1888, has criticized the remarks of his German colleague after an amusing fashion. He advises those who are in doubt about the claims of Pinel to read the work of Dr. Semelaigne, "Philippe Pinel et son Oeuvre," &c., Paris, 1888. Of this little book we can speak in favourable terms. We understand that Dr. Semelaigne's son, who recently visited England, is preparing an article on "Non-restraint."

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3. *Dutch Retrospect.*

By J. Pietersen, M.D.

Bÿdrage tot de leer der Epilepsiebehandeling. Dr. J. H. A. Niermeÿer.

In the "Nederlandsche Tÿdschrift voor Geneeskunde" for February, 1888, there is to be found an article under the above heading ("A Contribution to the Study of the Treatment of Epilepsy") which is worthy of some consideration, for it discusses a subject which has received but scant notice at the hands of medical men, viz., the influence of electricity on the epileptic state. The success achieved by Dr. Niermeÿer in the treatment of the cases he cites would be a sufficient inducement for attempting by the method he advocates, if not the permanent cure, at least the amelioration of the condition of such patients in private and hospital practice, and before the consequent psychical change had introduced a new element in to the affection; but it would also be opening up a new field of study if a careful trial could be given, and the results published, of the effect of Niermeÿer's process on a series of favourable epileptic cases resident in asylums, the affection in such being independent of organic brain lesion. The practical importance of the subject justifies a quotation of Niermeÿer's contribution *in extenso*:—

In most of the text-books on electrotherapeutics, and in almost all the special works on pathology and therapeutics, we find little that is encouraging communicated to us as to the electric treatment of epilepsy. The remark is almost universally to be encountered that the application of electricity to epilepsy has hitherto furnished but unfavourable results, and it is only in some of the most recent productions on electrotherapeutics that cases have been brought forward in which great improvement or actual cure has supervened. This can cause us but a small degree of surprise when we take into consideration the fact that the ideas current at the present moment as to the cerebral locale in which the epileptic symptoms originate differ in great measure from those which were prevalent but a short while ago. Where the medulla oblongata and pons were formerly regarded as the cerebral districts which played the greatest part in the origin of epileptic phenomena, the conviction at present is slowly gaining ground that in these states there always exists a pathological disturbance of the cortex cerebri. Were it necessary for the full explanation of all the clinical symptoms of the disease to include in our pathological view the more deeply-located centres, experiment and clinical investigation have more clearly brought to light the fact that the functionally-disturbed cortex is of great influence in

this affection, that in it, in fact, is to be found the area of exit of the epileptic phenomena. When present experience thus teaches us that this opinion, indeed, merits preference to that formerly universally accepted, it is not to be wondered at that the application of the electric current as formerly practised could not furnish any favourable results. For this application had for its especial object the subjection of the medulla oblongata and pons to the electric influence, while the real seat of lesion lay elsewhere. Erb was one of the first to draw attention to this, and expresses his surprise ("Handbuch der Elektrotherapie") that so few endeavours appear to have been made to treat epilepsy in the light of present pathology by means of electricity, and who first communicated cases treated thus by him. He assures us of having caused great relief in two instances from a combined treatment of cold douche, bromides, and electricity, and considers the last-mentioned an especially beneficial medicinal help in epilepsy. Haver Drœze (Psychiatrische Bladen, III.) further notifies a great improvement in a case of epilepsy in which the cortex cerebri had been brought under the influence of the constant current. Stein ("Lehrbuch der Allgemeinen Elektrisation," III. Aufl.) mentions an instance of cure by the influence of franklinisation (succussion produced by shocks from a Leyden jar). Later on, however, he experienced no further success by means of this method of treatment. Watteville (Elektrotherapie) speaks of many cases successfully treated thus by well-known men. He, however, does not adduce names in support of his statement, and gives no particulars as to the method of application, etc. Communications as to cure have also been somewhat scanty of late, and I therefore trust some benefit may accrue from the short report I wish to make of three cases which have been under my care during the last year, and in which the constant current, combined with a modified bromide treatment, has been employed. And here I intend to answer an objection which no doubt will be urged by some, whether the success of the treatment cannot rather be ascribed to the bromide medication than to the electrical reaction, seeing that it is generally recognized that bromide salts rank as the most potent remedy we know of in cases of epilepsy. After consideration of the following points it will, I trust, be sufficiently convincing that here, at all events, the chief credit must be given to the electrical reaction, and that we must regard the bromides as acting merely as an adjuvant remedy:—

1. Each patient had, previous to coming under my care, been placed under the influence of bromides, the first with very large doses, the third only with small daily quantities. In the second case mentioned below I could not obtain any information as to the actual quantity taken daily, but it was undoubtedly proved that she had been treated with this remedy for many years.

2. In the first and third cases *no improvement whatsoever* had resulted from this constant bromide treatment. In the second instance intermissions of circa a month in duration were obtained thereby; later on, however, even these had ceased.

3. The patients, while under my care, took doses amounting to about five grms. daily (*i.e.*, 77·2 grains). Anyone who has had much experience in the treatment of epilepsy will agree with me that this quantity is but very small, and employed by itself could have had but little effect. Binzwanger ("Epilepsie," in Eulenberg's "Real Encyclopædie der gesamenten Heilkunde," II. Auflag.) regards bromide-doses under five grms. per day "fur nahezu wirkungslos" (as almost ineffectual).

The electric portion of my method of treatment had for its aim:—

1. To bring the whole of the cerebrum under the influence of the constant current.

2. To employ, especially in the line of the gyri centrales, on one or on both sides, a stronger "stroomdosis" (Erb) ("dose of current") than has hitherto been used. The exact spots of location of the electrodes in each case will be found stated in the short report which follows. I only wish in this place to point out that—necessarily excluding cases of extreme hypersensitiveness—a

strength of current from four to eight mille-ampéres with an electrode superficies of 18 to 25 sq. c.m. can be employed without fear for the treatment of the gyri centrales. The rheostat (for introducing or withdrawing from the circuit a considerable amount of highly-resisting wire without stopping the current, and so being able to regulate or change the strength of the current at will) is employed, and we begin with small doses. Working in this manner I was so fortunate as to bring the treatment to a definitely favourable conclusion in each case without causing the patients any unpleasant sensations. For the proper treatment of the whole cerebrum it suffices to supply three to six mille-ampéres with the above-mentioned electrode superficies. Up till quite recently medical electricians were seriously warned against the application of more than a very gentle strength of current in galvanization of the cerebral organs. C. W. Müller ("Zur Einleitung in die Elektrotherapie"), who in general makes use of very weak currents, advises us not to overstep a strength of current of $\frac{1}{30}$-$\frac{1}{24}$. [The following formula represents the "dose of current" D (density of current) $= \frac{I}{S} = \frac{\text{strength of current in mille-ampéres}}{\text{acting electrode-superficies in sq. centm.}}$] Lewandowski in like manner ("Elektrodiagnostik und Elektrotherapie") warns us, while E. Remak (in an article "Elektrotherapie," in Eulenberg's "Real Encyclopædie") gives $\frac{5}{50}$, and Erb ("Handbuch der Elektrotherapie," II. Aufl.) $\frac{1}{20}$-$\frac{5}{25}$ as our limits. I have during the last few years in the treatment of various cerebral affections employed a much higher "dose of current" ($\frac{2}{20}$-$\frac{5}{25}$), and have come to the conclusion that therewith a speedier and better termination can be arrived at than by the application of a strength of current such as is usually recommended. Over and above this for some considerable time past in the electrical treatment of the auditory organs, and thus in the immediate neighbourhood of the cerebrum, strong currents have been employed without any deleterious consequences ensuing. Whatever benefit may be derived from such exhortations to extreme care in galvanization of the cerebrum, one must not fall into the other extreme of showing too great an anxiety. It must always be our aim to bring the portion of brain on which we wish to experiment under the immediate influence of the current, and we must be on our guard against making this influence a doubtful one by the employment of too weak a strength of current.

The following is an abstract of the cases he brings forward :—

I. *Idiopathic Epilepsy.*—A normally-developed girl, slightly anæmic in appearance, æt. 17, brought under treatment June 1st, 1885. Since April, 1884, she had suffered with epilepsy, the cause of which was unknown. No recognizable hereditary predisposition. It was ascertained with certainty that she had never suffered with infantile eclampsia; other physical digressions of importance were in like manner conspicuous by their absence. Menstruation, beginning at 15, had continued regularly and normally since. Objective examination revealed nothing abnormal, with the exception of the slightly defined anæmia mentioned above. With respect to the epileptic seizures there remains only to relate that she experienced no perceptibly marked aura, that they were not of long duration, and appeared, with but few exceptions, in the morning shortly after getting out of bed. They slowly increased in number, so that in the April and May antecedent to the commencement of the treatment four attacks had taken place. The electrical treatment of the case was local as well as general. The latter, instituted with a view to the benefit of her anæmic state, consisted of a powerful faradic pencilling of a great portion of the skin superficies. The former (cerebral galvanization) had effect—(1) By an electrode (kathode) being held in patient's one hand, while the other (anode) was applied with a gentle to and fro movement to the forehead; (2) By a diagonal application of the current, one electrode being fixed high up in the neck, while the other was moved about the forehead, with an interchange of position of the electrodes after a few minutes; (3) By a fixed anode treatment

along the track of the gyri centrales on both sides. In addition, patient was constantly treated with Sodii Bromid., varying in quantity from three to five grms. daily (*i.e.*, about 45 to 75 grains a day). The treatment lasted from June, 1885, to April, 1886, with the exception of a cessation for two months. During the first three months one attack per month persisted, since which time, August, 1885, all epileptic attacks have ceased *in toto*.

II. *Epilepsy occurring after traumatic affection.*—A lady, æt. 25, single, first seen September 12th, 1885. Has suffered for eighteen years with epilepsy. After close and careful investigation into her family history it appeared that no nervous heredity of any importance could be discovered. When seven months old she had, according to report, a serious "brain-affection," marked by high fever and convulsions (? meningitis); later in life measles and scarlet fever. At the age of eight a severe fall on the occiput with consequent unconsciousness. Shortly after this the first epileptic seizures made their appearance, and have never since left her. The attacks were unequal in their severity, sometimes short and slight in intensity, at others of long duration and attended with violent convulsions. Some days before each attack there was always present a feeling of depression, which mostly deepened into a condition of unbearable anxiety, and which terminated in a rapidly progressive loss of power in the left extremities, accompanied by an involuntary movement of the left arm. (This involuntary movement ensued later in the case for a few times *without* the usual consequent seizure; it never at any time occurred in the lower extremity.) The patient would thereupon totally lose the power of voluntary movement of her left extremities, and the seizure would then ultimately set in. Patient was for years treated with Pot. Bromid. By this means, indeed, shorter or longer intervals between her attacks were obtained, but during the last few years, notwithstanding the continuance of the Bromides, a monthly recurrence had been established, and was now constant. Since August 9th, 1884, patient had herself kept a record of her seizures, of which the following is an abstract. For purposes of comparison the epileptic seizures subsequent to commencement of electric course are appended:—

1884.	Attack on Aug. 9th.	1885 (continued).	Attack on June 2nd.
	„ „ Aug. 10th.		„ „ July 1st.
	„ „ Sept 15th.		„ „ July 12th.
	„ „ Oct. 5th.		„ „ Aug. 11th.
	„ „ Dec. 7th.		„ „ Sept. 11th.
1885.	„ „ Jan. 12th.	*Commencement of electric treatment.*	
	„ „ Feb. 23rd.	1885.—Attack on Dec. 11th.	
	„ „ March 19th.	1886.—No attack.	
	„ „ April 1st.	1887.—Attack on July 12th.	

The treatment of this case consisted of a continued bromide medicament (five grams. daily), and of a cerebral galvanization exactly similar to that employed in the preceding case. Only in this instance it was decided to treat the gyri centrales of the right side alone with the fixed anode in conformity to the symptoms observed during the aura. The application of the current was employed for quite 10 months. In the thirteen months prior to the commencement of the course 14 seizures had taken place; in the 25 months subsequent thereto only two, the longest intermission being 19 months.

III. *Vertigo epileptica.*—A married lady, æt. 33, of healthy appearance and normal physical development, came for consultation on August 29th, 1887. Attacks of vertigo commenced about ten months ago, which were rapidly increasing in number, causing both patient and those around her much uneasiness. She had preserved good health until the age of 18, when she suffered for five weeks with an attack of typhoid, which, so far as she can call to mind, left no subsequent ill-effect on her. About six years ago she had a fall downstairs, with consequent cerebral concussion and an unconsciousness lasting, according to patient's account, for the long period of 17 days. From this, too,

she completely recovered, and during a period of quite five years no ailment of any kind appears to have affected her. At the end of this time she commenced to experience, without any known cause, moments of "mental paresis" (belemmering der denken) which rapidly increased in severity, and drifted after a while into constantly-increasing attacks of vertigo epileptica. Just prior to consultation her attacks averaged from three to four daily. In the intervals between her seizures she evinced no abnormal symptoms. Suddenly, in the midst of a feeling of extreme good health, she would be seized by these attacks. These consisted of three distinct periods, the aura, the stage of unconsciousness, and the slow return to her normal state, occupying in point of time from one to two minutes. The aura consisted of a feeling of mental confusion, involuntary purposeless actions, and the uttering of random words or names. At the same time she would forcibly grip the nearest bystander, and with the constantly-recurring cry of "There, I've got it again," would immediately lapse into her unconscious state, marked by slight clonic contractions of the left extremities. She was never at any time conscious of these muscular contractions, and herein lay the evidence that such a period of unconsciousness, though short, actually existed. Patient had asserted that she always retained her consciousness, and it was only after the circumstantial account given by her husband of her attacks that doubts were set at rest as to the actual occurrence of an extremely short but complete abolishment of consciousness. The third stage was marked by a rapid recovery of control of her mental faculties, but with an attendant sensation of psychical oppression remaining for some time after the cessation of the seizure, and causing her (especially during the later attacks, when they were of longer duration) frequently to burst into an uncontrollable fit of weeping. Of late this depression was beginning slowly but surely to persist during the intervals of her attacks. In this case the current was employed almost exclusively along the track of the gyri centrales on the right side. A short preliminary diagonal (neck, forehead) application was used. Thereupon one electrode was fixed high in the neck, while the other was applied over the right gyri centrales. After some minutes an interchange of position took place. Lastly, the electrode at first applied to the neck was given to patient to hold in her left hand, while the other was not shifted from its position, and then a powerful current was for some minutes applied in both directions. This patient was also treated with a five grm. daily quantity of Sod. Bromid. The success of this course of treatment was very gratifying. While the attacks before its commencement averaged three to four a day when bromides in small quantity were being tried, during the first two weeks they dropped to three per week, during the two succeeding weeks to two per week, and after that they altogether disappeared, whereby a period of nineteen days elapsed during which there was no seizure. The treatment lasted about seven weeks, after which circumstances compelled patient to leave Amsterdam and return to her home at Groningen. A communication received with regard to her condition, and dated December 4th, 1887, reports that she has been absolutely free from seizures up to that date, thus making her period of absolute freedom from attacks seven weeks.

Are the results of the treatment of these cases, then, so satisfactory that they warrant the trouble and sacrifice of time which a continual electric treatment of long duration demands? I do not for a moment hesitate to answer this affirmatively, for it concerns here, at all events, cases which previously had been treated without result by other methods. In cases where the causal treatment of epilepsy cannot be ignored, and where the opportunity offers of treating a case with any hope for improvement by simpler means, this method will not be had recourse to, and it would be as well to make trials, *e.g.*, with bromides, etc., before advocating an electric curative course. But when this goal cannot be reached, then the consideration that the extremely serious nature of the malady on which the most wretched consequences for the sufferer might ensue, and which but too frequently affects detrimentally his social position, must prompt

us most urgently to neglect no means whereby cure or improvement can be induced, and I trust most cordially that this short contribution may in some measure assist in working out this design, and that the employment of the constant current may hereafter come to be regarded as of value in the therapeutics of epilepsy.

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4. *Austrian Retrospect.*

By A. R. URQUHART, M.D.

Criminal Anthropology, being a digest of the writings of Professor Benedikt of Vienna.

At the last International Medical Congress held in London, Mr Gladstone made the memorable remark that "Doctors are the future leaders of nations." This saying, however, by no means applies to therapeutists, but to biologists. Modern biology has revealed fresh methods of knowledge, and given new directions to all sociological studies. The psychology of the future will be an applied science of cerebral anatomy and physiology. And so with criminal psychology, for it is the most natural course to start primarily in the study of the science of crime, and in the science of its prevention, from the criminal act itself, which is no other than a manifestation of the psychology of the criminal. And to study the innate qualities of the criminal, his education, the biographical details of his life—education in the widest sense)—that is the train of thought of the criminal anthropological school.

I. *No exact science should start from metaphysical premisses.*

Ancient law was grounded upon such philosophical ideas as free will, responsibility, and the notion of right and wrong; and it remains a sad ethical fact that the fear of eminencies, excellencies, and consequences (which I jestingly call enzophobie) should cause a neglect of the principles laid down a century ago by Kant, in that work of mental deliverance, the "Criticism of Pure Reason."

Nowadays no student of nature starts in the study of the laws of nature from the metaphysics of force and matter. He rather observes the laws of phenomena. If he takes any interest in metaphysical questions he devotes his attention to them, apart from the material constitution of his branch of knowledge. For instance, a Tyrolese sharpshooter never neglects to aim his gun, however strict his religious notions may be. It is true that Providence may give his bullet any direction whatever, but the true believer is quite aware that Providence submits to the laws of projectiles. If, therefore, it is our experience that the highest principle of liberty in the whole cosmos lays aside all arbitrariness in favour of existing laws, we can surely study the laws of psychological phenomena without prejudice, and without being