The general character of the admissions continues very unfavourable. In fully one-half the prognosis was from the first bad.

To talk of narcotics as "chemical restraint," appears to us an abuse of language; we are therefore pleased to find Dr. Major stating that he continues to use nervine sedatives freely. He does not consider an annual report the place to discuss the question of the efficacy or the reverse of these remedies; but he holds the belief, and acts on it, that, given judiciously, their effects in a large class of cases are distinctly beneficial.

Yorkshire, South.—Dr. Mitchell is to be congratulated on the result of the special enquiry which was held concerning the death of a patient who sustained injuries of the bones of the chest. At the time that the enquiry was ordered, a belief prevailed that malice towards the asylum authorities, rather than any special philanthropic interest in the patient, was at the bottom of the agitation. The Commissioners report, *inter alia*, "That he was not in the asylum subjected to any such culpable neglect, or ill-treatment, as could have produced the fractures. That while in the asylum, his general treatment was as good as it could be in a large public asylum, where a special attendant in each single room for every restless case is an impossibility. That while in the asylum, the deceased met with an accident on the 22nd June last, which possibly produced the fractures."

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2. *German Retrospect.*

By Dr. W. W. Ireland.

(*Continued from p.* 124, *April*, 1881).

Insanity from Lead Poisoning.

Dr. Bartens ("Zeitschrift," xxxvii. Band, 1 Heft) observes that poisoning with lead is not so common as poisoning with alcohol, simply because lead is not so often introduced into the system, as it rarely affects any one who does not have occasion to work with that metal. From a wide survey of French and German literature, he has collected a few descriptions of lead poisoning where the nervous system was affected, and he has carefully studied nine cases which he met with in the asylums of Liegburg and Duren. Three of these were painters; one was employed at a factory for making white lead; the others worked at the lead mines. In most instances the insanity either preceded or closely followed an attack of lead colic, though occasionally there were none of the ordinary symptoms of lead poisoning. The insanity may take an acute or a chronic course. Generally the patients have suffered from derangements of digestion, such as want of appetite, foul breath, and constipation, more rarely diarrhœa.

They become emaciated, the complexion sallow, and the gums show

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the well-known bluish tint at their margins. They are also often troubled with giddiness and pains in the head, either limited or confined to one place, with noises in the ears, flashes of light before the eyes, double vision, tremulousness, and other symptoms of nervous disease. The sleep is unquiet, and often interrupted by disagreeable dreams. The disposition of the patient is altered; he is sad and anxious, and liable to be distressed about trifling misfortunes. By-and-bye the progressive emaciation, the pains in the head and body after meals, with the increasing weakness, give the patients too much grounds for anxiety. They become irritable and distrustful, and imagine themselves to be neglected or persecuted, or poison put into their food. Hallucinations succeed, which torment and disturb them, so that they lose self-control, become aggressive and violent, destroy things, and frequently meditate suicide, sometimes the nervous disorder is introduced by an epileptic or cataleptic fit; sometimes there are tremblings and startings confined to one limb, or paralysis of one group of muscles. When the insanity, following on lead poisoning, is of an acute character, it generally takes the form of passing attacks of mania. The patients become suddenly much excited, cannot rest, seek to escape, become furious when any one stops them; destroy what they can lay their hands upon, rave, talk, and shout in a senseless manner; have hallucinations especially of hearing and sight, and neglect the duties of cleanliness. The tongue is generally dry, and the lips black. They suffer from want of appetite, or swallow everything that is given them without chewing it. This condition lasts generally for about two days, when it often passes away with a sound sleep. Sometimes again they fall into a deep stupor, only murmuring a few incomprehensible words, and often refusing all nourishment. In other cases the affection comes on with great apathy, the patients do not dare to speak, as they afterwards explain, and eat nothing because they fear poison, or because voices forbid them to do so.

The worst cases fall into a state of deep sleep or stupor, and after two or three days become suddenly maniacal, crying day and night, and being violent and destructive. The prognosis in the acute form is in general good. In about two-thirds of the cases recovery follows, it is seldom delayed for more than a few weeks, and generally commences with a deep sleep. Sometimes, however, the patients die from paralysis or epileptic attacks.

The chronic forms of insanity, following lead poisoning, generally come under the type of deep melancholy, with hallucinations and delusions. The patients believe themselves persecuted, and imagine the attendants and other lunatics to be some imaginary persons. They show great anxiety, amounting to despair, which increases as the night comes on. The memory suffers much, they fail to recall the right word, and they have grandiose and exaggerated ideas. The appetite is bad, and they have often to be fed artificially.

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Attempts at suicide are not uncommon, the feeble state of the digestion is increased by delusions and hallucinations, which prevent the patients from eating. In many cases there is slight paralysis, inequality of the pupils, difficulty of speech, starting of different groups of muscles. The prognosis in the chronic cases is bad, and when the agitation calms down they are apt to fall into a demented condition.

Insanity from lead poisoning has been known to affect animals; cows, which had eaten mashes out of pails painted with white lead, have been affected with convulsions, and attacks of fury, pushing the head forwards against their cribs and racks. Similar attacks have been observed with dogs and cats.

The Pathology of Lead Poisoning.

Dr. C. Monakow has a long paper in the ("Archiv.," x Band, 2 Heft) on this subject, in which, as is common with German observers, he reviews what has been done by those who have written on the subject before. It appears that the results of different pathologists are rather contradictory. Some hold that the disease exists only in the muscles; others find it in the spinal cord and brain, and there is scarcely an organ in the body which has not been treated as the principal seat of the diseased condition in lead poisoning. It is stated, as the result of chemical analysis, that the largest proportion of lead is found in the bones and in the spinal cord.

Dr. Monakow has carefully studied one case of lead poisoning which ended in death. The pathological examination was conducted in a very laborious manner, and the results are given in great detail. The patient, a painter by trade, was a man of 56, who had for 35 years suffered from occasional attacks of lead colic. During this time his wife, who was quite healthy, had five children who all died of convulsions before they were two years old. Dr. Monakow cites another case where the patient's wife had five children who died in the same way, and five abortions. The symptoms had become aggravated during the last ten years; there was paralysis of the extensor muscles, which gradually became worse, and then extended to other groups of muscles; renewed attacks of colic disorder in articulation, supposed to be owing to paralysis of the hypoglossal nerve, dulness of hearing, and paresis of the right arm. Then followed general symptoms of ataxia, diminution of sensibility on the left side, with hyperæsthesia of the right side of the body. The train of mental symptoms was weakness of intellect, loss of memory, sleeplessness, maniacal disturbance, confusion of thought, and delirium, during which he tore his clothes, and was dirty and aggressive. This was accompanied by emaciation and loss of strength, and then came, with total loss of power of articulation, sinking of temperature, and death through coma, nearly five months after his entry into the

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Asylum of St. Pirminsberg, in Switzerland. Altogether the train of symptoms had some resemblance to general paralysis, but there was no atrophy of the lips or paralysis of the muscles of the pharynx. Similar cases have been described by Vulpian and Raymond wherein loss of sensibility of the left, and hyperæsthesia of the right side, dulness of hearing, and ataxia were met with in an aggravated form, though ending in recovery.

On examining the brain there was found fluid within the membranes, and shrinking of the frontal and temporal gyri, but no adhesions of the pia mater. The brain was of unusually solid consistence. The coats of the vessels were materially thickened so that the wall of the vessel was thicker than the lumen. There were fatty degeneration and destruction of nuclei, alterations observed in most cases of insanity. There were also deposits of pigmentary matter, not only in the sheaths of the vessels, but also in the nervous substance.

Dr. Monakow thinks that this pigmentary matter has nothing to do with hæmatoidine, and to be of albuminous composition, formed from the breaking down of the round cells and nuclei. He also noticed hyperplasia of the neuroglia, a great many bladder-like ganglion cells, and abundance of spider cells. Mierzejewski holds that these spider cells are artificial productions caused by the re-agents with which the nervous tissue is treated. They are made out of free nuclei, surrounded with processes of coagulated fibrine, more rarely they are composed of stellate cells.

In the spinal cord the dura sack was found to be full of serous fluid; the pia spinalis was discoloured here and there, with small deposits of blood, and under the microscope was observed an increased number of amyloid bodies, the ganglion cells reduced in quantity, and many of them having the nuclei obscured by pigment. At the level of the sixth cervical vertebra the right anterior horn was smaller than the left. Between the sixth and eighth pair of spinal nerves the ganglion cells were found reduced in number, and there were numerous little extravasations of blood in the central grey matter, but there were no abnormalities found in the roots of the anterior nerves, though they were somewhat smaller than usual. There were sclerotic patches in the posterior horns, on the left side; the degeneration implicated the whole horn, which explained the total insensibility met with in the left side of the body; in the right horn the destruction was not so complete, implicating only the half and hyperæsthesia of the right side of the body was observed.

Examination of the region of the pons showed a well-marked atrophy of the racemose ganglion cells of the nucleus of the fifth. The roots of the trigeminus appeared to be smaller than in the normal brain, but the tissue looked healthy under the microscope. The nucleus of the auditory nerve seemed to be smaller in size, and many ganglion cells to be atrophied. The roots of the glossopharyn-

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geal vagus and accessory were also atrophied, and the ganglion cells of the hypoglossal were degenerated into brown coloured granules. The connective tissue was increased. The origin of the right hypoglossal was more atrophied than the left.

In reading over the articles of Dr. Bartens and the careful study of Dr. Monakow, as well as the description of cases in the "Journal of Mental Science" (July, 1880), by Doctors Rayner, Robertson, Savage and Atkins, I cannot take away any distinct generalisation of the mental features of insanity from lead poisoning. The symptoms described as typical by one author are contradicted by another. We have mania, melancholia, dementia, a tendency to violence or to sadness and suicide. The absence of suspicion is noticed by one author; its presence by another. Sensorial disturbances and hallucinations of sight and hearing are evidently common. The optimism and boasting of general paralysis are wanting, but there is difficulty of articulation, while ataxic movements and tremors of the body are not unfrequent. Epileptic fits and partial paralysis are often present; and partial anæsthesia is sometimes met with. The history of the case, the occurrence of intestinal derangements, and the blue line in the gums are helps to diagnosis not easily lost sight of when the medical man is fairly aware that lead poisoning may be the cause of insanity, and of epilepsy and idiocy in the children of the patient. The prognosis seems, compared with most other forms of insanity, to be good; the patient even improving without any special treatment, though he may fall into incurable dementia, or even die under the influence of the lead poisoning.

The Lesions in Hydrophobia.

Csokov ("Centralblatt für Nervenheilkunde," 15th September, 1880) does not confirm the observations of Weller in hydrophobia. The latter observer found general hyperæmia of the brain and its coverings to be of constant occurrence.

Csokov found in the medulla oblongata, especially in the root of the vagus, a partial widening of the vessels. In those animals which are frantic he finds an infiltration of the walls of the vessels; but where the animal is less excited the infiltration has passed beyond the vessels, and there is sometimes a lymphoid element in the nervous tissue. He affirms that the fatty corpuscles described by Weller as pathognomonic of hydrophobia occur in all dogs, especially in old ones. Lutkemüller examined the brain and spinal cord in three cases of hydrophobia and found hyperæmia with small extravasations of blood as well as the deposits of lymphoid bodies in the perivascular spaces. He thinks that these lesions are rather the consequences than the cause of the disease. On examining the blood it was found that there was an increase in the white corpuscles and a great heap of colourless or faintly yellow mikrocytes.

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Dr. Zillners, who has examined six cases of hydrophobia in the human subject, found twice capillary extravasations in the brain. In all cases the membranes were hyperæmic and somewhat œdematous; sometimes the membranes at the base of the brain were thickened. The brain appeared to be always full of blood and serum, and the hyperæmia to be greatest in the cerebral ganglia, the pons, and the medulla oblongata. In the lesser parts of the spinal cord and its membranes thickening of the sympathetic of the neck was observed.

Changes in Nerves after Stretching.

Dr. L. Witkowsi ("Archiv.," xi. Band, 2 Heft), has made some researches on man and animals to ascertain the changes which take place on the tissue of nerves which have undergone the operation of nerve stretching. A few days after he observed the tearing of the nerve tissue into irregular pieces and the discontinuity or complete failure of the axis cylinder, the appearance of a light granular mass or the falling together of the empty nerve sheaths (white substances of Schwann). No pathological appearances were noticed towards the central portion of the nerve. He affirms that the favourable effects observed to follow nerve stretching are not purely dynamic or through alterations of the circulation, but that the stretching causes an interruption in the continuity of the fibres and a degenerative process which extends to the periphery. Regenerative processes soon commence, but there is always a period of degeneration though the amount of congestion or inflammation is not usually great. He regards nerve stretching as a sort of stimulus to the nervous substance through which the normal processes of absorption and new formation are hastened and increased. Dr. Witkowsi refers to three lithographic figures which have been missed out in the number of the "Archiv." supplied to us.

Epilepsy caused by a Nail running into the Head.

Dr. Rotter, in a Polish Medical Journal, reported in the "Centralblatt für Nervenheilkunde" (1st August, 1880), describes the case of a baker, who, going into a house, struck his head upon the low roof and felt himself fixed. After he had pulled himself away he felt a pain on the site of the blow, but could find no wound or bleeding in the head. For two or three days there was swelling in the place, which soon passed away. A short while after he noticed a raised spot. This opened showing a small bleeding wound, which, after a time, closed. For three years the patient remained quite healthy, but in October, 1879, there were attacks of rigidity of the left arm which lasted some minutes, and returned three or four times in the week.

In the beginning of November, 1879, there was a sudden attack of giddiness and convulsions in the whole body while he was pushing his bread into the oven, so that he fell to the ground without losing con-

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sciousness. He saw everything that was going on round him, and called his wife to help him; but she could not understand him on account of his stammering. The duration of this attack does not appear to have been long. After three hours a lighter one came on, which lasted some minutes, succeeded by a slight trembling of the body.

Dr. Rotter describes the patient as a man of 45 years of age, of middle size, of relaxed constitution, pale complexion. He lay in bed with an anxious expression, complaining of general weakness, stiffness and giddiness. The understanding, motor powers, and functions of the body were not affected. There was a shallow depression on the coronal suture near the junction of the sagittal suture with some swelling and weak granulation; on cautiously sounding, an opening through the skull was made out. Under treatment the epileptic attacks became rarer, and of lighter gravity. One day on combing his hair the patient brought out from the opening a piece of a nail seven centimètres long and two thick, and two millimètres broad. The wound soon healed up, when the epileptic attacks and all rigidity and other nervous symptoms entirely ceased.

The Handwriting of the Insane.

Dr. Erlenmeyer has a pamphlet upon the physiology and pathology of writing, as well as a review of a thesis upon the writing of the insane, by Christopher von Schroeder, in the "Centralblatt für Nervenheilkunde," 15th September, 1880. It is interesting to hear that Goethe used to say that he was seldom deceived in the estimate which he made of a man's character taken from the handwriting. William von Humboldt and von Holtman professed to have a similar skill. Lavater gave out that he knew even the temper of his correspondent when he wrote, whether he was angry or pleased. It certainly would be a great advantage to mankind in general if this knowledge were better diffused. That the handwriting indicates the approach of old age and a tendency to insanity is not likely to be contested. In some forms of insanity the writing is not affected, in other forms it obviously is.

Dr. Erlenmeyer states his belief, founded upon a passage in the "Talmud," that the ancient Hebrews wrote with the left hand, and that our use of the right hand is owing to our being taught to write with it, and that the greater use of the right arm determines the predominance of the left side of the brain. The old Hebrews, he says, because they were left-handed, had a better developed and better nourished right brain. He is clearly not aware that left-handedness is mentioned as a peculiarity in the Book of Judges iii, 15, and xx, 16. The truth is, it is as easy to write from right to left as from left to right. Indeed most educated Hindustanis can write the Nagari and Arabic characters which go in opposite directions with equal facility, and the Greeks, who got the art of

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writing from the Phœnicians, in the most ancient times, used to write from right to left, as did the Etruscans. The tendency to slope the letters to the left side, which the author has remarked in the insane, and which is very noticeable with idiots, probably depends a good deal on the position of the body. Dr. Erlenmeyer quotes an account of a man who had an apoplectic attack and hemiplegia of the right side with aphasia. He could not write with the right hand, and when he was made to try to do it with the left, he wrote very skilfully from right to left his name in mirror writing, *i.e.*, writing like the impression on blotting-paper, which can be best read by looking at it in a mirror. Even when he copied a row of figures, he did it in mirror writing, and if, with great attention, he was brought to write some words or figures in the usual way, there was an overpowering tendency to fall into the mirror writing. He had a great difficulty when writing, in writing from left to write. He remained in the hospital for six months, during which the aphasia disappeared, and the power of the right hand improved when he began to write with the right hand, which he did also in mirror writing.

Dr. Erlenmeyer, from this and from other cases, holds that there is a natural tendency in both hands to write in a centrifugal direction, the right hand to the right and the left hand to the left.

Disease may cause the writing to be unformed, or atactic and tremulous. The atactic form of writing is seen in all diseases which cause ataxia of the muscles of the hand, whether affections of the cerebrum, cerebellum, or spine. In the same way all diseases which cause trembling naturally cause tremulous handwriting.

Dr. Erlenmeyer has examined agraphia very narrowly with the following conclusion. As the aphasics can use their tongues for all other purposes but that of speaking, the agraphics use their hands to all fine work except writing. Spamer saw an agraphic girl who sewed very skilfully. It appears from these facts that the co-ordinating centres of spoken and written words are distinct and apart from one another. We have many examples to show that disorders in writing and oral speech do not always go together. In general, however, they do so, which proves that both centres are narrowly connected, and that their paths cross.

In opposition to some French writers who have asserted that mistakes in spelling and grammar are pathognomonic of the beginning of the stage of dementia in general paralysis, Dr. Erlenmeyer holds that the errors in the writing of paralytics are one of the earliest symptoms of the disease, and a valuable aid to diagnosis.

Therapeutic Qualities of Chloral.

Dr. Julius Krueg called the attention of the Medical Society of Lower Austria (March, 1880) to the value of chloral in the treatment of severe convulsive fits which he had learned in the West

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Riding Asylum Reports. He exhibited a guinea-pig, which had been made epileptic by section of the sciatic nerve. A fit could be induced by nipping the animal's cheek, but after a subcutaneous injection of chloral the fit could no longer be induced in this manner.

He gave the instance of an imbecile girl who had fallen into the status epilepticus, was unable to swallow, and seemed to be in imminent danger, but who was saved by the administration of chloral by injection. He thinks that giving it at bedtime has got a good influence in preventing nocturnal attacks, and quotes the statistics of Testut as to the benefits derived from its use in eclampsia parturientium. Of 55 patients who have taken chloral in this affection, only four died, *i.e.*, 7·4 per cent., but where other remedial means had been used there was a mortality of 29 per cent. Of 29 patients who got the chloral alone, only one died, *i.e.*, 3·4 per cent.; while in those cases in which it was used, after other medicines had been employed, there was a mortality of 9 per cent.; and where chloral was used along with other drugs the death-rate was 13·3 per cent.

It would thus seem that chloral had better be used alone. Where anæsthetics were used the mortality was 19·4 per cent.; where bleeding was used the mortality was 35 per cent.; and where drastic purgatives were used the mortality was 56 per cent. Testut begins with a dose of 4 grammes, and follows it up by smaller doses where they appear needful.

Krueg has two patients affected with general paralysis who have symptoms from which a watchful attendant can indicate the approach of an epileptic seizure. When they tell him of these symptoms, and he finds the pulse to become quicker, he gives a dose of chloral, on which sleep, but no epileptic attack, follows. When the administration of chloral is neglected after these premonitory symptoms the fit is sure to follow. He affirms from statistics that chloral is the best remedy for tetanus. Dr. Krueg sometimes gives chloral by subcutaneous injection. This requires a larger syringe than usual. He takes two grammes of the salt to ten of water, and with this makes four injections. In injecting this large quantity of water care must be taken not to do it too fast.

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3. *French Retrospect.*

"Archives de Neurologie, Revue Trimestrielle des Maladies Nerveuses et Mentales" publiée sous la direction, de J. M. Charcot. Paris, 1880.

"L'Encephale, Journal des Maladies Mentales et Nerveuses." Paris, 1881.

The remarkable interest felt in the study of neurology is evidenced by the foundation of these journals.

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