

times of the day. One sample in a garden, which flowed through a long piece of pipe, had 11.6 milligrammes per litre. Another in an empty tenement had 8.7 milligrammes. The results were very variable. Of the results obtained from the first samples of water drawn from the pipes, after the water had remained in them for a time, the average showed 4.41 milligrammes of lead oxide.

As to the *causes*, it was stated that most of the towns supplied with water used lead pipes in the same manner with Dessau, but without evil results. The following are to be reckoned as causes of lead-poisoning:—

1. The composition of the pipe.
2. Meteorological influences.
3. Galvanic effects.
4. Character or composition of the water.

The author states that the first three of these causes may be excluded in this instance. He thinks that the union of iron or zinc with lead lessens its injurious effect, and tin increases it. There is a danger in the use of tinned lead-pipes, or of tin pipes having a lead covering, since, if the water has access to the lead, its action is more marked than it is when the pipes are unprotected. He believes that lead-poisoning may be traced mainly to the character of the water itself. He also attributes much to the presence of air in the water. In the summer of 1886 air was often to be found in the pipes, in consequence of a great demand for water and an insufficient supply, and in the upper stories of houses the water-pipes were often empty.

The author concluded that the character of the water and the carbonic acid contained in it were the chief causes contributing to the poisoning. The water had from 7 to 9.5 parts per 100,000 of solid residue, and a hardness of 2.5 to 2.8 (German).

The remedies proposed were (1) to separate the lead from the water. (2) To substitute other kind of pipe for lead. (3) To give the pipes a protective inner coating.

It was further recommended as measures of prevention that air should not be allowed to gain access to the pipes, and the removal of free carbonic acid should be secured. Regulations were proposed to secure these results.

#### THE PURITY OF NATURAL AND ARTIFICIAL ICE.

Examinations of ice were made by Dr. Heyroth from samples obtained of the ice-dealers and tradesmen of Berlin. The analyses were carried out by the customary official method.

*Natural ice.*—A diminution of the saline contents was found in freezing, the residue being about one-tenth only of that of the water. The author coincides in opinion with that of Nichols and of Hills that the waters of winter are richer in their organic contents than those of summer. The increase of oxidation is due to the fact that the gases of decomposition formed in the mud of streams are prevented by the ice from reaching the air.

He<sup>11</sup> also states that the absence of chlorides in ice led to the examination of the relation between the saline contents of the ice and of the water from which the ice was formed. It was found that

the amount of chloride of sodium did not increase or diminish in a constant ratio.

He finds that, among the pathogenic micro-organisms the bacilli of anthrax and of erysipelas withstand freezing for a considerable length of time without losing their activity.

He also examined artificial ice from two establishments. It was opaque from countless air-bubbles, milky, and sometimes foul and yellow with iron-rust, sand, etc. The chlorine and ammonia were also greater in amount than in the natural ice. These facts, and the recognized inability to make a perfectly clean ice, and the fluctuation between very wide extremes of the bacterial contents of artificial ice, placed the latter far below natural ice in value.

He concludes, (1) that ice used for the preservation of food and also for the cooling of drinking water, whether it be an artificial or a natural product, should be formed upon and from water whose purity has been ascertained, and which equals at least that of the river and pond waters used for domestic purposes. (2) Manufactured ice should be subject to periodical examination, and its standard of excellence maintained.

#### A NEW TREATMENT FOR LOCOMOTOR ATAXIA AT THE SALPÊTRIÈRE.

BY MARY F. HOBART, M.D.

On the 15th of January, at his regular clinical lecture at the Salpêtrière, Charcot closed his course on locomotor ataxia by presenting the new treatment which has been used on all such cases in his clinic since September, 1888.

This treatment did not originate in the Salpêtrière, but with Motchoutkowsky, in Russia. In 1883 he had a locomotor ataxia patient, who was also affected with a scoliosis. After suspending the man in Sayre's apparatus for the application of a plaster jacket, he noticed a slight improvement in the tabetic symptoms. He then began to suspend his tabes patients every few days for two to three minutes at a time. Satisfied with his results, he published a short monograph on the subject, which fell into Charcot's hands and which the latter presented in substance to his class.

Motchoutkowsky describes fifteen cases, in all of which certain symptoms are constantly modified: fulminating pains, inco-ordinated movements, vesical and sexual functions. These patients had treatments varying in number from twenty-nine to ninety-seven; some of them were cases already far advanced. One man who was too weak to be suspended, was stretched in the horizontal position. The effect of the treatment can only be explained by the alteration of molecular action due to the stretching of the spinal nerves in their oblique position in the spinal canal.

Charcot, after speaking of the fallacy of all the routine treatments for locomotor ataxia, presented a few cases which had been improved by suspension in his own clinic.

CASE I. Man, fifty years old. Appearance of disease five years ago, with lancinating pains occurring every two or three days, and preventing sleep. About six months later symptoms of inco-ordination; later still, retarded micturition and loss of sexual power, girdle sensation, ocular disturbance,

<sup>11</sup> Dr. A. Heyroth. Über den Reinheitszustand des natürlichen und künstlichen Eises, Arbeiten aus dem Kaiserlichen Reichsgesundheitsamte, 4 Band, 1888.

etc. Was suspended for the first time, October 22nd. Previously he had been treated with galvano-cautery, without benefit. He had had thirty-three suspensions, varying in length from one-half to three minutes. After the first three or four suspensions pains began to diminish; after fifteen treatments they entirely disappeared. Walks better; does not "feel his legs give way;" can walk all day. Vesical functions better; return of normal sexual power.

CASE II. Man, forty-three years. Syphilis at twenty years. Pains began about five years ago. After eight or nine treatments could walk much better and the pains disappeared. Urinates better, and sexual power has improved.

CASE III. Man, thirty-two years old; syphilis at fifteen. Present disease began two years ago with motor disturbance, which is rare; found he could not walk. Lancinating pains did not appear till after a year. Then followed vesical and sexual disturbances. Before treatment by suspension was begun he could walk only by leaning on his wife's arm; now he walks an hour at a time without even a cane. Pains have disappeared; also the sensation of cotton under his feet, while vesical and sexual power are re-established.

After showing these successful cases, Charcot presented one in which the treatment had failed.

CASE IV. Man, thirty-two years old; syphilis ten years ago.

The present disease was ushered in eight months since, with ptosis and diplopia; lancinating pains appeared a month later. After five or six suspensions he walked better and pains were nearly arrested.

Three weeks ago, however, he had a fresh attack of ptosis and fulminating pains. This case is a specially difficult one to treat, the disease being favored by heredity. Mother hysterical, two brothers died in convulsions, one has epilepsy, and another has already died of *tabes dorsalis*.

Charcot thinks that other nervous diseases may be modified by the same treatment, and showed a young girl with Friedrich's disease, who had improved in every respect since she had been regularly suspended.

slowly in the course of two years. The notable symptom, aside from headache and a hysterical mental state, was sudden forced movements causing the patient to fall back and to the right. She was continually falling out of bed on the right side, and would sometimes perform *manege* movements. She died suddenly. Autopsy showed an old circumscribed abscess of the third and fourth right temporal convolutions, with a recent hemorrhage into the cavity, bursting into the lateral ventricle.

The second case was one of focal meningoencephalitis, causing deep and extensive softening of the second and third right temporal convolutions. The patient, a man of forty, was brought into the hospital in a condition of delirium. A history was obtained of an apoplectic stroke one year before. Since then he had had frequent attacks of dizziness and muscular twitchings, during which he would fall always forward and to the right.

A third case of abscess of the right temporal lobe, recently reported in the *Provincial Medical Journal*, was cited in which the patient frequently staggered to the right.

Physiologists found a number of parts of the brain, irritation of which caused forced movements, e.g., the cortex cerebri, the basal ganglia, the cerebellar peduncles, etc.

Pathologists had found in cases of forced movements lesions chiefly in the cerebellar peduncles, especially the middle; but there were a few observations showing such disturbances from lesions of the parietal lobes.

It was suggested that the temporal lobes contained representation of our sense of space and appreciation of changes in bodily position. It might be that the right lobe was especially concerned. There was some *à priori* probability that the vestibular or space-sense root of the eighth nerve and the cochlear or auditory root were connected with neighboring areas in the brain cortex. Anatomically it was known also that the temporo-occipital lobe was connected by a bundle of fibres with the pons nuclei and the cerebellum.

Dr. GRAY said it was true that the auditory nerve subserved the senses of hearing and space, and it was quite true that deaf-mutes are never sea-sick, yet lesions of the temporal lobe thus far have produced only word-deafness. These were lesions of the first and second convolutions. We now know that the auditory nerve has connections with the cerebellum. Such profound disturbances as existed in Dr. Dana's cases are generally due to disease of the cerebellar peduncles or semi-circular canals. Autopsies seem to have excluded cerebellar lesion, but no mention was made of any examination of the internal ear to see if the canals were normal. He referred to a case of his with lesion of the temporal lobe with neither word-deafness nor loss of equilibrium. If Dr. Dana's conclusions were correct he had opened up a new field in brain pathology.

Dr. FISHER described some of his recent experiments on dogs. Injury to the parietal or temporal lobes he had found to cause rotation to the side of the lesion quite as much as if the cerebellum were involved. These movements would last for several days. His researches, therefore, in an experimental direction, would tend to corroborate Dr. Dana's

## Reports of Societies.

### NEW YORK NEUROLOGICAL SOCIETY.

MEETING of March 5, 1889. The PRESIDENT, DR. GEORGE W. JACOBY, in the chair.

Dr. SACHS presented a case, No. II., of hemiplegia in a child with unusual associated movements which he described at the last meeting of the society. The associated movements of the paralyzed hand in this case were remarkably similar to the voluntary movements made by the sound side, even to the minute reproduction of the process of buttoning the clothes, etc.

Dr. CHAS. L. DANA reported two cases of

#### FOCAL LESIONS OF THE TEMPORO-PHENOIDAL LOBE WITH SYMPTOMS OF FORCED MOVEMENTS.

The first was a case of abscess of the right temporal lobe occurring in a woman of thirty-two years. It resulted from a fall on the head and developed