoxin.



NOTE.—Each square represents one year, counting from left to right; and each square represents one death per 10,000 population, counting from bottom to top.

per cent. in the Philadelphia Municipal Hospital—being more than double the mortality in one institution than in the other? Quinine would not be called a specific if it could not cure intermittent fever as well in Chicago as it does in St. Petersburg or any other city. Until antitoxin brings down the diphtheria death rate to a point lower than it ever was before, and keeps it at that point, in every place, it must be considered a failure.

In August, 1896, the death rate in the Philadelphia Municipal Hospital was 22.2 per cent.; in September, it was 41.6 per cent. Had the use of antitoxin been stopped in September, when the mortality was again as high as it was in the previous month, antitoxin advocates would have had another opportunity to point out the surpassing excellence of the serum treatment. This again illustrates that antitoxin has no influence on diphtheria; the difference in the results in different hospitals is always due to the difference in the character as regards malignancy in the cases treated. When in Berlin the supply of antitoxin gave out, and the mortality at once went up, it was only a coincidence. Many an innocent man has been wrongfully executed on more convincing circumstantial evidence than this, and it ill becomes a reasoning profession to be convinced by such testimony without taking all the other facts in the case into earnest consideration.

Within the writer's knowledge diphtheria occurred in the families of four physicians in this city. Of the patients two received antitoxin and promptly died. The other two were not treated with antitoxin and recovered. It is fair to assume that the antitoxin-treated cases, being in doctor's families, were not neglected, and that treatment was begun early in the disease.

In the following table will be found the mortality of cases of diphtheria in general, treated with and without antitoxin:

MORTALITY OF DIPHTHERIA CASES TREATED

With Antitoxin.

J. Lewis Smith, under 2 years, 31 cases ¹	54.0
London Asylums Hospitals, 1896, under 5 years ²	32.2
Baginsky, 1,324 cases up to July, 1897 ³	11.8
London Asylums Hospitals, 1895 ⁴	28.1
Philadelphia Municipal Hospital, 1898 ⁵	23.0
City of Philadelphia, 1898 ⁶	26.0
Russia ⁷	14.6
Dorning, 7 successive deaths ⁸	100.0
Dallas, 11 cases ⁹	90.9
Ewing, 50 cases ¹⁰	38.0
Von Engel, 39 cases ¹¹	25.5
American Pediatric Society's Report ¹²	12.3
Hôpital d'Enfants, Paris, 300 cases ¹³	26.0
London University College Hospital ¹⁴	28.0
Brooklyn, Richmond, and Queens, 1898 ¹⁵	23.7
Berlin Am. Urban Hospital, 245 cases ¹⁶	28.0

Without Antitoxin.

Ernst, under 2 years, 32 cases ¹⁷	12.5
Daviot, epidemic, 1841-44, under 5 years ¹⁸	4.7
Hiennig, 1,927 cases during 18 years ¹⁹	3.0
Huebner, Leipzig Children's Polyclinic for 15 years ²⁰	72.5
Willard Parker Hospital, 1889 ²¹	20.6
Table of Epidemics 1805-30 ²²	25.0
Basel, 17 years ²³	12.6
Welch, Girard College, 116 cases ²⁴	0.0
Braymer, 32 cases ²⁵	0.0
Ernst, 65 cases ²⁶	16.9
Bieser, 115 cases ²⁷	5.0
Forsland, during 20 years.....	5.0
Beauquin, 300 cases ²⁸	4.6
Basel, Children's Hospital, 1886 ²⁹	6.2
Escherich ³¹	8.3
Neuman, from 1894 to 1898, 183 cases ³²	1.6

References for Above Table.—1. *New York Medical Journal*, Winters, February 15, 1896. 2. *Medical Press and Circular*, No. 3,030, Brown, 1897. 3. *Arch. für Kinderheilkunde*, Bd xxiv, 11, 5, 6. 4. Report for 1895. 5, 6. Philadelphia Health Report for 1898. 7. Figures by Rauchfuss. 8, 9. *Journal Amer. Méd. Association*, Coughlin, November 27, 1897. 10. *New York Medical Journal*, August, 1895. 11. *New York Medical News*, Biggs and Gerard, December, 1895. 12. *New York Medical Journal*, July 4, 1896. 13. *New York Medical News*, December, 1895. 14. *British Medical Jour.*, Jan. 25, 1896. 15. Biggs, *Philadelphia Medical Journal*, February 25, 1899. 16. *Medical Recd.*, April 18, 1896. 17. *Medical Record*, June 20, 1896. 18. "Work on Diphtheria," *Ann.*, 1844. 19. *Verhand. des Cong. für innere Med.*, 1896. 20. "Behandlung der Diph." Leipzig, 1895. 21. Report for 1889. 22. Prepared by Académie Royale de Médecine. 23. *Medical Record*, February 15, 1896. 24. *Medical Record*, January 28, 1899. 25. *Journal American Medical Association*, November 27, 1897. 26. *Medical Record*, June, 20, 1896. 27. *Medical Record*, November 20, 1897. 28. *Litt.*, No. 8, 1895. 29. *Annales de la Méd. Physiologie*, t. xiii. 30. *Annales Suisses*, 1894. 31. "In Serumtherapie," Vallette, Geneva, 1895. 32. *Therapeutische Monatshefte*, February, 1899.

Another stereotyped statement is, that the mortality for operative diphtheria cases used to be 73 per cent. before antitoxin was used. Again it must be pointed out that this is not the whole truth. And it is especially absurd to claim, as has so often been done, that now under antitoxin treatment only 27 per cent. of operative cases die.

The first successful tracheotomy for croup was performed by André, of London, in 1782. From that year there was no other successful case reported until Bretonneau saved another patient in 1825, after having failed in many previous attempts. Altogether Bretonneau lost 14 out of 20 tracheotomy cases, 70 per cent. Trousseau²⁸ lost 42 out of 65 cases, also 70 per cent. Bochut lost 115 out of 160 cases, or 72 per cent. He says the mortality in 198 cases up to 1852 was 72 per cent. But already before that year Pétel had saved three out of six cases, or 50 per cent. This was experimental work with a new operation—an operation associated with the greatest imaginable horror in the minds of parents. In those days tracheotomy had to be done without anesthesia, a reason why it was then even more difficult than now to obtain permission to operate. The modern trained nurse was as yet an unknown factor. As Guersant well said: "Tracheotomy did not usually succeed in croup because no precautions were afterward

taken to insure its advantages. The mere performance of the operation does not alone constitute the cure." Probably no one will dispute that no operation requires such persistent intelligent after-treatment; and it is here that the trained nurse contributes an inestimable aid to the physician. Much has since been learned about tracheotomy. Besides better nursing we have improved tubes to keep the respiration free, an enlightened understanding of the value of asepsis, and anesthesia; and we have learned through accumulated experience how properly to perform the operation. Why shouldn't we get better results now than fifty years ago? The answer is, we do get better results—and we get them without antitoxin. Intubation gives better figures than tracheotomy if not better actual results, because more patients will consent to intubation. In Basel tracheotomy mortality has been as low as 59 per cent. in 333 cases. The Philadelphia Children's Hospital has had 57 per cent. mortality. In Geneva from 1872 to 1883 the mortality was 49 per cent. The death-rate of tracheotomy cases in the London University College Hospital in 1894 was 47 per cent. In Strasburg from 1891 to 1894 the tracheotomy mortality was 44 per cent. The mortality in other places has been even lower than the above quoted rates, as shown in the following table:

OPERATIVE MORTALITY RATE

With Antitoxin.

Willard Parker Hospital, intubation; 9 months 1895 ¹ ..	68.0
Baginsky, 14 primary tracheotomies ²	71.4
Willard Parker Hospital, 6 months, 1897 ³	82.8
New York Health Department, intubation ⁴	36.0
Philadelphia Municipal Hospital, 1897 ⁵	68.8
Cassell, tracheotomy ⁶	61.0
American Pediatric Society's First Report ⁷	27.2
American Pediatric Society's Second Report ⁸	25.9
Boston City Hospital, 1895-96, intubation ⁹	53.0
Willard Parker Hospital, 3 months, 1895 ¹⁰	76.9
London Northwestern Hospital, 1896 ¹¹	63.1
Baginsky, Berlin ¹²	32.3
London Asylums Hospitals, 1895 ¹³	50.0

Without Antitoxin.

Dower, Brooklyn ¹⁴	27.3
Soerensen, 13 tracheotomies ¹⁵	7.6
Willard Parker Hospital, 1892 ¹⁶	62.2
Beiser, intubation ¹⁷	27.0
Strasburg Hospital, 1891 ¹⁸	25.0
Cohen, tracheotomy ¹⁹	33.7
Ernst ²⁰	22.2
Seymour ²¹	14.2
Drobrink, tracheotomy ²²	37.0
Zurich ²³	29.0

Without Antitoxin.

(Continued.)

Strasburg, 1891-94 ²⁴	44.3
Soerensen, Copenhagen ²⁵	25.0
Sonnenburg ²⁰	37.1

References for Above Table.—1. *Medical Record*, January 20, 1896. 2. *Arch. für Kinderheilkunde*, B. xxiv., H. 5, 6. 3. Meeting of the New York Academy of Medicine, 1898. 4. Report up to January 1, 1899. 5. Health Board Report, 1897. 6. *New York Medical Journal*, February 15, 1896. 7. *New York Medical Journal*, July 4, 1896. 8. *Medical Record*, 1897. 9. Health Report. 10, 11. *Medical Record*, January 20, 1896. 12. Kaiser und Kaiserin Friedrich Joseph Kinderkrankenhaus. 13. Report for 1895. 14. Written communication. 15. Kassowitz. 16. Reported to Drs. McNaughton and Maddren by resident physician Dr. F. W. Lester. 17. *Medical Record*, November 20, 1897. 18. Verhand. des Cong. f. Innere Med., Kolts, 1895. 19. Wood's "Reference Handbook of the Medical Sciences," vol. ii. 20. *New York Medical Journal*, February 15, 1896. 21. *Medical and Surgical Bulletin*, March 21, 1896. 22. *Journal American Medical Association*, November 27, 1897. 23. During 1884. 24. *Therapeutische Monatshefte*, Siebert, March, 1895. 25. During 1895. 26. "Serumtherapie," Schürmayer, Leipzig, 1895.

II. Diphtheria exerts its harmful effects especially through sepsis, paralyzes of the heart and other organs, impairment of the function of the kidneys, and the mechanical presence of an abnormal formation known as the false membrane. On none of these does antitoxin act beneficially. It is not asserted that it neutralizes the toxin already in the system, but only that it prevents the production of more toxin after the antitoxin has been injected. On the other hand, it has been demonstrated that antitoxin acts injuriously by causing paralysis of the heart and other portions of the body, on the kidneys, on the skin and the joints, and that it causes septic pneumonia, etc.

It has no effect whatever on septic diphtheria. Winters²⁹ has declared "in not a single septic case has the antitoxin made the least impression." Chapin³⁰ says the "so-called septic type is usually followed to a fatal termination by a persistent and powerfully depressant action upon the heart." All the septic cases included in the first report by Baginsky were fatal.³¹

Concerning the effect of antitoxin on the heart Baginsky reported: "Heart symptoms, certainly systolic murmurs, were more frequent." He admits that some die of heart failure, even when treatment is begun early. Korte³² speaks of 40 early treated cases, of which 19 were fatal by heart paralysis. A few years ago a member reported to the Brooklyn Pathological Society that he had lost from heart failure a case of diphtheria treated without antitoxin. When a second child in this family developed the disease, the physician at once commenced antitoxin treatment. While the second patient was convalescing, a third child in the same family became sick and was also treated with antitoxin. Both the second and the third child eventually died of paralysis of the heart. Is any comment necessary? Berlin³³ says post-diphtheritic paralysis is without doubt more frequent. Goodall³⁴ finds that in the London Metropolitan Asylums Board hospitals diphtheritic paralysis has been rather more frequent since antitoxin

has been used. In 1894 paralysis developed in 13.2 per cent. and in 1895 in 23.2 per cent. of cases.

Of the effect of antitoxin on the kidneys Bieser³⁵ "soon learned that the patients developed acute suppression of the urine after the antitoxin was injected." In the London hospitals the proportion of albuminuric cases was greater in 1896 than in 1894. Soerensen³⁶ "observed more albuminuria, nephritis, toxic anuria, etc., in those treated with serum." Lennox Browne records six deaths from inflammation of the kidneys in eight cases of diphtheria treated with antitoxin. Benda mentions 39 fatal cases, of which 33 had nephritis. Soltman³⁷ found albumin in 72 per cent. after antitoxin which did not show it before injection, and compares this with the record of 24 per cent. in 1894. Ewing³⁸ showed that antitoxin caused changes in the leucocytes and diminished the number of red corpuscles. Another investigator proved that the injection of plain horse serum is harmful. Chapin injected it into children suffering from marasmus, and all the cases did badly. He then injected the serum into guinea-pigs and a large sheep, and found the kidneys of these animals after the experiment to be the seat of cloudy swelling. Using streptococcic serum on dogs and rabbits, Thomson³⁹ found that 20 c.c. caused a fall of blood pressure in the kidneys. After the injection of 40 c.c. there were hematuria and hemoglobinuria, preceded by albuminuria and followed by suppression of the urine. Small divided doses were followed by albuminuria.

There is no convincing evidence that antitoxin exerts any influence on the false membrane in causing its early detachment or disappearance, or in preventing it from spreading. Even if it did, it would not signify much, for the membrane is simply the effect of something; it is not the disease. Patients often die after the membrane has disappeared. The diphtheritic lesion is identical anatomically with croupous inflammation due to traumatic and other causes.⁴⁰ Back of the formation of the false membrane is that deranged condition of the system permitting the growth of pernicious bacteria, which abnormal state is really the disease. We do not know but that the formation of the false membrane is nature's method of protecting the patient; and until it shuts off the air from the lungs the membrane may serve some useful purpose. Rupp⁴¹ could not see any effect on the membrane in his twenty-four antitoxin-healed cases, "in such a way as to be beyond doubt."

It is a common thing, in cases not treated with antitoxin, for the membrane to begin to fall off after the first day and completely to disappear in three or four days. Rupp needed to visit two cases which were not treated with antitoxin only four days, and one, a croupal case, only three days. The diagnosis in each case was

confirmed by bacteriological examination. Bretonneau in his classical work on diphtheria distinctly taught: "You will remark that at the first day of the appearance . . . a radical cure may be obtained in forty-eight hours." Yet antitoxin advocates claim everything, because in some cases treated with antitoxin the false membrane begins to disappear, as they say, early—in two or three days (Wiener), or three or four days (Buginsky). This also happens earlier and later. In fact, with antitoxin it is often very much later. Chapin⁴² speaks of a seven-year-old patient receiving 4,500 units on the third day, with the result that the throat cleared only after six days, and later the membrane partly re-formed. Winters⁴³ saw it remain ten days in two cases, and in another at the end of the twenty-second day it was still present.

It is conceded that eruptions are often caused by the injection of antitoxin. Engelman⁴⁴ and Morse⁴⁵ describe cases of urticaria. Meyer⁴⁶ saw urticarial rash in one case, and a macular eruption in another. Berg⁴⁷ in summing up his observations concludes: "In very many cases the eruption, if at all general, is at least a discomfort." In others a "decided increase in the gravity of the disease accompanies the appearance of the eruption," which is present in "at least 10 per cent. of cases treated with antitoxin." Martin and Hunt⁴⁸ saw the eruption in 27.5 per cent. of 178 antitoxin-treated cases. The London Asylums Hospital Report for 1896 says the eruption appeared in 35.2 per cent. of the cases healed with antitoxin.

Joint troubles also follow the use of antitoxin. Lombard⁴⁹ had one case in which there was pain in the joints. Fleisch⁵⁰ describes a case in which swelling of the hip-joint occurred. Perageaux⁵¹ mentions thirty cases of joint trouble following the use of antitoxin.

Before antitoxin was used in the Willard Parker Hospital 16 per cent. of the fatal cases died of pneumonia. During nine months of 1895, 53 per cent. of the deaths were caused by this disease. Winters⁵² thought "the enormous increase of pneumonia has no other explanation than the hypodermic injection of serum."

Finally we have the startling fact that the injection of antitoxin for the purpose of immunization has killed many people. Korach⁵³ and Alfoldi,⁵⁴ and many others have reported deaths following prophylactic doses of antitoxin.

In 1895 Dr. Cerdeiro concluded his report on diphtheria antitoxin to the surgeon-general of the navy with these words: "As yet we have not the slightest basis on which to found an expectation that fewer children will die in the future of this disease on account of the serum treatment;" and every year adds fresh testimony confirming the justness of this decision. The cases which are now lost when treated without antitoxin, the septic

cases, the bad kidney cases, the paralytic cases, and the stenotic cases, are just the ones which it has been shown cannot be cured with antitoxin. And from all bad effects, pointed out above, caused by the use of antitoxin, it follows that many lives have been sacrificed which might have been saved with the usual time-honored remedies.—*Medical Record*.

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THE LOCALIZATION AND SYMPTOMS OF DISEASE OF THE CEREBELLUM CONSIDERED IN RELATION TO ITS ANATOMICAL CONNECTIONS.*

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In bringing this communication before the Medico-Chirurgical Society my main object is to draw attention to the importance of certain nerve tracts, which have been proved by the recent investigations of neurologists to bring the cerebellum into intimate relation with the spinal cord and higher parts of the central nervous axis.

I do not propose to approach the subject from the point of view of the anatomist, but rather with the intention of impressing upon the clinician that a knowledge of their position and relations, when considered in connection with the results of experiment on

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the cerebellum and its peduncles, may afford valuable data for the explanation of some of the symptoms of cerebellar disease, and may assist him in the difficult task of its localization.

The symptoms of cerebellar disease may for our purpose be divided into two classes: first, those which are without special significance beyond the fact that they indicate the existence of an intracranial lesion, but which have no further localizing values; and, secondly, those which are regarded as being more definitely characteristic of affections of the cerebellum. Among the former may be placed headache, optic neuritis, hebetude and vomiting; and among the latter the disturbances of equilibrium and co-ordination indicated by the peculiar reeling gait, the ataxia, the severe vertigo, and the deviations and oscillations of the eyeballs.

One important and puzzling feature of cerebellar disease is that these characteristic symptoms, as is well known, are not invariably present in all cerebellar lesions, for some such lesions may run a course which is more or less latent, or may be indicated by symptoms of so vague a nature as, in the present state of our knowledge, to be practically useless for localizing purposes; and, on the other hand, similar symptoms may result from lesions which do not affect the cerebellum directly. One of the first steps towards the explanation of these peculiar variations in the phenomena of cerebellar disease was the recognition of the fact that these differences in the symptoms are not due to differences in the nature of the lesion (occurring as they do equally in tumor, hemorrhage, softening, and sclerosis), but depend, as Nothnagel was the first to show, on differences in its situation. This author states in his *Topische Diagnostik der Gehirnkrankheiten* that "the conclusion to be drawn from all these observations is that the situation of the lesion is the factor that determines the presence or absence of symptoms; only when the lesion is limited to one hemisphere can it run the course without symptoms" (p. 47). "There are certainly many cases which show that lesions in the hemispheres may also produce symptoms, but the analysis of these cases shows, in our opinion, without doubt, that the lesion in such cases involved adjacent parts in one way or other." It may be concluded, therefore, that the loss of the substance of one hemisphere does not of necessity produce any symptoms, or at least any symptoms as yet known to us. "Lesions actually limited to one hemisphere cannot be diagnosed" (p. 48). "Disturbances of co-ordination only occur when the lesion indirectly or directly involves the vermis—that is, the middle lobe of the cerebellum" (p. 50).

"Another question (p. 51) is whether disturbances of co-ordination must invariably appear when the vermis is involved. In my earlier publications I answered this in the affirmative on the strength of the observations then at my disposal."

"The later observations show undoubtedly that tumors may be situated in the vermis without causing any symptom of cerebellar ataxia, and therefore lesions of the vermis need not be invariably associated with disturbances of co-ordination.

"In this connection I may mention that these exceptions are always cases of tumor—that is, of slowly-growing lesions, and

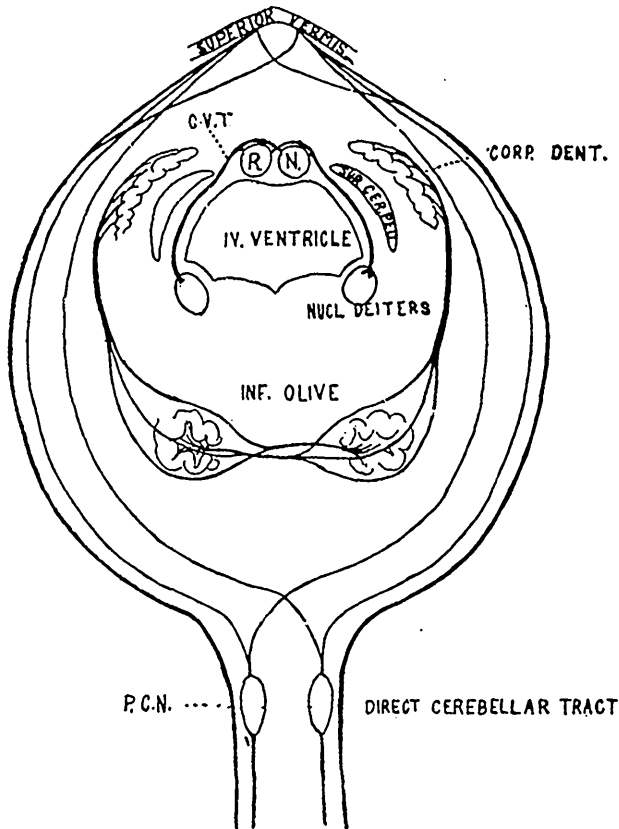


Fig. 1.—The constituents of the inferior peduncle. P. C. N., Each oval area represents the combined nuclei of the two divisions of the posterior columns, and gives a double tract represented by a single line to the restiform body of its own side and another to the opposite side. These represent the interrupted paths from the posterior column. R. N., roof nuclei. C. V. T., cerebro-vestibular tract from roof nuclei to nucleus of Deiters.

that in all cases a greater or less part of the vermis was left intact."

Nothnagel is frequently credited with the unqualified statement that it is only tumors in the middle lobe that cause disturbances of equilibrium, and that tumors of the lateral lobes always

run a latent course. From what has just been quoted, however, it will be seen that this is not a correct interpretation of his opinion.

I shall now endeavor to explain from the anatomical standpoint why it is that disturbances of equilibrium occur specially in connection with lesions of the middle lobe, and why in certain instances these disturbances may also be present in lesions of the lateral lobe. The anatomical data have been obtained partly by the collation of observations of various investigators on the human fetus, partly by the study of degenerations following experimental and pathological lesions of the brain and cord.

The cortex of the middle or vermiform lobe of the cerebellum forms the central termination for at least six important tracts derived from the spinal cord, two arising from the cord directly and the remainder from the nuclei of the postero-median and postero-external columns, namely, the clavate and cuneate nuclei (two arising from these nuclei on the same side and two from those of the opposite side, each represented by a single line in Fig. 1). The uninterrupted fibres consist of the direct cerebellar tract and the ascending antero-lateral tract of Gowers. All these tracts, except the last mentioned, are contained in the restiform body or inferior peduncle of the cerebellum.

The tract of Gowers passes further up the pons and hooks round the fifth nerve before bending into the vermis, as has been shown by Loewenthal, Mott, and Tooth in animals and by myself in man. The majority of the fibres terminate in the upper part of the middle lobe, some on the same side and some after crossing the middle line.

While it must be admitted that the functions of these tracts are still somewhat doubtful, it is certain that they are not concerned in the conduction of impulses which give rise to impressions of touch, temperature, or pain, since they may be destroyed without interference with these forms of sensibility, and it must be presumed that some, if not all, of them, are concerned in the conduction of muscular sense impressions. It is important to note that none of these tracts pass to the lateral lobes, nor does any other tract from the cord, as far as is known, enter the lateral hemispheres or become connected with them, except indirectly, and even then to a comparatively slight extent. These tracts are all undoubtedly afferent to the cerebellum.

Another tract which was at one time regarded as a purely afferent sensory tract and was therefore termed by Edinger "the direct sensory cerebellar tract," connects the nucleus of Deiters (one of the end nuclei of the vestibular nerve, lying at the lateral angle of the fourth ventricle), with the roof nuclei of the cerebellum.

Until quite recently the relations of Deiters's nucleus remained very obscure. Its most characteristic feature, and one that has

impressed itself on most observers, is the large size of its cells, which in appearance are practically identical with the motor cells of the spinal cord. So close is this resemblance that, from the first time my attention was directed to these cells, I felt convinced that they must belong to a motor nucleus, although at that time it was not possible to trace their connections. Subsequent research has, however, determined to a very great extent the destination of the fibres derived from this nucleus. Although our knowledge of its relations is still far from being complete, enough has been learned to indicate its great importance. Monakow, in 1883, showed that the cells of this nucleus became atrophied after hemisection of the cord in the cervical region. The significance of this fact was, perhaps, not at first fully apparent, but the discovery of the existence and nature of the neuron showed that its cells must give origin to fibres which passed down the cord, and which had been divided in the above-mentioned operation. This view had been actually advanced by Deiters himself long before this. In 1888-89-92 I described two tracts arising from this nucleus; of these one passed in a downward direction, and could be followed as far as the outer side of the inferior olive; but, owing to the method of investigation then employed, it was not possible to trace it further.¹ Held subsequently observed that it was continued downwards into the antero-lateral columns of the cord, and more recent investigations have confirmed this view. The other tract passed inwards under the floor of the fourth ventricle, and, after giving a certain proportion of its fibres to the sixth nucleus, it crossed the middle line and apparently passed upwards in the posterior longitudinal fasciculus as high as the third nucleus. More recently our knowledge of the connection of these two tracts has been further extended by the study of sections stained by Marchi's method after recent injury to the nucleus of Deiters.² It is now known that the first tract—which may be called the vestibulo-spinal tract—passes downwards and enters the same side of the cord, where it divides into two parts, one division taking up its position at the side of the anterior median fissure and the other in the lateral column. Risien Russell has traced some of these fibres as far as the lower end of the thoracic region of the cord. They terminate in the anterior cornu of the cord on their own side at various levels.

The second set of fibres, that which passes inwards under the floor of the fourth ventricle, divides into several groups. One of these terminates in the sixth nucleus of the same side; the remaining groups enter the posterior longitudinal fasciculi (P. L. F.) on both sides, some turning upwards and some downwards. The two groups which bend upwards terminate in relation to the two third nuclei; those which have a descending direction pass down the

ate in a nucleus which is called, from its position in relation to the fourth ventricle, the roof nucleus. This tract was formerly regarded as the continuation into the cerebellum of the auditory nerve, and even of the lower cranial sensory nerves, and, as already said, was termed the "direct sensory cerebellar tract" by Edinger, but Ferrier and Turner, and more recently Risien Russell and André Thomas, have shown that the tract has its origin in the roof nucleus, and is thus not an afferent but efferent tract, arising in the middle lobe of the cerebellum, and terminating in Deiters's nucleus.

When the middle lobe of the cerebellum is further examined (Figs. 2 and 3), it can be seen that its cortex is connected by a series of sagittal fibres with the roof nuclei. This important link completes a chain of afferent, internuncial, and efferent fibres between certain sensory tracts in the cord, the middle lobe of the

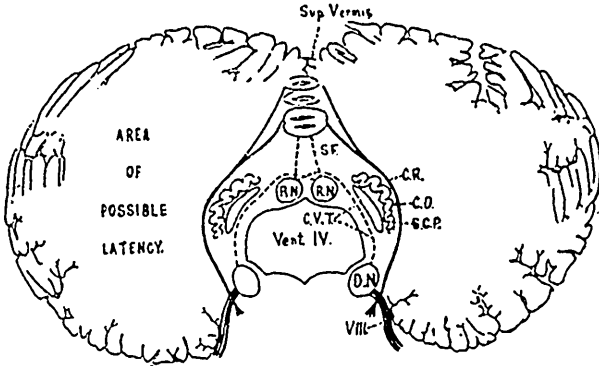


Fig. 3—Diagrammatic transverse section of Cerebellum to show connections of middle lobe; C. D., nucleus dentatus; S. C. P., superior cerebellar peduncle; C. R., inferior peduncle.

cerebellum, the nucleus of Deiters, the various oculo-motor nuclei, and certain motor centres in the cord. The integrity of this chain appears to be essential to the perfect maintenance of equilibrium. If we follow the course of the fibres in this system (as indicated in Fig. 2), we see that an impulse would travel upwards through the restiform body (C. R.) and Gowers's tract (not drawn) to the cortex of the middle lobe of the cerebellum (superior vermis). It would then pass by means of the sagittal fibres (S. F.) to the roof nuclei (R. N.) Starting again from one of them (the connection with the other roof nucleus being ignored for the sake of simplicity), it would pass by the cerebello-vestibular tract to the nucleus of Deiters. Here there might be a reinforcement by other impulses travelling from the semicircular canals (S. C.) by way of the vestibular nerve (VIII). At Deiters's nucleus fibres to the nuclei

of the sixth and third, and perhaps the fourth nerve, as well as to the anterior cornua of the cord, mainly on the same side, would be simulated, and in this way there would be put into operation a very complex mechanism which is well adapted to affect the equilibrium of the body. We can thus understand how irregular or defective stimulation of Deiters's nucleus may lead to lateral oscillations of the eyeballs, and to irregular or impaired movements of the same side of the body, resulting in vertigo and disturbances of equilibrium.

It will be seen from what has just been said that the cerebellar termini of the constituents of this system are in the cortex and roof nuclei of the middle lobe; no such connection of the spinal cord or its nuclei with the lateral lobes of the cerebellum can be made out. These lobes seem to receive afferent fibres from the nuclei in the pons, which, in their turn, are in relation with the cortex of the frontal and temporal lobes of the cerebrum.

If we now consider the system of the superior cerebellar peduncle, which is also undoubtedly concerned in the maintenance of equilibrium, we see that this peduncle arises mainly from the nucleus dentatus, and terminates above in the red nucleus and optic thalamus of the opposite side. The nucleus dentatus is situated at the junction of the middle and lateral lobes, and is connected extensively with both of these portions of the cerebellum, as well as through the inferior peduncles, with the inferior olives of the medulla (see Fig. 1).

It will be observed from Fig. 3 that this nucleus is in such a position as to be readily affected by lesions involving either the middle or the lateral lobes. It will be seen, for instance, that a section dividing the middle from the lateral lobes will cut through the nucleus dentatus, thus severing the origin of the superior peduncle, and may at the same time cut across both the afferent and efferent tracts of the middle lobe—namely, the inferior peduncle and the cerebello-vestibular tract. From these facts we can readily understand why it is that removal of one-half the cerebellum or of one lateral lobe causes practically the same symptoms as removal of one-half of the middle lobe, since in both cases the afferent and efferent fibres of one side of the middle lobe are divided, and the superior cerebellar peduncle arising from the nucleus dentatus is also involved to a greater or less extent. We are also in a position to understand why a section in the mesial plane of the middle lobe may cause few symptoms of disturbances of equilibration, and why these disturbances may be readily recovered from. Such a section will destroy the afferent and efferent fibres from both sides to an equal extent, so that the resulting interference with equilibration will be merely a symmetrical weakening of that function on both sides. This can be com-

compensated for to a great extent by that portion of the mechanism for equilibration which has remained unaffected by the lesion. For the same reason a tumor of the vermis occupying a symmetrical position with reference to the middle line, or at least which destroys, symmetrically, afferent and efferent fibres of the vermis, would be marked by few or no symptoms, especially if its growth were so slow as to allow of compensation. The pronounced symptoms in the case of unilateral lesions are due undoubtedly to the fact that the interference with the mechanism is limited to one side, and the results produced are therefore symmetrical. If one cerebello-vestibular tract for one nucleus of Deiters is alone affected, the usual stimuli from the latter to the nuclei of the ocular nerves and to the anterior cornua of the corresponding side of the spinal cord will be wanting; thus we can understand (1) the yielding of the limbs of the same side and the tendency to fall to that side, and (2) the oscillatory movements of the eyeballs.

These symptoms may, however, be absent after lesions of the lateral lobe external to these tracts, which would leave the systems entirely, or practically entirely, intact. Turner,³ in reviewing Luciani's work, states that "in our experiments rotation round the longitudinal axis certainly occurs more constantly when the peduncles are divided than when the lateral lobes are removed. But this is not an absolute rule, and one of the most marked instances of rotation round the vertical axis which we observed was an animal in which only the cortex of the lateral lobe had been cauterised and under conditions likely to excite irritation of neighboring parts." This statement may be regarded as being so far in harmony with the view just enunciated.

Thomas⁴ expresses himself even more unequivocally: "Lesions involving a considerable extent of the cortex, but not extending deeply and not implicating the central grey nuclei, produce disturbances which are of relatively short duration and of moderate intensity. Lesions limited to the cortex of one hemisphere, and not extending deeply, may be free from any disturbance."

It is well known that section of a superior or inferior cerebellar peduncle produces rotatory movements, and other motor disturbances, and also that similar disturbances follow removal of one-half of the vermis or of one lateral lobe. This second fact may be readily understood when the arrangement of the parts is considered. An examination of Fig. 3 shows that removal of one-half the vermis or one lateral lobe involves a section of the intracerebellar portion of these peduncles. It is also stated that section of the middle peduncles produces somewhat similar symptoms, and since the cerebellar terminations of this peduncle are limited to the lateral lobe, it will naturally be asked why removal of the lateral lobe, which must involve an intracerebellar section of the fibres of

this peduncle, should not in like manner produce similar symptoms. In answer to this, I would suggest that many of the results ascribed to section of the middle peduncle are really due to involvement of the upper or lower peduncle or of the cerebello-vestibular tract, or of all of these, during the operation employed for division of the middle peduncle, and that the results of a section limited to the middle peduncle have yet to be determined.

If the views here adduced be well founded, we may expect disturbances of equilibrium to be produced by lesions situated within an area bounded by the intracerebellar path of the two inferior peduncles, of the two superior peduncles, and the dentate nuclei in

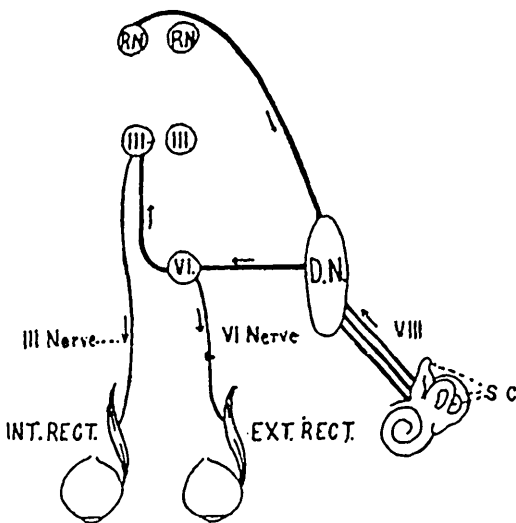


Fig. 4.—Relation of Deiter's nucleus to the mechanism for conjugate deviation.

which the latter arise. This area contains the middle lobe (superior and inferior vermis, the roof nuclei, and the sagittal fibres connecting the latter with the cortex), and the cerebello-vestibular tracts from the roof nuclei to the nucleus of Deiter (Fig. 3). Lesions within this area may produce no such disturbances, provided they are symmetrically situated with reference to the mesial plane, and especially if their growth is so slow that compensation is established *pari passu* with the disturbances they may tend to cause.

On the other hand, lesions situated in the lateral lobes may produce no disturbance of equilibrium provided they are situated entirely external to the intracerebellar paths of the upper and lower peduncles, and of the nucleus dentatus (*area of possible*

latency, Fig. 3). If, however, these structures are interfered with, either by pressure or by direct involvement, then the characteristic symptoms of cerebellar disease will be produced, and will depend in their character and amount on the nature and extent of this interference.

If the cerebello-vestibular tract or Deiters's nucleus, be injured, then the usual stimuli will not pass either to the anterior cornua of the cord or to the sixth (fourth) or third nuclei. Hence may result the weakness of the same side, the tendency to fall to that side, the impairment of the conjugate deviation to that side, the tendency of both eyes to be directed to the opposite side, and the lateral nystagmus which occurs especially when the eyes are directed towards the same side. A glance at Fig. 2 will show how the spinal symptoms may be produced since the nucleus of Deiters will not act through the vestibulo-spinal tract and posterior longitudinal fasciculi upon the anterior cornua, and more especially upon that of the same side. The effect on the position and movements of the eyes will be easily understood from Fig. 4, if it be remembered that the sixth nucleus is the nucleus for the conjugate deviation of the eye to the same side, supplying, as it does, not only the external rectus, but also, through the opposite third nucleus and nerve, the internal rectus of the opposite side. A stimulus of Deiters's nucleus, acting on the sixth nucleus, will turn the eyes to the same side; absence of this stimulus will allow the other sixth nucleus to pull the eyes toward the opposite side and will thus weaken the voluntary attempt to look to the same side. On the other hand, lesions which merely irritate but do not destroy the nucleus of Deiters may cause rigidity or spasms on the same side of the body, or such an excess of movement as may cause the body to fall to the other side, and by acting on the sixth nucleus, may turn the eyes to the same side.

Luciàni, Ballance and Thomas have also drawn attention to the possible effect to which the superior peduncle may exert through the red nucleus and the optic thalamus on the ocular nuclei and the opposite motor nucleus, and it is not my intention to question this influence in producing the symptoms of the cerebellar disease. At the same time, the importance of the nucleus of Deiters as a co-ordination centre seems too evident to be ignored.

It is by no means claimed that the above described mechanism is as yet so fully understood as to be capable of explaining all the symptoms of cerebellar disease, but it, at least, affords a working hypothesis on which the most characteristic and frequent among them may be interpreted.

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MICROBES IN CHRONIC ARTHRITIS DEFORMANS.—Von Dungern and Schneider (*Münch med. Woch.*) relate the case of a man, aged 45, in Baumler's clinic at Freiburg. In 1881, when twenty-eight years of age, he suffered from acute rheumatism, which lasted an unusually long time in spite of energetic salicylic treatment, and was accompanied by great frequency of the heart's action and a systolic murmur at the cardiac apex. In 1893 the patient was eight weeks in a hospital suffering from pains in the joints. After this there was a certain degree of persistent stiffness in the back, which gradually increased; and a little over ten months before his admission to the Freiburg Hospital (January, 1797) movements of the head became impossible. On admission the man's head was noted to be fixed in a flexed position, so that the chin was not more than about 2 cm. from the sternum. The result was that the unfortunate patient could look forwards only by extreme action of the superior rectus muscles of the eyeballs, and was unable to open his mouth widely on account of the lower jaw being opposed by the sternum. With the exception of the hip-joints and the small joints of the toes, nearly all the joints of his limbs were affected, the affection consisting in deficient motility, tenderness, periarticular swelling, effusion into the synovial cavities (there was also evidence of wearing away of the articular cartilages in the joints worst affected), and but little thickening of the capsules. The degree of the affection varied in the same joint at different times. With the prolonged rest in the hospital great atrophy of the muscles took place, so that the man looked like a skeleton covered with skin. There was, however, never any electrical reaction of degeneration. Occasionally traces of albumen were found in the urine, but never casts. Bedsores soon appeared. The temperature never rose more than just above 100° F. The patient was delirious from defective nutrition for a considerable time before his death, which took place in February, 1898. At the necropsy the spleen was found slightly enlarged. The stomach was dilated, and the pylorus, though not stenosed, was adherent to the shrivelled gall bladder. Lungs and kidneys were natural. In the heart the mitral valve showed old thickening and slight recent endocarditis—possibly connected with the bedsores. The peculiarity of the joint changes consisted in the facts that there were no outgrowths from the synovial membranes—which, however, showed abnormal vascularity and edema—and that the articular cartilage were nowhere thickened, but in some places worn away. The joint deformity was due to effusion, to muscular atrophy around the joints, and in some cases to subluxation. No bacteria were found in microscopic sections of the affected synovial membranes. Small diplococci were found in the contents of the gall bladder, but none could at first be detected in the contents of the joints.

Blaxall's method of staining gave negative results. However, after the articular fluid had been kept some days, diplococci were found in it by Gram's method. The same diplococci grew in cultures made from the contents of all the joints, so also in cultures from the liver and gall bladder, but not from the blood, spleen, or kidneys. These diplococci are quite different from the microbes described by M. Schuller, in 1893, as the probable cause of certain chronic joint affections. By local inoculation with cultures of their diplococci the authors produced a similar articular affection in rabbits; but after three months the diplococci could no longer be found in the rabbits' joints. Some other species of microbes were obtained from the patient's joints, but the authors regard the diplococci as the essential cause of the disease. They think that the joints, already predisposed to infection by the former acute rheumatism, were invaded by diplococci from the diseased gall bladder, which they think was the primary source of infection.—*Brit. Med. Jour.*

THE TIMOTHY GRASS BACILLUS.—Any facts connected with the life-history of Koch's tubercule bacillus or any of the allied forms belonging to the tuberculous group, are of special interest at the present time when such strenuous efforts are being made to minimize their power. Recently our knowledge concerning the micro-organism resembling tubercle bacilli has been increased. Now, Dr. Moëller (*Therap. Monat.*, November, 1898.) has successfully isolated the timothy grass bacillus which inhabits the slopes of Gorbersdorf, and appears to resemble Koch's bacillus more closely than any of its predecessors. This discovery may open up new paths for future inquiry. The vegetable world has not yet been suspected of harboring organisms belonging to the tuberculous family. Moëller began by examining the timothy grass surrounding the sanatorium on which the cows (supplying milk to the institution) are fed. A blade of grass was placed in a test tube filled with sterilized water, the open end being covered with an India-rubber cap. The test tube was placed in an incubator for fourteen days at a temperature of 37°. Microscopical preparations stained with Ziehl-Neelsen showed bacilli resembling Koch's bacillus in taking the red stain and not the blue. The formation of rodlets and thread-like ramifications, clear oval spaces, and often bulbous extremities, were the points of resemblances with Koch's bacillus. The timothy grass bacillus was isolated and grown on various media, the potato and glycerine agar culture were almost identical with a growth of Koch's bacillus. The pathological lesions found after injection experiments on guinea-pigs were practically identical with those seen in the case of Koch's bacillus. The animals died with lesions resembling those of miliary tuber-

culosis—the lungs, liver and omentum were chiefly affected. Moëller usually took the specimens for future experiments from the cavities in the lung tissue. The usual giant-celled infiltration is seen in animals dying from injections of the timothy grass bacillus; the semilunar-shaped cell, however, so characteristic in lesions produced by Koch's bacillus, has never been observed in the former case. The timothy grass bacillus has been found by another observer in Würzburg. Moëller has also found it to be present on a species of grass known as the meadow foxtail, and the bromus erectus. The most convincing proof of the close relationship between the timothy grass and Koch's bacillus is the fact that they both take the chamois coloring matter. This characteristic is not shared by the other micro-organisms belonging to the tuberculous group. Raleinowitsch, who has examined the timothy grass bacillus, admits that the butter bacillus shows a very different growth on the nutrient media. We know that under certain conditions the biological characteristics of the tubercle bacillus undergo a change; this being so, the question naturally arises whether under a different environment the timothy grass bacillus may not more nearly resemble Koch's, or, in fact, be identical with it. The Pasteur Institute and the Gesundheits-Amt, in Berlin, are at present engaged in examining the life-history of this new bacillus, and we may hope before long to have more light thrown on this interesting problem. Moëller also succeeded in isolating what he calls the "dung bacillus," which is found in the fresh feces of cows. The animals from whom he obtained the bacillus had previously been declared to be non-tuberculous, having successfully recovered from tuberculin injections. This micro-organism also belongs to the tuberculous group, and is chiefly distinguished from Koch's bacillus by its rapidity of growth. In the near future the examination and disinfection of grass may form part of the régime of our sanatoria.—*Brit. Med. Jour.*

A COMMON CAUSE OF CRYING IN THE NEW-BORN.—On the evening of November 29th, 1898, a primipara was delivered of a strong male child, which cried lustily and, after being bathed, fell asleep. As the mother's breasts were well developed and the child strong, instructions were given that the child be put on the breast every six hours for the first day, and every four hours the second day, and that boiled water, sweetened with cane sugar, be given every two hours between the nursings. It subsequently transpired, that as the child slept soundly between the nursings, the latter part of the order was disregarded entirely or the water given but a few times. At noon on the third day word was received that the child was sick and on arrival at the house

the nurse said that it had cried almost constantly for the past eighteen hours, as if suffering from colic, sleeping but little and passing no urine since the early hours of the morning. While the child was undressed for inspection marked priapism was noticeable, and the placing of the somewhat cool hand over the region of the bladder was followed by the discharge from the penis of some four to six drachms of urine of so turbid brown a color as to attract the attention of all present. This left a yellowish brown discoloration upon the napkin with no traces of pink. Priapism immediately ceased, and the child who had before been crying steadily fell into so sound a sleep that the subsequent examination did not awaken him. The thermometer placed in the rectum registered 102.6° (inanition temperature?). A weak modification of milk was ordered to be given every four hours alternating with boiled water after taking the breast. These, however, were again not given as the child thereafter slept soundly after each nursing. The rectal temperature the following morning had fallen to 100°. The so-called uric acid infarctions of Virchow formed by the deposits of uric acid and urates in the straight tubules and papillæ of the kidneys in new-born infants have been recognized for some time as a possible source of irritation, as they remain *in situ*, or are washed out by the scanty secretion of urine. Most modern textbooks make some mention of the subject, although it is frequently incorporated in the section dealing with the formation of calculi. Yet it is rare to find the practitioner who thinks of this cause of crying in infants, unless it be *post facto* from the colored stains upon the diaper. It is extremely probable that much of the supposed pain of colic in the new-born, for which they have from time immemorial been dosed with fennel and other aromatic teas, is due to these sources of irritation in the kidney, ureters, bladder or urethra. Boiled water, which should be given to every infant at regular intervals, for more reasons than one, pending the establishment of lactation, will dilute the urine and prevent or alleviate the discomfort. The rather unusual opportunity afforded the writer of observing matters in this case, together with the subsequent course of events, point clearly to the urine as the cause of the crying, whereas, had no such observation been made, hunger and inanition might readily have been considered a sufficient explanation of the symptoms.—THOMAS S. SOUTHWORTH, M.D., in *Archives of Pediatrics*.

EXPERIMENTAL TABES.—Edinger and Helbing (Reprint from *Trans. of 16th Congress of Internal Medicine*) report the results of their attempts at the experimental production of tabes, or rather of degeneration of the posterior columns of the cord. These were conducted upon rats, and consisted at first merely in the induction

of fatigue by excessive muscular exercise ; this was effected either by the struggles of the animals when hung up by their tails or by putting them in a revolving cage. It was found that a short period of such overstrain did not affect the cord, but after a considerable time (seventy-nine days) degenerative changes were found in the posterior columns, most marked in the lumbar region and diminishing upwards. When, however, the animal had previously been rendered anemic by means of pyrocin, any period over eight days of this muscular exertion produced profound degeneration. (It should be noted that pyrocin alone, which leads to marked anemia with great swelling of the spleen, does not affect the cord.) The parts involved were the posterior roots, a large portion of the posterior columns, and the root fibres entering the posterior horns. There was in severe cases implication of the anterolateral tracts, and occasionally of some of the intramedullary fibres of the anterior roots. The degeneration was most intense in the lumbar region, the exterior band of the posterior columns always suffering more than any other part ; the cervical cord of the postero-medial column was but little affected. The "ventral field" of the posterior column escaped, as is the case in tabes ; in the rat it is probably a direct cortico-spinal tract, while in a man it is of purely intramedullary origin. No lesions, degenerative or otherwise, were ever found in the brain. These conditions were constant in thirteen rats, ranging only in intensity with the duration of the strain. The authors append the following conclusions to their important paper : (1) Even in normal animals abnormally powerful exertion can produce disease of the posterior columns ; (2) it is impossible to introduce a predisposing factor (for example, anemia) under the influence of which less prolonged exertion will lead to the same effect ; (3) the affection produced resembles both in localization and nature primary atrophy of the nerve fibres) the disease of the posterior columns known to occur in man.

THE INFLUENCE OF THE SPLEEN IN DESTRUCTION OF BACTERIAL POISONS.—Chimici (*Gazz. degli Osped.*) has conducted a series of experiments on guinea-pigs with a view to elucidating this question. His results are almost entirely negative. Apparently guinea-pigs can exist equally well without as with their spleens. Moreover, the "displeened" animals showed the same symptoms after injections of diphtheritic, tetanic, or tuberculous toxins, as those possessing spleens ; in other words, the removal of the spleen made no difference to the course of disease after toxic injection. The author further tried the effect of injecting toxins with splenic juice ; here also the addition of the splenic juice causes no modification in the ensuing symptoms.—*Brit. Med. Jour.*

MONTHLY REPORT.

Issued by the Provincial Board of Health of Ontario for April, 1899. Showing the deaths from all causes and from Contagious Diseases in the province, as reported to the Registrar-General by the Division Registrars throughout the Province.

Issued May 22, 1899.
P. H. BARCK, Secretary.

YEAR.	MONTH.	Total population of province 2,293,182	Total population reporting 2,265,286 99%	Total municipalities of province, 777.	Total deaths reported from all causes.	Rate per 1,000 from all causes.	Scarlatina.	Diphtheria.	Meadles.	Whooping cough.	Typhoid.	Tuberculosis (Consumption).	Rate per 1,000
1899.....	April				*2,613	11	23	33	4	7	15	257	1.3
					730	12.1	36	25	2	0	17	235	1.2
					725	13.7	32	35	2	3	16	215	1.1
1898.....	April	1,729,561 76%	522 67%	210	.....	14	0.00	31	7	4	0	173	1.2
					107	.....	26	27	4	1	10	129	0.9
					224	.....	15	38	0	10	19	133	1.0

*The months of February, March and April, 1899, include deaths from all causes, but the other months from contagious diseases only.

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No. 6.

ZOLA.

Arthur MacDonald, the anthropometrical expert at Washington, has contributed to the *Open Court* an interesting study of Zola's personality. The personality of this great materialistic writer interests us much at present on account of the fight he has made for the revision of Dreyfus' trial. MacDonald's account is derived from anthropometric studies of Zola by the leading French specialists. He was brought up in poverty in childhood and youth, and turned to literature not so much from a taste for it but as a means of livelihood—the learned professions being closed to him, not having a bachelor's degree.

“Zola's nervous system, in its entirety, presents cardiac spasms, cramps, pollakiuria, trembling, etc. It is notably subject to crises of pain, which date from the age of twenty. From this time on to forty there were periods of nervous colic. From forty-five to fifty these crises took the form of angina pectoris, of acute cystitis, and of articular rheumatism. At present these troubles are less, but they are replaced by a state of almost constant feebleness and irritability. Sometimes gastric troubles are the occasion of nervous manifestations, but at present it is intellectual or muscular effort which provokes them; sometimes the slightest thing is sufficient to awake them, such as a too close fitting garment; thus the

squeezing in a crowd once provoked a crisis of agony with false angina pectoris ; so the pricking of his finger has been felt in his arm for several hours.

"There exists then, in Zola, a certain lack of nervous equilibrium, an exaggerated morbid emotivity, which, under the influence of slight excitations, causes disordered and painful reactions.

"This condition frequently accompanies intellectual superiority, develops with exercise of brain and mind, and tends gradually to increase the lack of nervous equilibrium."

The sensations generally are acute in Zola. The visual being feeble owing to shortsightedness, but the olfactory sensations and memory for them are very strong. Odors play a prominent part in his history and life. There is, however, nothing unusual in his perception of taste, time or space. He has no oratorical qualities, and is always inhibited by his nervousness and timidity. With a poor memory for words and phrases he has never been able to learn another language. His handwriting partakes of his emotions at the time. As a boy he had a good memory, but it decreased from his third year onward. The degree of his power of retention depends chiefly upon the utility of the thing to be remembered. Concentration of attention with Zola is not long—three hours being the maximum for successful study. He often becomes absorbed in reflection and consequently oblivious to surroundings. His reaction time is less than the general average, but very regular.

His knowledge is extensive, if not profound ; he was attracted to the natural and medical sciences.

Zola's ideas are, according to MacDonald, as follows :

"Genius, according to Zola, is not rarity nor perfection ; its three characteristics are creation of being, power and fecundity ; genius reproduces nature with intensity.

"Right is the application of justice. There is an antithesis between natural law and written law, which is a bad application of justice to society.

"Justice is a social idea ; it does not exist in nature ; equality is not in the nature of things.

"Woman has less equilibrium and initiative than man and in general she is inferior to man ; yet in little things she is superior to her husband.

"Zola does not respond to metaphysical ideas ; he is a positivist ; yet he believes in complete annihilation after death. God for him is a naive hypothesis and all affirmations of religious dogma seem inconsistent and without common sense.

"He bases morality on observation of moral laws. He has a pagan conception of life—that which is healthful does not injure ; that which is outside of nature is incomprehensible. His ideas of order and method are very developed ; he is a slave to them ; they

extend from the care of his toilet to the composition of his works. Everything has its place in his apartment; disorder pains him; his study table is so well arranged that one would not know that he used it; he classifies his work in envelopes. He keeps the letters he receives, although the most of them are of no use to him."

His emotions would not seem to show much abnormality. As to his tastes, there are three things most beautiful—youth, health and goodness. As regards the instinct of self-preservation, fear is the chief emotion. "Zola likes the young woman; that which he likes in her most is freshness, health, physical and moral harmony, gentleness and charm; he attaches no importance to the style of dress."

"As to the relation of intellectuality to neuropathy, comparatively little is positively known. Zola is neither epileptic nor hysterical, nor is there the least sign of mental alienation. Although he has many nervous troubles, the term "degeneracy" does not apply to him wholly. Magnan classes him among those degenerates who, though possessing brilliant faculties, have more or less mental defects. It is true, as we have seen, that Zola has orbicular contraction, cardiac spasms, thoracic cramps, false angina pectoris, sensory hyperesthesia, obsessions, and impulsive ideas; his emotivity is defective, and certain of his ideas are morbid, but all this is not sufficient to affect in any appreciable manner his intellectual processes. His strong and harmonious constitution gives him immunity, his intellect is not contaminated. Toulouse says he has never seen an obsessed or impulsive person who was so well balanced.

"Yet Zola is a neuropath, that is, a man whose nervous system is painful. Heredity seems to have caused this tendency, and constant intellectual work to have affected the health of his nervous tissues. Now, it is a question whether this neuropathical condition is not an excitation that has given rise to the intellectual ability of Zola. Whether a diseased nervous system is a necessary cause of great talent or genius, is quite another question; yet pathological facts have been such constant concomitants of great talent and genius that the relation seems to be more than a temporal one, and suggests the idea of cause and effect.

"In brief, the qualities of Zola are fineness and exactitude of perception, clearness of conception, power of attention, sureness in judgment, sense of order, power of co-ordination, extraordinary tenacity of effort, and above all a great practical utilitarian sense. With these qualifications he would have succeeded in whatever path in life he might have chosen."

LOCAL ANESTHETICS.

Eucaïn is, like cocain, the methyl ester of a benzol oxypiperidin-carbonic acid. It is insoluble in water, so that one uses the hydrochlorate in place of the base itself. Vinci proved that eucaïn was less toxic than cocain and only slightly retards the pulse. After the instillation into the conjunctival sac of a 2 per cent. solution, anesthesia appears in 2 to 5 minutes, and lasts 10 to 15 minutes. The pupil is not dilated, the accommodation remains intact, but, contrary to what occurs after the use of cocain, the conjunctival and ciliary vessels are fuller than normal. This vaso-dilation leads at times to a slight burning sensation, but this can be lessened by combining it with cocain :

Eucaïn hydrochlor....	0.1-0.05.
Cocain hydrochlor....	0.05.
Aqua	5.0.

As a general thing, Vinci's reports have been corroborated by later authors. It has been used in ophthalmology, in laryngology for the nasal, laryngeal and pharyngeal mucous membrane in 5 to 10 per cent. solutions and in dentistry, for tooth extraction, in 10 to 15 per cent. solutions ; while in dermatology it has been used in the form of ointments, etc., for painful skin diseases. According to Schleich, 2 per cent. solutions are necessary for the infiltration anesthesia, but the operation is somewhat painful. Hackenbruch combines eucaïn and cocain in equal parts ($\frac{1}{4}$ - $\frac{1}{2}$ per cent. solutions) for subcutaneous use. Eucaïn B. is benzoylvinyldiacetonalkamin. It is soluble in water. The hydrochlorate is likewise used. Silex uses a 2 per cent. solution in ophthalmology. Four drops are sufficient to cause in five minutes an anesthesia of the cornea and conjunctiva, lasting ten minutes. The iris can be anesthetized by the application of a few drops to the cornea. The vascular dilatation is less than with eucaïn A., but continual use causes a marked dilatation of the conjunctival vessels. The solution of both eucaïns may be sterilized without decomposition. Eucaïn B. has been recommended by Braun for infiltration anesthesia. He uses 0.1 per cent. solution in 0.8 per cent sodium chloride. This anesthetizes quickly and painlessly. Holocain, the p-di-ethoxyethenyl-di-phenylamidin, is formed by the union of equal molecules of p-phenetidïn and phenacetin with the elimination of water. Its hydrochlorate is a white crystalline powder easily soluble in water. Three to five drops of a 1 per cent. solution, when dropped into the conjunctival sac, in fifteen seconds produces anesthesia lasting from five to fifteen minutes. The pupil and the accommodation are uninfluenced. Its application may be attended by a burning sensation. Gutt-

mann, in his first paper, called attention to its great toxicity. A new, widely-recommended local anesthetic is anesin or aneson Trichlorpseudobutylalcohol, or acetone chloroform, when given internally in doses of 0.5-1.0 gm., acts on man as a hypnotic. It also possesses local anesthetic properties; but on account of its insolubility in water this could not be utilized until Vamossy succeeded in making a 1 to 2 per cent. aqueous solution, which was then introduced under the name anesin. It causes marked local anesthesia, and on the tongue, like cocain, it produces the sensation of a foreign body, and, later, distinct analgesia. In rabbits a conjunctival instillation of one minute duration produces anesthesia which lasts eight to ten minutes, while an instillation of three minutes' duration produces anesthesia for several hours. It is to be recommended for anesthetizing the nose and larynx, especially in the case of children, as aneson is non-toxic. In dentistry and ophthalmology it has been used; it anesthetizes the cornea without irritation or action upon the pupil. As high as 10 per cent solutions have been used subcutaneously, and tracheotomies, herniotomies, etc., have been thus done. Braun has shown that it only corresponds to a 0.1 per cent. solution of cocain, and not as Vamossy believed to a 2 per cent. solution. This author claims that it loses its anesthetizing properties by heat, so that it can be only imperfectly sterilized. Einhorn and Heinz have introduced the p-amido-m-oxybenzoic acid methyl ester under the name of orthoform. It is a white, tasteless and odorless powder, which is only slightly soluble in water, so that it cannot accumulate in the body and thus lead to poisoning. Orthoform must be applied directly to the nerve terminals. It is practically non-toxic; as high as 60 gm. has been applied weekly to a carcinoma without untoward symptoms. Kassel has proposed that it be applied to laryngeal ulcers in the form of an emulsion (orthoform 25.0, olive oil 100.0). The soluble hydrochlorate cannot be used, as it irritates too much. The especial advantage of this preparation is that the anesthesia persists a long while, appearing in three to five minutes and lasting about thirty hours, while in some cases even longer. As it must be applied directly to exposed nerve endings it should be used in excoriations, ulcers, burns, etc. Dreyfuss recommended the combination of the infiltration anesthesia with orthoform; that is, to follow up the operation by the application to the wounded surface of a mixture of boric acid and orthoform and thus obviate the after pains. Orthoform cannot be used in case the skin is intact, as for neuralgia, etc. Some have stated that the application is followed by a temporary sensation of burning. The m-amido-p-oxybenzoic acid methyl ester has been introduced under the name of orthoform-new. It possesses all the properties of the old orthoform, but is cheaper and the powder cakes less.

THE COLD WATER TREATMENT OF FEBRILE CONDITIONS.

According to Klemperer in the *Ther. d. Gegenw.*, 1899, p. 128, while the cold water treatment of Brand has been widely accepted, yet there are many variations in its use. At first some used baths for only one-half of the body, with douches and very cold water; others bathed whenever the temperature reached $39-39.5^{\circ}$ C. and even used ten to fifteen cold baths in twenty-four hours. This repeated bathing, from the movement, etc., may weaken the patient more than the abstracting of heat would improve, so that others bathed less and with less cool water. Then came a period in which the fever was considered a curative agent and that it was better not to combat it too much. The high fever is not always the index of treatment, for in cases where the temperature rises to $40-41^{\circ}$, if it is only temporary, no treatment may be necessary; the same with fever with spontaneous large remissions or intermissions. In continuous high fever one should seek to reduce it. Liebermeister believes that a strict Brand treatment is not necessary and that the end may be attained with less trouble for the patient. The danger is sufficiently combated if the fever is changed from a continuous to a remittent or intermittent type. Liebermeister bathes preferably when the fever tends to descend, between 7 p.m. and 7 a.m.—so that he bathes especially at night. The temperature is taken every one to two hours, and the bath given according to the degree. The lower baths are given later in the night. The patient is bathed between 7 and 11 p.m. if the temperature, per rectum, exceeds 40° ; between 12 and 3, if the temperature has reached 39.5° ; between 4 and 7 a.m., if it has reached 39° , and during the day, if there is an unusual temperature. Cold applications, ice bags, etc., may be used at any time. The baths should be at $18-25^{\circ}$ C. and should last ten minutes. Susceptible patients may be bathed at $30-32^{\circ}$, but then the patient should remain longer in the bath. Again, it may be advisable to begin with warm baths and gradually cool down. Warmer baths may be used for children. Antipyretics, as quinine, phenacetine, etc., can be given late in the evening. Klemperer believes the Brand method should be modified, but suggests that the febrile patients need rest at night, and he is disposed to accept Liebermeister's rules; if the patient rests from 12 p.m. to 7 a.m., so that if the temperature at 12 p.m. exceeded 39° , he would order an antipyretic internally. At v. Leyden's clinic, it is the custom to give small doses of morphine to secure sleep for typhoid patients. Liebermeister has treated 315 cases of typhoid as follows: 79 without baths or antipyretics; 88 by baths alone; 126 by baths and antipyretics, and 22 by antipyretics alone. Of the 214 cases treated by baths, 72 received 1-10;

43, 11-20; 32, 21-30; 18, 31-40; 35, 41-60; 9, 61-80; 1, 81-100; 4, over 100 baths. Curschmann, in his classic work on typhoid fever, holds that the rise in temperature is only one of the symptoms of fever, and that the condition of the central nervous system, pulse and respiration, is the real guide. Only unusually high temperatures long continued are to be combated. He holds that antipyresis is indicated not only for high temperature, but even if the toxic action of the infection is very severe at low temperature. If one does not know how susceptible the patient is, the bath at 25-27° R. may first be used. The second can be gradually cooled to 22-20° R., then further to 18° if necessary. The bath should at first be only for ten to fifteen minutes, gradually increased to twenty to thirty minutes. Each patient receives small quantities of alcohol after the bath. Usually two to four baths in the twenty-four hours are sufficient. He limits the complete antipyretic treatment to severe cases with symptoms of intense poisoning. Intestinal hemorrhage, cardiac weakness, peritoneal irritation, large pleural effusions and laryngeal affections are contraindications to bathing. Curschmann thinks the antipyretics should be put more and more in the background. Winternitz considers it a mistake not to begin at once the cold water treatment.

PHYSICAL ANTI-FAT CURES.

Winternitz says, in the *Ther. d. Gegenw.*, 1899, p. 50, that the various forms of obesity may be improved and even cured without essentially changing the quantity or quality of the food. Heat, cold and muscular work methodically used, are the agents which cause an increased physiological using up of fat. The treatment by cutting off the food is attended by a certain grade of inanition and consequent injury to the organism. There are especially two classes of cases of obesity—the anemic and plethoric. In both types heredity may play a predisposing rôle. In the anemic form, the deposition of fat may be the result of complicated diseases. After chronic rheumatism, which causes more or less anemia, in uratic diatheses etc., the deposition of fat is secondary. The other form appears in robust individuals as a result of over-nourishment, deficient muscular exercise, etc. Here, besides the manner of life, temperament plays a part. There are also other cases, which, in spite of hygienic and dietetic precautions, become fat. This type may be seen in those not hereditarily disposed to obesity. These are cases of true obesity. Good results are often here merely temporary. Thermic increase of heat production must cause an increased using up of fat, if the

organic heat is the end product of the oxydation of nitrogenous bodies. Muscle contraction also plays an important rôle here. The lowering of the body temperature by the water cure hinders in the increased heat production, a febrile rise in temperature and consequent increased albumen decomposition. Increase in sweat elimination removes toxic bodies. By changing the constitution of the blood the destruction of the albumen molecule is hindered so that we control the constitution of the blood, the metabolism, etc., by heat, cold, sweating and muscular work, and in the anemic and hyperemic forms the result is almost a certainty. In the anemic form, in persons with a pale skin and with various eruptions, scanty urine rich in uric acid, and with the various other symptoms of anemia, one should improve the circulation, metabolism, and the eliminations. As soon as the patient can devote his whole time to the treatment he should, after first warming the body, carry out various procedures at low temperature requiring great mechanical force. The exercises should be short and often repeated. In persons unused to thermic and mechanical methods, they should begin the day with washing and rubbing, so that they do not sleep too long during the day. In a few days the steam chests, electric light baths, followed by a plunge in the lake, may be used. These baths, on account of their short duration and from the low conductivity of the subcutaneous tissues of these persons, may be used at a low temperature— 18° to 16° R. or lower. These procedures are to be followed by walking, etc., but when the pulse frequency or respiration will not permit this, the rewarming should be effected by gymnastics, active and passive. At mid-day a short cold shower bath (15 to 20 seconds) may be used and this may be preceded by a sweat bath. In case there is constipation or delayed digestion, a cold sitz bath (12 to 15° for five minutes) with vigorous rubbing of the abdomen should accompany the shower bath. In the afternoon, after digestion is complete, a bath to the waist, combined with massage and vigorous rubbing, etc., of the abdominal walls, with douching. During the warm months stimulating fomentations are recommended. They accelerate digestion, improve the abdominal circulation and remove local accumulations of fat. In the treatment of the plethoric type, prolonged moist or dry packs, followed by diaphoretic procedures with the least stimulation of the circulation, are to be used. It is important that the bed-room should be as free as possible from the exhalation products of respiration. The duration of the treatment varies.

INFANT FEEDING.

As the season is fast approaching in which so much trouble is experienced from the gastro-intestinal ailments of infants and children a word as to the best food would not appear to us inappropriate. For a long time we have given various foods, suiting them to the age of the child by dilution. This was manifestly unscientific in principle and wrong in practice, as the modifications in the mothers' milk are not those of dilution, but an alteration in the proportion of the various constituents in relation to each other, so that dilution does not nearly satisfy the case. At present the best solution of this problem, as regards prepared foods, has been offered by Messrs. Allen & Hanbury, who make three foods: the first, for use up to three months, is in the form of a dry powder which has been prepared from cows' milk, the excess of casein having been removed and the fats, soluble albumen and milk sugar corrected. Number two, which is designed for use from three to six months, contains more nourishment, in the form of maltose, albumenoids and phosphates from the whole meal, as at this age the infant does not digest starch, unconverted starch is absent. These foods can be combined with one another and may be used while the child is still receiving nourishment from the mother without disturbance of digestion. For children of six months or older there is a stronger food known as No. 3. These valuable foods known as "Allenburys No. 1, 2 or 3, can now be obtained here from Mr. W. Lloyd Wood, who is the agent of the English manufacturers, and we cannot too strongly recommend them to the profession.

Editorial Abstracts.

ACTION OF PIPERIDIN AND ADRENAL EXTRACT UPON THE CIRCULATION.

VELICH, A.—Comparative investigations on the action of piperidin and the adrenal extract upon the circulation. (*Wien. klin Rundschau*, 1898, pp. 521, 541, 572.) Piperidin intravenously injected into dogs causes a temporary rise in blood pressure and irritation of the vagus. The rise in blood pressure appears after destruction of the medulla, or after paralysis of the vaso-constrictor centres of the cord with chloral or curare, or even after the complete destruction of the cord. Piperidin contracts the vessels by a peripheral action. The cerebral vessels and pulmonary branches do not, however, contract. If the injection is repeated too often there is no rise. The retardation in pulse rate which occurs

is due to central vagus irritation. After cutting the vagi, or paralyzing the peripheral centres with atropin, or extirpating of the stellate ganglia, or destruction of the cord, piperidin causes a pulse acceleration, due to an action upon the heart. On repeated injections the acceleration becomes less and less. The acceleration occurs even with vagi intact, if the vagus centre is first paralyzed with curare. In spite of the agreement in action with adrenal extract, yet in animals with the vagi cut, and when repeated injections of piperidin have proved fruitless, yet now adrenal extract causes a rise in pressure and acceleration in pulse rate.—From *Cent. f. Physiol.*, 1899, v. 13, p. 20.

THEORY OF THE ACTION OF SALTS.

MUENZER, E.—Theory of the action of salts. (*Arch. f. exp. Path.*, v. 41, p. 74.) Five to ten per cent. warm solutions of dextrose and various sodium salts, as the chloride, nitrate, iodide, phosphate, butyrate, etc., were injected slowly into the jugular vein of rabbits until death occurred. From the beginning of the injection the blood pressure constantly sank, the respirations became slow and deep, while the pulse maintained its frequency for a long time. Especially to be noted were the nervous, irritative symptoms and the marked diuresis. In the case of sodium chloride, sulphate, bicarbonate and nitrate the diuresis was more than double the amount injected. About 40 per cent. of the salts were eliminated by the urine. The rest of the salts was distributed in the blood and part went into the tissues. The water increased in the blood about 6 per cent.; there was a passage of water from the tissues into the blood and a consequent drying of the tissues. From *Cent. f. Physiol.*, 1899, v. 13, p. 10.

BERBERIN IN THE TREATMENT OF LEUCEMIA.

LITTEN (*Krankheiten der Milz.*, p. 170) claims that while berberin does not prevent a fatal termination in leucemia and pseudoleucemia, yet it gives temporarily good results by increasing the appetite, obviating the constipation and improving the general condition. At times the splenic tumor diminishes. It can be used as follows:

℞ Berberin sulf. solubiie	2.0
Tr. chin. comp.	15.0
Tr. aurant. cort.	2.0
Syr. simpl.	18.0

M.D.S.: Every five hours one teaspoonful.—From *Ther. d. Gegenw.*, 1899, p. 192.

ACUTE POISONING WITH VARIOUS ALCOHOLS.

BEAR, G.—Contribution to the knowledge of the acute poisoning with various alcohols. (*Inaug. Dissert.*, Berlin, 1898.) The toxicity of the alcohols increases with their boiling point. Methyl alcohol acts less toxic than ethyl; propyl twice, butyl three times and amyl four times as toxic as ethyl alcohol. The addition of 4% of a higher boiling alcohol increases considerably the toxicity of ethyl alcohol, while the addition of 2% of a higher boiling alcohol increases the toxicity much less, and the addition of only 1% increases the toxicity slightly, if at all. The addition of 1 to 2% of furfural increases markedly the toxicity. Furfural is much more toxic than amyl alcohol, but has been over-estimated.

PHESIN AND COSAPRIN.

LENTZ, O., AND TENDLAU, B.—Phesin and cosaprin (Roche) (*Berl. klin. Woch.*, 1898, p. 881.) These two new antipyretics are made by sulphonizing phenacetin and antifebrin. Hypodermic use of cosaprin causes pain which soon subsides, but in the case of phesin may persist for a day. The authors claim that they have little or no antipyretic action and that they cannot replace their mother substances (phenacetin and antipyrin), either as an anodyne, or as an antipyretic.

IN whooping cough peronin has proved decidedly efficient. It is well borne and moderates markedly the attacks. Ebersson prescribes the following:

℞	Dec. Altheæ	90.0
	Peronin (Merck).....	0.08
	Syr. Altheæ ad	100.0

M. D. S.: Three teaspoonfuls daily for a child four years old. Each teaspoonful contains 4 mg. The dose of peronin for children is one mg. for each year.—*Ther. d. Gegenw*, 1895, n.s., v. 4, p. 23.

FOR DIARRHEA.—(M. A. Pick.)

℞	Alumin	0.1
	Opii	0.01—0.02
	Bismuth. Salicyl	0.3—0.6

Fiant capsulæ amylic. tales ℥ x. Sig.—Three capsules daily.—*Ther. d. Gegenw*, 1898, n.s., v. 4, p. 14.

Editorial Notes.

ON August 30th, 31st, and September 1st, 1899, the next annual meeting of the Canadian Medical Association will be held at Toronto under the presidency of Mr. Irving H. Cameron. It is now some ten years since this association met in Toronto, and every effort will be put forward to make this the most successful meeting ever held. One of the most interesting features of the meeting will be the probable arrangement of the final details of a scheme whereby Dominion registration will become, in the near future, an accomplished fact. This, together with an ever-growing interest in the value of the association as a promoter of scientific research, will add materially to the success of the Toronto gathering.

A HOSPITAL'S RESPONSIBILITY FOR A NURSE'S NEGLIGENCE.—Some time ago, a woman went to St. Vincent's Hospital to have an operation performed. She was put under ether, and when she regained consciousness after the operation she complained of pain in one leg. It was found that a hot-water bottle was lying on the leg and had caused injuries which, it was claimed, resulted in permanent disability. The patient sued the hospital for \$30,000 damages. At the trial term the complaint was dismissed, the judge affirming that the hospital authorities could not be held responsible. The case was appealed, and now the Appellate Division has handed down a decision that the hospital cannot escape responsibility in that way and a new trial has been ordered.

DEATH FROM HEADACHE POWDERS.—Three deaths from the taking of headache powders having occurred recently in Allegheny County, Pa., the coroner's jury on the last case recommended that precautionary notices be printed on all such preparations containing coal-tar products, and that a State law be enacted to enforce this regulation. In the absence of such a law, druggists were urged to warn patrons as to the danger of using powders of this sort. It would be well, besides, if the ingredients of such preparations were printed conspicuously on some part of the wrappers in which they were contained, and still better if their sale was prohibited except on the prescription of a physician.

SCHOOLGIRLS AND CORSETS.—The Saxon Minister of Education has recently issued a decree forbidding girls attending public schools in Dresden to wear corsets.

Physicians' Library.

NEW BOOKS RECEIVED.

Nervous and Mental Diseases. By ARCHIBALD CHURCH, M.D., and FREDERICK PETERSON, M.D. With 305 illustrations. Toronto: J. A. Carveth & Co. Philadelphia: W. B. Saunders. Price, cloth, \$5.00; half morocco, \$6.00.

This book is one eminently qualified for use by medical students and general practitioners. It shows careful revision and sifting of the literature, with such revision as they state accords with their own experience and practice. They have been successful within the limits of a single volume in giving a complete review of these important subjects. This has been accomplished by a clear, direct and brief presentation of the facts. The portion referring to neurology has been the work of Dr. Church, while that pertaining to psychiatry has been done by Dr. Peterson. It will, therefore, be seen that in this one volume we have practically two distinct works by separate authors. We can heartily commend this book to all requiring a lucid, practical up-to-date exposition of these subjects.

Saunders's Medical Hand-atlases. Atlas of Diseases of the Skin, including an Epitome of Pathology and Treatment. By PROF. DR. FRANZ MRACEK, of Vienna. Edited by HENRY W. STELWAGON, M.D., PH.D. With 63 colored plates and 39 full page, half-tone illustrations. Toronto: J. A. Carveth & Co. Philadelphia: W. B. Saunders. Price, \$3.50.

What we have said before in reference to these valuable publications is fully upheld by the one now to hand. Skin diseases are an ever-present trouble to the general practitioner, and only in such a work as this can we find that timely clinical picture we so often require.

The Twelve Tissue Remedies of Schüssler. Comprising the Theory, Therapeutic Application, Materia Medica, and a complete refertory of these remedies. Homeopathically and Bio-Chemically considered. By WILLIAM BOERICKE, M.D., and WILLIS A. DEWEY, M.D. Fourth edition re-written and enlarged. Philadelphia: Boericke & Tafel, Publishers. Price, cloth, \$2.50; by mail, \$2.75.

Annual and Analytical Cyclopaedia of Practical Medicine By CHARLES E. DE M. SAJOUS, M.D., and one hundred Associate Editors; assisted by Corresponding Editors, Collaborators and Correspondents. Illustrated with chromo-lithographs, engravings and maps. Vol. III., Dislocations to Infantile Myxedema. Philadelphia: The F. A. Davis & Co., Publishers.

The Anatomy of the Central Nervous System of Man and of the Vertebrates in General. BY PROF. LUDWIG EDINGER, M.D. Translated from the fifth German edition, by Winfield S. Hall, Ph.D., M.D., assisted by Philo Leon Holland, M.D., and Edward P. Carlton, B.S. Illustrated with 258 engravings. Philadelphia: The F. A. Davis Co., Publishers.

Practical Materia Medica for Nurses. With an Appendix Containing Poisons and their Antidotes, with Poison-Emergencies, Mineral Waters, Weights and Measures, Dose-list, and a glossary of the terms used in Materia Medica and Therapeutics. By EMILY A. M. STONEY. Toronto: J. A. Carveth & Co. Philadelphia: W. B. Saunders. Price, \$1.50.

Diseases of the Eye. A Hand-book of Ophthalmic Practice for Students and Practitioners. By G. E. DESCHWEINITZ, A.M., M.D. With 255 illustrations and two chromo-lithographic plates. Third edition, thoroughly revised. Toronto: J. A. Carveth & Co. Philadelphia: W. B. Saunders. Price, cloth, \$4.00; sheep or half morocco, \$5.00.

A Text-Book on Practical Obstetrics. By EGBERT H. GRAUDIN, M.D. With a collaboration of George W. Jarman, M.D. Second edition, revised and enlarged. Illustrated with sixty-four full-page photographic plates and eighty-six illustrations in the text. Philadelphia: The F. A. Davis Co., Publishers. Extra cloth, \$4.50; sheep, \$4.75.

Diseases of the Ear, Nose and Throat, and their Accessory Cavities. By SETH SCOTT BISHOP, M.D., D.C.L., LL.D. Second edition, thoroughly revised and enlarged. Illustrated with ninety-four colored lithographs and two hundred and sixteen additional illustrations. Philadelphia: The F. A. Davis Co., Publishers.

Twentieth Century Practice. An International Encyclopedia of Modern Medical Science by leading authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. In twenty volumes. Vol. XVI. Infectious Diseases. New York: Messrs. William Wood & Co., Publishers.



Scott's Emulsion

is an emulsion of cod-liver oil,

Which contains the whole oil, all of it.

It is not a mixture of wine or alcohol with a little iodine and bromine.

It will not intoxicate nor lead to the alcohol habit.

It does not depend upon a stimulant for its therapeutic power.

It is, however, precisely what it claims to be:

*The Best Norwegian Cod-Liver Oil.
The Hypophosphites and Glycerine.*

Scott's Emulsion is a Food—not a stimulant.

Scott's Emulsion is a Fact—not an experiment.

Scott's Emulsion contains Fat—not a drop of alcohol.

Whenever cod-liver oil and the hypophosphites are indicated, we ask you to prescribe "Scott's Emulsion," always permanent and palatable.

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General Physiology. An Outline of the Science of Life. By MAX VERWORN, M.D., PH.D. Translated from the second German edition and edited by FREDERIC S. LEE, PH.D. With 285 illustrations. New York: The Macmillan Company.

An Epitome of the History of Medicine. By ROSWELL PARK, A.M., M.D. Second edition. Illustrated with portraits and other engravings. Philadelphia: The F. A. Davis Co., Publishers. Extra cloth, \$2.00

The Sexual Instinct: Its Use and Dangers as Affecting Heredity and Morals. By JAMES FOSTER SCOTT, B.A., M.D., C.M. New York: E. B. Treat & Company. Price, \$2.00.

Defective Eyesight. The Principles of its Relief by Glasses. By D. B. St. John ROOSA, M.D., LL.D. New York: The Macmillan Company, Publishers. Price, \$1.00.

Electro-Hemostasis in Operative Surgery. By ALEXANDER J. C. SKENE, M.D., LL.D. New York: D. Appelton & Co., Publishers.

REPRINTS RECEIVED.

"The Pharmacologic Assay of the Heart Tonics." By E. M. HOUGHTON, M.D., Lecturer on Experimental Pharmacology, Detroit College of Medicine; Director of Pharmacologic Laboratory of Parke, Davies & Co. Detroit, Mich.

"Appendicitis. Observations on Sixty-two Operations in the Attack, With Two Deaths." By GEORGE W. CRILL, M.D., Cleveland.

"Urotropin in Cystitis." By J. B. MCGEE, M.D., Professor of Therapeutics, College of Physicians and Surgeons, Cleveland, Ohio.

"A Rapid and Successful Treatment of Chronic Ulcers of the Leg." By A. H. OHMANN-DUMESNIL, A.M., M.D., St. Louis, Mo.

"Ergot Aseptic." By E. M. HOUGHTON, PH.C., M.D.