CLINICAL NOTES ON NERVOUS DISEASES OF WOMEN.

BY

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NEW YORK.

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VII.

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THE division of medicine into different specialties has undoubtedly increased our knowledge. In this way identical or similar facts are accumulated within the sphere of the same observer, thus affording him sufficient material particularly adapted for researches by the inductive method, that must be the basis of medical investigation. But in order that the single observations should not degenerate into a routine registration of facts, without any organic connection, these observations of the physician, like those of the natural philosopher, should be controlled, or rather guided, by the deductive method. For this reason it is justly required from the physician to be thoroughly acquainted with the whole domain of medicine and its collateral sciences, as well as with the modern methods of investigation, before devoting himself to some special branch. Thus every physician, even one with a limited field of observation, is enabled to contribute to the general stock of our knowledge. In the following notes I merely give some general conclusions drawn from observations of a number of cases presenting the same characteristic features. The detailed histories being important only to the writer, I omit giving them, knowing from my own experience how tedious and useless they often are to the reader.

During the last seven or eight years I have often had the opportunity of observing cases of the peculiar kind of paralysis that is caused by lead-poisoning. The majority of the patients were ladies of good social standing, and as a rule, the primary cause of their disease was generally ascribed to some affection of the spinal cord. A careful examination, however, could always reveal the true nature of the malady, especially in those typical cases, where only the extensor muscles of the fore-arms were paralyzed and atrophied. The correctness of the diagnosis could be established not only by the charac-

ter of the electro-muscular contractility and other pathognomonic symptoms, but also by the experimentum crucis—the presence of lead in the urine. I could further ascertain that the poisoning was produced in almost all the cases by a continued and liberal use of cosmetics containing lead.

Lastly, I found in a considerable number of the persons thus affected an intense degree of Vaginismus, in consequence of which the married ladies were sterile, as sexual intercourse was almost impossible. I therefore concluded that vaginismus must be a symptom of lead-poisoning, analogous to the well-known Saturnine colic.*

Indeed, by treating the general lead-poisoning (with iodide of potassium, sulphur, etc.), the vaginismus would disappear by itself, thus corroborating my supposition.

The relation of the lead-poisoning to the vaginismus was not always the same. In some cases the vaginismus has been already intensely developed many years before the paralysis appeared. These cases were generally treated as hysterical or reflex paralysis, and the affection of the genital organs, especially if there was a displacement or some other morbid condition of the womb, was considered as the primary cause of the paralysis, and attracted therefore the principal attention. In other cases the vaginismus was not accompanied by real paralysis, but only by a general weakness of the whole muscular system, or by a paretic condition and incipient atrophy of the extensor muscles of the forearms, with diminished electro-muscular contractility. Again, there were cases of lead-palsy without vaginismus, though even in these a considerable amount of irritability of the introitus vaginæ could be found. However plausible it seemed to me that vaginismus is a symptom of lead-poisoning, yet such an assertion would remain a mere hypothesis unless it could be experimentally demonstrated. New clinical observations offered me the opportunity of testing its value.†

Madame L., a distinguished French actress, æt. 28, married 5 years but sterile, has suffered of intense vaginismus for years before she came under my care, Feb. 16, 1869. I suspected lead-poisoning through the use of cosmetics, and the chemical analysis of the urine demonstrated the presence of lead. Feb. 17, I was sent for in great haste, as the patient was suffering from an attack of Saturnine colic, with all its characteristic symptoms so well described by Tanquerel des Planches, in his classical work.‡ The vascular system especially presented very remarkable phenomena. The face and extremities

* Neftel. Zur Ætiology des Vaginismus. Centralblatt fur die med. Wissensch. 1868, No. 52.
† Etiology of Vaginismus, Med. Record, 1869, No. 3, p. 70.
‡ Traité des maladies de plomb ou saturnines. Paris, 1839.

of the young and vigorous patient were pale and cold, the contractions of the heart extremely feeble, and the pulse small, hard and slow, with only 44 beats. These phenomena are explained by Brown-Séquard's* discovery, made long before Goltz's† and Bernstein's‡ experiments, showing that irritation of sensitive abdominal nerves produces a reflex irritation of the vagus, viz. : retardation of the contractions of the heart. The case named was undoubtedly one of lead-poisoning (by means of cosmetics), with the symptoms of vaginismus and colic, though without paralysis of the extensor muscles of the forearms. The patient said, however, that she had felt for some time a weakness in the forearms, especially in the wrists, which were occasionally painful, and the electro-muscular contractility was found diminished. I may add that the usual treatment for lead-poisoning removed the colic and also the vaginismus, from which latter she had suffered for so many years.

Twice I treated married and sterile ladies who have been suffering from vaginismus, though they have not been using cosmetics containing lead. However, they have often had preparations of lead prescribed against a chronic diarrhœa, which for many years could be checked solely by this remedy. In these cases, too, the treatment of the lead-poisoning has also removed the vaginismus.

When Dr. J. Marion Sims so graphically and correctly described this morbid condition, he was justly impressed with its purely nervous character and named it vaginismus, reminding, as it were, of analogous spasmodic affections—blepharismus, laryngismus. I cannot agree with the opinion of Scanzoni, Martin, and others, who consider this spasmodic condition as a consequence of local inflammatory irritation of the external genital organs ; though I admit that this latter may occur as an accidental complication. The cases of vaginismus I had the opportunity of observing, among which were several unmarried ladies, certainly manifested themselves as a pure neurosis, a spasmodic hyperæsthesia, without inflammation of the vagina or other parts. Nor can I agree that the spasmodic contraction is due exclusively to the constrictor cunni muscle (Scanzoni) or to the levator ani (Hildebrandt). It seemed to me that not only both these muscles, but all the other ano-perineal muscles—ischio-cavernosus, transversi perinei, sphincter ani—participate in the production of the spasm in vaginismus.

With reference to the treatment of vaginismus I shall mention the oldest surgical method of John Burns, consisting in the section of the pudic nerve. A relapse, however, usually follows this opera-

* Rech. expér. sur la physiol. et la pathol. des capsules surrénales. Paris, 1856, p. 30, and Course of Lect. on the Physiol. and Pathol. of the Central Nerv. Syst. Phila. 1860, p. 159.

† Goltz. Vagus & Herz. Virchow's Archiv, Bd. XXVI. p. 1.

‡ Bernstein. Vagus & Sympathicus. Centralb. f. d. m. Wiss. 1864. No. 16.

tion, as proved by Simpson, who considered it as a mere palliative measure. Even on mere theoretical grounds the operation is not to be recommended, because the modern improved methods of electro-therapeutics have taught us to substitute with great advantage in neuralgic affections the galvanic treatment for neurotomy. The well-known surgical method of Sims was the only one efficient in the treat ment of vaginismus. Scanzoni, basing himself on the inflammatory origin of vaginismus, rejects altogether the surgical treatment, as in alleviating the local irritation with bath, poultices, etc., he succeeded to remove the spasm. This may be the case where the vaginismus is complicated and aggravated by local irritation, but the pure neuralgic form will not always yield to such a treatment.

That patients affected with vaginismus improve under different modes of treatment, medical as well as surgical, I chiefly ascribe to the circumstance that they generally discontinue the use of cosmetics during the treatment, especially during a more severe one, while at least a portion of the lead is eliminated from the system with the secretions. Considering vaginismus as a symptom of lead-poisoning, the most rational indication seemed to me the treatment of the latter. For that purpose I prescribe iodide of potassium in larger doses, the iodine forming a soluble combination with lead, which is thus eliminated. The internal use of this remedy alone is sufficient to cure the vaginismus. In order to hasten this result, I sometimes use in married ladies, besides the iodide of potassium, a weak galvanic current, bringing the hyperæsthetic parts under the influence of the anode. The whole treatment is not painful, and does not interfere with the daily occupations of the patient. No relapse has ever occurred in these cases.

There remains the following question to be answered, but it must be left to the gynecologists. Do all the cases of vaginismus originate from lead-poisoning, or does there exist besides this symptomatic affection an idiopathic one, perfectly independent of the lead-poisoning? In the ten cases I had the opportunity of observing, the vaginismus has always been accompanied or followed by other symptoms of lead-poisoning.

With reference to the lead-palsy, which often is limited only to the extensor muscles of the forearms and hands, I will mention that besides the internal treatment with iodide of potassium, the use of electricity, and especially of the galvanic current, is quite indispensable to restore the functions of the atrophied muscles. The most efficient method is to pass a stabile ascending current through the nerve-trunks of the affected extremities. After the return of the electro-muscular contractility, faradization of the peripheric nerves

and of the atrophied muscles may also be resorted to with benefit.

Besides cosmetics, which are the most frequent source of lead-poisoning in women, the water-pipes, especially the corroded ones, contribute to the development of symptoms of lead-poisoning in susceptible persons. It would, therefore, be a great benefit to the community if the lead pipes for drinking-water were altogether abolished and substituted by iron-pipes.

(To be continued.)

XI.

CLINICAL NOTES ON NERVOUS DISEASES OF WOMEN.

BY

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NEW YORK.

(*Continued from p. 271, March, 1873, No. 3.*)

THE affection to which I now desire to call the attention of gynecologists is dysmenorrhœa. In another place* I have spoken of its yielding to the galvanic treatment, but hesitated to give an account of this method until time and more numerous cases would have confirmed my first observations.

The majority of patients, before coming under my care, had been treated for a considerable time, some even for many years, by the most skilful gynecologists, who had exhausted all the remedies and tried the different surgical methods without avail.

The following being my first case of dysmenorrhœa treated with the galvanic current, I give a more detailed history of it, though it is contrary to the plan adopted by me in this article.

Mrs. P., aged 24, married six years, but sterile, suffered from dysmenorrhœa in its intensest form. She had regularly menstruated from her thirteenth year, and was always healthy until seven months before her marriage, when she had a fall, striking with great violence in the lumbar region against a solid wooden box. The accident was immediately followed by the untimely appearance of a very profuse menstrual flow. Since then she suffered a great deal of pain in the lumbar and the left part of the hypogastric regions, and also of profuse menstruation accompanied by the severest dysmenorrhœa. Several distinguished gynecologists treated her in succession with different internal remedies, especially narcotics, and using sponge-tents and other applications to the uterus. Her general health, however, and the local affection of the genital organs, grew constantly worse. Even during the intervals of the painful menstruation she complained of constant bearing-down pain, of dyspepsia, loss of appetite and sleep, and of general debility.

An incision of the neck of the womb was performed, followed by applications of caustics, in combination with large doses of opiates, during the menstruation. Under this treatment, which lasted eighteen months, all the symptoms became very

* Galvano-Therapeutics, p. 109.

much aggravated. The menstruation assumed the character of menorrhagia, and the intense dysmenorrhœa necessitated the keeping in bed of the patient under the complete influence of opiates.

I first saw the patient April 20, 1870, and found her well-built, but very pale and thin, the uterus increased in size, especially the neck, indurated, tender to the touch, and showing a cicatrix from the previous incision. She complained of a dull headache, a sensation of fulness and heaviness in the lower part of the abdomen, of a burning sensation in the internal genital organs, with bearing-down pains. She was scarcely able to walk, especially up the stairs, could not stand or sit straight, and was obliged to lie down most of the time. She had very little sleep or appetite, and ate no meat at all. The tongue was coated, and she complained of different symptoms of dyspepsia.

I commenced the galvanic treatment a few days before the expected menstruation, Aug. 22. A stabile current of 20 Siemen's elements was used, applying the anode to the dorsal and lumbar regions, and the cathode to the hypogastric region, over the ovaries and uterus. On the following three days the anode of a current of 12 to 17 Siem. elements was applied to the nape of the neck, and to the lumbar region; the cathode as before. The effect of this treatment was extremely favorable. The headaches, the pain in the back and in the region of the left ovary disappeared. She felt stronger, and could walk a considerable distance—had a good appetite, and slept better than she had for a long time. The menstruation appeared painless for the first time after so many years, and the loss of blood was perfectly normal, so that the patient, who, on former occasions, was obliged to keep her bed during the entire period, remained up, and suffered from none of the former symptoms.

I repeated the galvanic treatment at different times, after long intervals. The general health of the patient became completely restored, the chronic metritis has disappeared, and the menstruation is still perfectly normal.

This change had been so sudden and so complete that it aroused a doubt in my own mind. I knew not whether it had to be ascribed to the galvanic treatment, or simply to the discontinuance of the former, especially of the last severe, treatment. This supposition seemed so much the more probable, as, judging from the earlier history of the case, the patient must have been entirely free from any structural uterine disease. The chronic metritis might have developed itself either in consequence of the accident, or perhaps from the frequent use of sponge-tents and other intra-uterine medications employed against the dysmenorrhœa, and it might have disappeared spontaneously, thus removing the cause of the dysmenorrhœa.

Other cases of dysmenorrhœa, in which I obtained the same result, would have confirmed the efficacy of the galvanic treatment, had not all these patients, like my first, previously undergone different heroic treatments. At last some cases of severe dysmenorrhœa came under my care, which had been treated only by the expectant method, though narcotics were necessarily administered during the menstruation, and to correct displacements of the uterus simple pessaries were worn in the intervals. In these cases the womb presented vari-

ous conditions; either there was no morbid alteration, or there was anteflexion, or an undeveloped state, conical neck, etc.

One of the first cases belonging to this category was a patient of Dr. Steele, of this city.

Mrs. H., aged 26, married several years, but sterile, always suffered from dysmenorrhœa that became more intense after a miscarriage in the seventh month of pregnancy. Her menstrual flow has always been very scanty, and for several days during her period she had to remain in bed under the influence of narcotics. For the last two years she was under the treatment of a distinguished gynecologist, who tried different mild methods with no improvement of the dysmenorrhœa. I commenced the galvanic treatment Dec. 13, 1871, and the second period came on quite painless. While, before the galvanic treatment, the unpleasant premonitory symptoms would keep her at home on the approach of the menstruation and in bed during several days, it now appears without any warning, allowing her to exercise every day in the open air.

It would be too monotonous to give the histories of analogous cases, and I shall only mention the following case of dysmenorrhœa, particularly interesting on account of its complications. Miss T., about 35 years old, belongs to a very healthy family, and was formerly in comparatively good health. Whilst travelling in Europe, she exposed herself to a great deal of fatigue and atmospheric changes during her monthly period, which suddenly became very painful, and remained so during the last twelve years, notwithstanding the different modes of treatment she was subjected to by a number of experienced physicians. During three days of every month she suffered intense pains, besides being obliged the week preceding and following the menstruation to remain in bed, owing to the great prostration. The menstruation was very profuse and irregular, appearing sometimes at intervals of ten or fourteen days. She was chlorotic, extremely emaciated, and her hearing was very much impaired, the galvanic reaction of the auditory nerve exhibiting qualitative changes of Brenner's formula. My attempt to make a digital examination was frustrated by the intense vaginismus the patient was suffering from. Oct. 24, 1872, I commenced the treatment of vaginismus and dysmenorrhœa with iodide of potassium and the galvanic current. Her next menstruation was very little painful; she was not in bed, and could even walk outside the house. The vaginismus having almost disappeared, I was able to make an examination, and found all the genital organs in a perfectly healthy condition. They were undoubtedly so before the beginning of the treatment, which could not have produced any material change in so short a time.

Thus, a fact important for the theory of dysmenorrhœa has been demonstrated to me, namely, that the most intense dysmenorrhœa may exist without any organic affection of the uterus and its adnexa, and that dysmenorrhœa may last for many years without producing an organic affection of these organs.

In this case, as in the others, the dysmenorrhœa yielded to the galvanic treatment.

The particulars of the method shall be described when speaking of amenorrhœa and other disturbances of menstruation.

It is evident that dysmenorrhœa is a symptom accompanying various morbid conditions of the uterus. The fact that dysmenorrhœa may occasionally exist without any structural alteration of the uterus, proves that it belongs to the so-called functional diseases, and is analogous to other visceral neuralgias. Therefore the mechanism which produces the phenomena of dysmenorrhœa must be essentially the same, however different may be its primary cause; it depends upon some nervous, probably spasmodic, affection of the uterus.

As an illustration of this, I shall briefly mention the following two cases:—

Miss P., aged 38, well built, but exceedingly anæmic, has suffered, during the last ten years, of dysmenorrhœa, with very profuse menstruation, generally lasting eight or ten days. During the first four days of menstruation she suffered excruciating pains, nausea, and vomited constantly after each meal. For the last year she has entirely given up taking food through the stomach during the first four days of menstruation, and takes instead an enema of beef-tea, to which laudanum is added. The uterus is anteflected, and presents a tumor of the size of a child's head. The increased size of the uterus is owing to the existence of a fibro-myoma, which is partially intramural and partially protruding into the uterine cavity. A few years ago, to relieve the menstrual pain, an incision of the neck of the uterus was made, however without any result. I commenced treating the patient with very strong galvanic currents, Jan. 22, 1872. After twelve daily treatments the menstruation appeared with much less pain, though she took no laudanum; she could eat, having vomited but twice during the whole period, that lasted one week. The loss of blood was less than usual, and she soon recuperated and felt stronger than on all former occasions. I continued the treatment the following month, using, especially during the week before the period, voltaic alternatives of a powerful current directed through the pelvis. Her general health has very much improved. The next menstruation came on during the night, with pains of a peculiar character, which she had never experienced before, and, according to her own description, and those present, exactly resembling pains during labor. When they reached their climax, becoming perfectly unbearable, a large solid mass was expelled through the vagina, followed by a dangerous hemorrhage and syncope. Unfortunately the solid mass was thrown away, and only half a vessel of coagulated blood was left for my examination. A spontaneous expulsion of the intra-uterine portion of the tumor undoubtedly took place, called forth, as I presume, by the powerful voltaic alternatives. Indeed, an examination through the abdominal walls and the vagina showed the uterus greatly diminished in size. It took several weeks for the patient to recuperate from the consequences of the acute anæmia. Afterwards the menstruation became normal, and the general health of the patient restored.

Besides the interest this case presents with regard to the expulsion o the tumor, it shows the possibility of abolishing the phenomena of dysmenorrhœa without removing the organic disease of the uterus by which they are caused.

This was still more evident in the following case, where the dys-

menorrhœa disappeared during many months, though the tumor, which caused it, remained almost in the same condition.

Mrs. Ch., aged 43, married 23 years, but sterile, has suffered from dysmenorrhœa, and has been treated by most distinguished gynecologists. A large fibro-myoma developed itself in the posterior wall of the uterus, which called forth various symptoms, among which were constipation of the bowels, pain in the back, difficulty to walk, etc. To remove the tumor by a surgical operation was considered perfectly impossible. I commenced to treat her daily with the galvanic current, and the next menstruation appeared without any pain.

Here the galvanic current removed the visceral neuralgia (dysmenorrhœa), though its primary cause—the tumor—could not have been much modified by it in so short a time. The continuation of the galvanic treatment, however, seemed to have subsequently diminished also the size of the tumor, in consequence of which the constipation of the bowels was removed, the patient could walk great distances without any inconvenience, and her general health was restored.

The mechanism of dysmenorrhœa can be supposed to take place in the following way: An irritation originating in the uterus (or perhaps elsewhere) is propagated to a nervous centre, whence it is transmitted to motor nerves which produce the spasmodic contraction of the muscular fibres of the uterus. Usually the irritation is caused on the mucous membrane of the uterus by the pressure of the accumulated menstrual blood, the free escape of which is impeded. The nervous centre where the irritation is transmitted from the sensitive to the motor nerves remains undetermined. Supposing this hypothesis to be correct and able to stand the test of a direct experiment, it may be asked which are the sensitive nerves conducting the reflex irritation to the motor fibres, and which are these latter that contract the uterus? This question has not yet been satisfactorily answered. It is known from the experiments of Kilian, that uterine contractions can be called forth by irritating the cerebellum, the medulla oblongata, and the spinal cord. The sympathetic is the way through which the excitation of these organs is propagated to the muscular fibres of the uterus, according to Longet, Valentin, Budge, Obernier, Frankenhaeuser, and others. Frankenhaeuser* has proved by direct experiments that the plexus uterinus is the motor nerve of the uterus. This is corroborated by the fact that all the nerve-branches composing this plexus contain motor fibres, such as the plexus mesentericus superior (the irritation of which produces contractions of the intestinal canal and of the uterus), the renal nerves, and those originating from the second and third lumbar ganglia of the sympathetic. These latter communicate with branches of the spinal cord, and Budge has produced most powerful uterine contractions by irritating this region

* Die Nerven der Gebärmutter. Jena, 1867, p. 42.

of the cord. The motor branches from the renal ganglia to the plexus uterinus bring the kidneys into close relation with the genital organs. This explains the frequent derangement of the urinary secretion during pregnancy, and in various uterine diseases.

The sacral nerves are considered as the sensitive nerves of the uterus. The following case described by Scanzoni * is very instructive with regard to these points. A woman with complete paralysis of the lower half of the body was delivered of a child without feeling any pain. The patient died ten days later, and at the post-mortem the spinal cord was found compressed by a hydatid tumor at the level of the first thoracic vertebra. The symptoms can be explained by admitting that the sympathetic produces the uterine contractions, and that the sacral nerves are the sensitive nerves of the uterus.

In dysmenorrhœa, as in other visceral neuralgias, we meet with abnormal activity of the vascular system, which must be considered as a reflex phenomenon from irritation of the sensitive abdominal nerves upon the vagus. The splanchnic nerves, the most powerful vaso-motor nerves which exercise so great an influence upon the circulation in the abdominal viscera, very probably also participate in the production of the phenomena of dysmenorrhœa.

It is likewise probable that in dysmenorrhœa the galvanic treatment not only affects directly the uterus and its nerves, but also influences them indirectly through the splanchnic nerves, by modifying the circulation in the pelvic organs.

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* Scanzoni. Lehrbuch der Geburtshülfe.

(To be continued.)

III.

CLINICAL NOTES ON NERVOUS DISEASES OF WOMEN.

BY

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NEW YORK.

(*Continued from No. 4, p. 370.*)

In female patients suffering from various affections, backache is very frequently met with. I prefer this simple name, designating but a mere symptom, to the more learned term of spinal irritation that may lead to a false interpretation. The doctrine of spinal irritation has already done much harm and greatly arrested the progress of neuro-pathology. Promulgated at first by some obscure physicians in England, it rapidly found enthusiastic adherents all over the world. Indeed, for superficial observers, it seemed an easy means to diagnosticate and treat almost every disease. The method of examining was very simple, requiring only to find over the spinal processes some places that were painful, either spontaneously or by pressure, and this was deemed sufficient to explain an affection of the corresponding organs. The treatment then had to be directed to those painful parts, and was not difficult, although varying according to the different meaning given to spinal irritation by different authors. Fortunately this fallacious doctrine met with a strong opposition on the part of such excellent physicians like Romberg,* Hasse,† Stilling and others, and called forth a salutary reaction. At present the affection hitherto described under the name of spinal irritation is entirely excluded from the nosological system, and is not even mentioned in the more recent works on nervous diseases by Eulenburg,‡ Rosenthal,§ and others.

An analysis of the phenomena constituting the so-called spinal irritation, shows that this latter is a symptom or a complex of symptoms accompanying the most different morbid conditions, in the

* Lehrbuch der Nervenkrankheiten des Menschen. Dritte Auflage. Berlin, 1853, p. 179.

† Krankheiten des Nervensystems. Zweite Auflage. Erlangen, 1869, p. 43.

‡ Lehrbuch der functionellen Nervenkrankheiten. Berlin, 1871.

§ Handbuch der Diagnostik and Therapie der Nervenkrankheiten. Erlangen, 1870.

same way as do the symptoms headache or cough accompany various affections of different organs. Thus we find spinal irritation, or, to be more plain, backache, as a symptom of neuralgia of the spinal nerves; in the cervico-occipital neuralgia, in cervico-brachial neuralgia, in intercostal neuralgia, in lumbo-abdominal neuralgia. These neuralgias appearing spontaneously and culminating in paroxysms, are often met with in anæmic persons, and we generally find this kind of backache, like other neuralgic pains, in patients whose blood has undergone some qualitative or quantitative alteration, for instance in miasmatic (malarious) and contagious diseases, in chlorosis, etc. Sometimes the backache may have its seat in the muscles, in which case the pain is not so acute as in the neuralgic form; it is more superficial, increases by certain movements, and is diminished or abolished during rest (in a quiet recumbent position).

Again, a deeply-seated pain, which is very much increased by pressure, and impedes the movements of the vertebral column, may be a sign of an affection of the vertebræ or of their articulations.

In spinal meningitis, the backache is greatly increased by every passive and active movement of the trunk and of the extremities, but not by external pressure on the spine. This backache, therefore, causes immobility by impeding the action of the muscles, which appear rigid.

In myelitis the backache is circumscribed, corresponding to the seat of the affection, and is not aggravated by movements of the extremities. According to the seat of myelitis, pain is felt also either in the extremities or on the external surface of the trunk, and in its internal organs. Moreover, the backache in myelitis is accompanied with a paralytic condition of the upper, and still oftener of the lower, extremities, and of the sphincter muscles. If myelitis is complicated with an affection of the vertebræ, the backache will be provoked and aggravated not only by pressure, but even by the least external touch, for instance, with a warm sponge, etc.

I have observed the most severe backache in patients suffering from carcinoma, after this latter has become generalized, and deposits formed in the vertebræ or in the cord and its membranes. By this peculiar kind of backache, resisting every medication, I have been enabled to make the diagnosis of cancerous diathesis in patients in whom a cancer had been previously extirpated.* The excruciating pains in the back can be explained by the presence of extremely numerous sensitive nerves, discovered by Luschka,* in the walls of the veins of the vertebral canal and in the vertebræ.

* Die Nerven des menschlichen Wirbelkanals. Tübingen, 1850.

It is obvious that the engorged and dilated veins may produce pain by their pressure upon the cord, or upon the sensitive nerves of its membranes, or upon the sensitive nerve-trunks; in the same way, pain may be produced by an increase of the cerebro-spinal fluid.

It is well known that backache frequently accompanies hysteria. In such patients the disposition to morbid sensations and to reflex movements is so great that irritation of the skin, not only of the spine, but also of the anterior surface of the trunk, especially pressure on the region of the ovaries, will call forth numerous neuralgic and reflex phenomena. The backache in hysterical persons is so intense that pressure will make them faint.

Lastly, backache may accompany affections of the organs of respiration, of circulation, and of digestion; also of the kidneys, uterus, etc. I have reason to believe that the backache of this last category depends on a peculiar morbid alteration of the spinal cord, that has recently been the subject of most exhaustive and exact clinical as well as histological researches made by L. Meyer.* I shall give an account of this morbid condition of the spinal cord in a separate paper on the recent researches in neuro-pathology. Here I shall briefly mention that accumulations of fat-granules and granule-cells are found in the cord under different circumstances. They were first noticed by Tuerck † at the autopsy of persons with inveterate organic lesions of the brain. He found this secondary degeneration of the spinal cord on the opposite side of the primary cerebral lesion. Westphal ‡ found such collections of granule-cells in the posterior and lateral columns, in the progressive paralysis of the insane, and in the gray degeneration of the cord. He assumes that the granule-cells originate from proliferation of the connective-tissue corpuscles, and considers the whole process as chronic myelitis. T. Simon § found collections of granule-cells in the spinal cord of persons who died of tuberculosis, and of other diseases accompanied with deep nutritive alterations.

L. Meyer's researches have shown that the accumulations of granule-cells are not produced by the proliferation of connective-tissue cells, and do not designate myelitis, but originate from the fatty degeneration of the walls of blood-vessels, especially of the small veins. They are found in various diseases accompanied with pro-

* Ueber die Bedeutung der Fettkörnchen und Fettkörnchenzellen im Rückenmarke und Gehirne. Archiv für Psychiatrie und Nervenkrankheiten. Bd. III. Heft 1 and 2.

† Tuerck. Zeitschrift der Gesellsch. der Aerzte in Wien, 1849. Quoted by Meyer, Simon, Westphal.

‡ Ueber Erkrankungen des Ruckenmarks bei der allgemeinen Paralyse der Irren. Virchow's Archiv, Bd. XXXIX. p. 105.

§ T. Simon Uber den Zustand des Ruckenmarkes in der Dementia paralytica, etc. Griesinger's Archiv, Bd. I. p. 583.

found nutritive changes of the system, and are seated in different parts of the cord, corresponding to the different diseased organs. Thus the upper and middle portions of the spinal cord are the seat of granule-cells in diseases of the respiratory organs, of the heart, and especially in tuberculosis. In epilepsy, the cervical portion of the cord is especially affected, whilst in diseases of the sexual and urinary organs the lumbar portion is the principal seat of the affection.

Meyer assumes that in the diseases of these organs the granule-cells present a secondary affection of the spinal cord, analogous to its secondary degeneration in organic affections of the brain. In both cases the secondary affection is developed in certain portions of the cord, through the nerves coming from the paralyzed limbs and diseased organs.

From the foregoing it follows that it is not sufficient, either practically or theoretically, to have found in a patient the existence of spinal irritation, but that we have besides to diagnosticate in each separate case the real affection of which the backache is merely a symptom. For that purpose we have to proceed according to the general rules and methods described in the treatises on special pathology and therapeutics. To these well-known diagnostic methods must be added the examination with the different electric currents, a valuable method, though still often neglected by clinicists.

This method of examination is indispensable for the diagnosis of affections of the nervous centres of the motor-nerves and muscles by calling forth the characteristic electro-muscular contractility and sensibility. It is also very valuable for testing the condition of the cutaneous sensibility and of the reflex irritability. Moreover, I found the electrical examination useful for discovering the so-called "points-douloureux" in neuralgias. On passing a button-shaped electrode of a very mild induced current over the region where the affected nerve is distributed, these points are at once noticed by the intense pain felt in them. Valleix* was the first to call the attention of the profession to the existence of painful spots or points in neuralgias. He asserted that they are always present in, and therefore pathognomonic for, real neuralgias. Although Hasse† and others have met with some exceptions to this rule, still the frequent presence and the importance of Valleix's points-douloureux in neuralgias has been admitted by Romberg‡ and others. I have found that these painful spots have a high therapeutic significance, as by acting on them with the anode of a weak galvanic current, the treatment of neuralgias is

* Traité des Névralgies. Paris, 1841, p. 666. † S. citat. p. 47.

‡ Zur Kritik der Valleix'schen Schmerzenspunkte in Neuralgien. Archiv für Psychiatrie und Nervenkrankheiten, Bd. I. p. 1.

made considerably easier and shorter. In using the current in the same manner as for ascertaining the painful points in neuralgias, we may sometimes discover affections of abdominal organs — liver, spleen—by the tenderness or pain that is provoked by moving the electrode over the regions of these organs.

By means of the galvanic current I once discovered the presence of malarial poison in the following case :—

Mrs. K., ætat. 45, of a robust constitution, suffered for several months from obscure symptoms of a nervous character, with general prostration, loss of sleep and of appetite, backache, and especially acute rheumatic pain in the right shoulder, impeding the movements of the whole arm. I employed a galvanic current of 20 to 30 Siem. elements, applying the broad anode in a stable manner to the affected shoulder. After the current had been flowing for about four minutes the patient became pale, was seized by an intense rigor, followed by a feeling of excessive heat, and by profuse perspiration. Another paroxysm appeared on the third day, and this time spontaneously, thus proving the disease to be a masked intermittent fever, the real nature of which could not be previously revealed, and which now rapidly yielded to the use of quinine.

The treatment of backache must necessarily vary according to the nature of the disease which causes it. It is hardly requisite to mention that a constitutional treatment is almost always indispensable. Thus in anæmic and chlorotic persons we have to resort to tonics—iron, quinine, wine, country-air, sponge-baths, nourishing food, etc. If, at the examination with the induced current, no painful points can be discovered, but on the contrary the patient after it feels considerably relieved from the backache, I generally continue to apply the same current to the spine, every other day or even every day, until the pain entirely disappears. To insure success the current must be exceedingly weak, so as not to be painful at all, and not to produce muscular contractions.

Miss A. C., about 35 years old, principal of a school, extremely anæmic, though her appetite good and all the functions apparently normal. She consulted me, Oct. 29, 1870, in regard to her backache, being alarmed by the recent death of her mother and sister from spinal meningitis. I applied to the spine every other day, and with considerable benefit, a weak, perfectly painless induced current. I occasionally tried the electric brush, but it invariably increased the backache. Even a less painful current, just sufficient, however, to produce muscular contractions, would also aggravate the backache. Having thus satisfied myself that the backache could be favorably influenced only by very weak and scarcely perceptible currents, I continued this treatment at first every other day, afterwards, twice and once a week, and then only occasionally during eight months, until the backache had entirely disappeared.

As a general rule, however, the induced currents are seldom beneficial in backache of women; they sometimes even aggravate it, and

where their employment is useful, the treatment is always very protracted.

In this respect there seems to be a marked difference in both sexes. A strong induced current, in some cases of lumbago in men, is followed by great relief and often by a complete disappearance of the pain.

In the majority of cases of backache in women, especially in the form which accompanies intercostal neuralgia, the most efficient remedy is the constant current. I generally use a weak current, or of moderate strength, bringing the painful parts (especially the points-douloureux) under the influence of the anode, and gradually diminishing the intensity of the current before breaking it.

As an illustration, I select a few cases from a large number treated by me in a similar way:—

Mrs. L., aged 38, of a good constitution, married, and mother of four children, suffered for years from a pain in the upper part of the spine, extending to the occiput and sometimes all over the head, that generally felt dull and heavy. She was never entirely free from these pains, which disturbed her sleep, diminished her appetite, and prostrated her general health. She at last became melancholic to such an extent that her husband was obliged to place her in a lunatic asylum. He soon, however, withdrew her from the institution, in the same condition of mind, and consulted me Dec. 31, 1868. I commenced at once the treatment with the galvanic current, applying the anode to the nape of the neck, the cathode to the palm of the hand, using a current of 12 to 15 elements of Siemens. Subsequently I alternated this method with the following, using only 6 or 8 elements, and sending the current through the head, and imperceptibly graduating the current-intensity by means of a rheostate. I occasionally resorted to the galvanization of the sympathetic. The effect of the treatment was extremely beneficial. After the first application of the current she felt her head relieved and slept soundly. Her disposition soon became natural, the appetite and digestion good, and at the end of a fortnight she considered herself perfectly restored to health, though I continued to treat her occasionally for several months.

I saw her a few days ago (May 5, 1873); her health continues in an excellent condition.

Mrs. C., wife of a clergyman, and mother of two children, complained of backache, especially of a pain in the back of the neck; also of a heavy feeling in the head, of want of sleep, and of dyspepsia. She at last became melancholic, with occasional attacks of acute mania. She was treated by most distinguished specialists for nervous diseases, but her condition, nevertheless, became more and more alarming. The prognosis was very unfavorable, the development of an incurable form of insanity being expected. I saw the patient March 16, 1871, and commenced to treat her exactly in the same way as the preceding patient, except that the galvanic current I used was still weaker, and I did not galvanize the sympathetic. The effect of this treatment was as surprising as in the former case, and she soon regained her health, which still continues very good.

If the seat of the backache is in the middle or lower portion of the spine, I apply the anode of a much stronger current than above

mentioned to the painful part, carefully avoiding large fluctuations of the current-density by means of a rheostate used as an accessory current. The cathode I generally place into the palm of the hand, unless there is a special indication to apply it to another remote part of the body.

Though the cases of this kind under my observation were numerous, yet their treatment and its favorable result are so uniform that it will be sufficient to mention one of them as an illustration :—

Miss G., 23 years old, suffered for years from pain in the middle portion of the back. Her general health was very good, and no affection of any organ could be found. I applied the elongated anode to the painful part of the spine, the broad cathode being placed in the palm of the hand. The intensity of the current was gradually increased to 20 Siem. elements, and then slowly diminished, carefully avoiding large fluctuations of the current-density by means of a rheostate. Duration of each treatment, 6 to 10 minutes. At the end of five weeks the backache had entirely disappeared.

There are, however, cases of backache apparently belonging to this category which will not yield to this method of treatment. I presume that here the backache depends on a secondary affection of the cord (collections of granule-cells), in consequence of a disease (not always recognizable) of some viscus.

Mrs. M., wife of a physician, was sent to me Jan. 26th, 1871, by Dr. J. Marion Sims, who treated her for endometritis and dysmenorrhœa. In this case the method described above would not produce the desired effect, but a strong galvanic current passing through the spine, in the form of Voltaic alternatives, would make the pain disappear instantaneously, though only to reappear the next day, or a few days after.

Though this result is merely temporary, still it is of great importance, allowing the sufferers to have a night's rest and regain their strength. In these cases, a permanent benefit can be attained only by a prolonged galvanic treatment with currents of moderate intensity sent through the spinal cord, either in an ascending or descending direction.

Miss H., 32 years old, consulted me Jan. 27th, 1870. She repeatedly had attacks of dysentery and of congestions to the liver, which left a chronic derangement of the digestion with torpid action of the bowels. I found the liver considerably increased in size, and tender to pressure. Her appetite was not good, the bowels constipated; she complained of general debility, and especially of pain in the middle and lower portions of the spine, from which she was suffering for years. Having regulated her diet, and recommended the use of Kissengen water, I applied to the spine a descending galvanic current, and at times an ascending one of 10, 12, or 15 elements of Siemens, during five minutes, every other day. She felt at first but a slight relief, which, however, became more decided as the treatment progressed, until, at the end of three months, not a trace of the backache remained, and she left for her home (California) in perfect health.

Neither in this nor in other analogous cases of backache could I observe any marked difference in the action of the ascending or descending currents; either, therefore, may be used.

This kind of backache, which is very distressing, I have often observed in women who had previously suffered from pelvic cellulitis, chronic metritis, parametritis, or oophoritis. As already mentioned, I ascribe this kind of backache, and generally the backache accompanying affections of some organ, to the presence of collections of granule-cells in the spinal cord (its secondary degeneration).

I have observed one of the most obstinate kinds of backache in women exhibiting symptoms of fatty degeneration of the heart. In these patients the whole complex of morbid phenomena is very characteristic, and can be easily recognized. The patients are generally very anæmic (though not always emaciated), in consequence of some preceding severe illness, or from loss of blood. Their face is pale, and flushes at the slightest emotion. They complain of pain in the upper portion of the spine, of loss of sleep, and of a sensation of extreme fear. They seem continually in dread of some imaginary danger, and are frightened at everything without any reason. The action of the heart is weak, the pulse sometimes irregular, with intermissions. Some have no appetite; others, on the contrary, have a very good one, but suffer from dyspepsia.

I will mention here a peculiar kind of backache which I have observed in a number of women suffering from dyspepsia. This backache is situated between the shoulder-blades, more on the left side, and accompanies only the attacks of dyspepsia, disappearing during the intervals. These latter may last for weeks or months until the dyspeptic symptoms reappear, and with them the distressing backache. The pain is relieved by pressure, and often such patients ask to be struck on the painful part with a solid body, and knocked in rapid succession with both fists of an assistant.

Mrs. C., an elderly lady, and mother of a large family, often suffered from dyspepsia associated with backache of the kind just described. In the intervals she would feel very well and have an increased appetite, which she would satisfy, and thus accelerate the return of dyspepsia, with the most painful backache. She had been treated for many years by different physicians, who had exhausted all remedies and methods of treatment, without any benefit, scarcely being able to relieve her during the attacks.

Having examined, Feb. 16, 1871, the contents (which she threw up) of her stomach, I found butyric and lactic acid, and also sarcina ventriculi and other fungi, which proved conclusively that fermentation was going on in the stomach, and interfering with its normal functions. As the patient had been treated by very able practitioners, I could therefore commence quite a different mode of treatment, and dispense with all the remedies they had already employed, among

others bismuth and pepsin. Considering how minute a dose of this ferment is sufficient to digest enormously large quantities of food, provided there be present free hydrochloric acid and plenty of water, it is surprising that large doses of pepsin should be unnecessarily prescribed, and that the drinking of water should be prohibited to dyspeptic patients. I recommended, on the contrary, to the patient to drink as much water as she wished, and prescribed, internally, freshly-prepared chlorinated water, in doses of 15 to 20 drops, four times a day. My object in giving this remedy was to arrest the fermentation in the stomach,* and by the chlorine being transformed into hydrochloric acid to promote the digestion. The result of this treatment was quite in accordance with my expectations. The patient felt a great relief from the first doses, and the dyspeptic attack and the backache yielded sooner than on all former occasions. As an after-treatment, I prescribed one-grain doses of rhubarb, four times a day, it being very useful for exciting the secretion of the deficient gastric juice.

I have applied this treatment to a number of similar cases, and it has been generally followed by the same beneficial result.

It does not enter into the plan of this paper to consider the backache accompanying myelitis, meningitis, and diseases of the vertebræ.

In concluding this first article on nervous diseases of women, I wish to allude to some ætiological and therapeutical peculiarities as regards diseases of women generally. Much has been said already with reference to the irrational mode of woman's clothing impeding the functions of the organs of the thoracic and abdominal cavities, and predisposing to different diseases. It is to be regretted, however, that this subject should have been discussed mostly by social reformers, moralists, or by advocates of a special cure of female diseases. The only competent judges in this matter are the physicians, and the most decisive arguments for the discussion must be derived from post-mortem examinations and from experiments. In this respect we possess some facts that may serve as a basis for further investigation. I have seen at the autopsies of women in Virchow's Pathological Institute some specimens of livers presenting remarkable deformities in consequence of tight lacing. Such a liver bears the name of corset-liver (Schnürleber), and illustrations of such deformities can be seen in Frerich's classical work on diseases of the liver.† This malformation must necessarily interfere with the normal functions of this important organ, and must be followed by chronic and incurable derangements of the digestion and of the circulation in the system of the portal vein, with all their consequences.

In 1863 I made a considerable number of experiments on animals in the laboratory of Prof. Harley, in the University College, London,

* Botkin, Berlin. klin. Wochenschrift, 1870, No. 38, and 1873, No. 5.

† Frerich's Klinik der Leberkrankheiten. Zweite Aufl. Bd. I. p. 47, figs. 7, 8, 9, 10, 11.

which I continued, in 1867, in the Pathological Institute of Prof. Virchow. Though the object of these experiments was to study the effect of a slight but continuous impediment of the respiratory movements upon the development of affections of the lungs and heart, I found that the effect of the pressure was still more pronounced in the abdominal organs, especially the liver and kidneys. I have not yet published the result of these experiments, and give here the following extract from my note-book :—

Rabbits cannot bear even a very slight compression of the trunk by a bandage. Their respiration becomes accelerated, the conjunctiva congested, and they invariably die, sometimes after 24 hours. May 22d, 1867, I applied loosely a bandage around the thorax and abdomen of a rabbit. The animal died May 26th. I found the liver and kidneys very much congested. In the liver, especially on its convex surface, numerous white spots from the size of a pin's head to that of a pea, very resistant and retracted. There were, besides, psorospermia.

May 29th, 1867, a similar bandage, but still looser than the former, was applied to a well-nourished and vigorous rabbit, which nevertheless died June 11th, being much emaciated, and the liver and kidneys very much congested.

May 30th, 1867, I applied a very loose bandage around the thorax and partly around the abdomen of a female dog. During the first fortnight no perceptible change could be noticed in the animal; afterward it grew thinner, and coughed, which I ascribed to the irritating influence of the air of the chemical laboratory where the dog was kept. It died July 4th. At the post-mortem the blood was found very thin and dark, the heart dilated, the lungs emphysematous, a hæmorrhagic infarction in the spleen, and the small intestines contracted, the liver and kidneys congested, the epithelium of the latter fatty degenerated, etc. In cases where the compression by the bandages was minimal, and the animal survived a longer time, the kidneys presented the appearance of Bright's disease in its first stages.

Perhaps it is worth mentioning that high-heeled shoes are very injurious, by excluding certain groups of muscles from participating in walking, and over-exerting other sets. Backache in the lumbar region is apt to follow after wearing such shoes for a considerable length of time.

That irregularities in the sexual functions play an important part in the ætiology of diseases of women is well known to physicians.

I was told that not unfrequently ice-water is injected into the vagina immediately after sexual intercourse, with the object of preventing conception. Two ladies who were in the habit of so doing are

suffering from large fibroid tumors of the uterus; others are affected with chronic metritis and extreme nervousness.

The injurious effect of the intense and sudden cold upon the sexual organs during their increased activity may easily account for their disorders. Moreover, admitting the development of tumors from local irritative processes, we can also explain the origin of the fibromyomata in the above cases.

In treating chronic diseases of women, especially nervous disorders, we have to bear in mind the important influence of muscular exercise upon the healthy condition of the whole economy. The accumulated products of tissue-metamorphosis act in a deleterious manner upon all the vital processes, especially producing a depressing effect upon the muscular and nervous system, and a feeling of exhaustion. Ranke * has shown that these so-called exhausting substances (ermüdende Stoffe), as lactic acid, carbonic acid, etc., abolish the irritability and electro-motor properties of the muscles. Their effect can be neutralized by injecting blood through the blood-vessels into the exhausted muscles. In the living organism it is the alkaline blood and lymph that act in the same beneficial way. The circulation of blood and lymph facilitate the removal from the muscles, and nervous apparatus, of these effete substances, and their final elimination from the system, after which these organs regain their irritability and other electro-motor properties. Thus we see persons tired and prostrated without any muscular activity, feel refreshed and vigorous in walking, and the more so, the more they continue to take exercise.

Furthermore, the neglect of exercising and developing the muscles, which constitute the largest part of the body, is followed by other injurious consequences for the whole organism. During muscular activity a large amount of blood circulates in the muscles, thus relieving and facilitating the circulation in the internal organs. On the contrary, when the muscular system is inactive, the circulation is impeded in the viscera, which become congested and their veins dilated. This is frequently the case with the system of the portal vein; hence the passive congestions in the abdominal organs, especially in the sexual organs of women.

Again, the development of the muscular system increases also the energy of the heart's action, thus facilitating the circulation generally; whereas want of muscular exercise weakens the heart and retards the circulation.

It is therefore obvious that those methods are irrational which in the treatment of chronic diseases of women require prolonged rest and muscular inactivity, and that much may be gained by any mode of treatment that admits of muscular exercise.

* Physiologie, 2 Auflage, 1872, p. 634.