

## Original Articles.

THREE CASES OF ACUTE MANIA FROM INHALEING CARBON BISULPHIDE.<sup>1</sup>

BY FREDERICK PETERSON, M.D., OF NEW YORK,  
*Chief of Clinic, Nervous Department, College of Physicians and Surgeons; Pathologist to the New York City Insane Asylums.*

POISONING by bisulphide of carbon, though of late years an infrequent malady, owing to the precautions taken in most rubber factories to ventilate well the rooms in which this chemical is used, is still met with at times in factories where ventilation is neglected.

Carbon bisulphide, as is well known, is a sort of volatile anæsthetic when inhaled. It also acts as a local anæsthetic when applied to the skin. In those who inhale much of this gas the urine has the characteristic odor. Delpsch,<sup>2</sup> who was the earliest and at the same time the most thorough investigator of poisoning by bisulphide of carbon, compared its effects upon the human organism to those of alcohol. It would seem that both the acute and chronic conditions are similar to these stages in alcoholism. The first and most prevalent symptom among rubber factory operatives who handle this poison is intense headache located in the forehead and temples. These headaches, as I am informed by the manager of a rubber factory in this vicinity, are common among rubber workers, even though no further symptoms develop. As the intoxication proceeds, however, giddiness and even actual drunkenness become manifest, the workpeople becoming excitable, talkative and hilarious. Among later chronic manifestations are muscular paresis, due to a multiple neuritis, mental weakening and apathy, amblyopia, tinnitus, formication, anæsthesia of the feet, muscular cramps, occasionally convulsions, at first, increase of sexual appetite, later, impotence in men and sterility in women.

Charcot has of late called attention in his lectures to the numerous hysterical symptoms of this intoxication, and is inclined to look upon most of the manifestations of bisulphide-of-carbon poisoning as, in part, hysterical.

Very rarely there are symptoms of a psychosis. I have been unable to find anywhere in literature, and I have searched very carefully, histories of any cases of acute and well-marked insanity due to the inhalation of bisulphide of carbon. During my service as first assistant physician at the Hudson River State Hospital for the Insane, there came under the observation and charge of Dr. Langdon and myself three cases in succession during one season, all from the same rubber factory not far from New York City. They were all young men from twenty-three to thirty-one years of age and were admitted respectively in the months April, May, and August, 1887. The form of insanity in each was acute mania and all three recovered. The following is an abstract of the main points in the history of each case taken from the hospital records.

CASE I. C. S., aged twenty-seven, single, born in Germany, admitted April 25, 1887. Nothing known about the patient by persons bringing him except that he has been in the county asylum for three days. Is silent and refuses to answer any question, whether addressed to him in German or English. One of the physicians certifying to his insanity, says: "Having

had him under observation for three days, I have no hesitation to diagnose his case as acute mania. At times will not answer questions put to him, at others, raves incoherently on different disconnected subjects. Is at other times in constant dread that some one will kill him or do him bodily harm. His mind and body are incessantly occupied with something. For instance, he will undress himself entirely naked, lie for a moment in that state upon the floor, and then will get up and dress himself again and repeat this manœuvre over and over again many times." The other physician stated: "He is suffering from an attack of acute mania. Has to be confined in consequence of his violence. Laughs and cries and does not for a moment appear to know what he is about."

His general strength was fair on admission, his pulse about 80 and feeble. All that could be definitely learned was that his insanity had been coming on for two weeks. His maniacal condition continued without abatement until about May 10th. He was noisy, incoherent, violent, destructive of his clothing, and had at times to be fed forcibly with the stomach-tube.

May 13th. Becoming quieter, but in a suspicious and confused state. From this time he gradually became more and more confused and apparently demented. For a time he seemed to have auditory hallucinations.

A note on September 15th, says: "He has become very demented. Extremities blue. Has a phthisical appearance." About November 10th, a change for the better was observed. He began to gain flesh and improve mentally. December 15th he was pronounced convalescent, and two months later found him so much better that he was an industrious helper in the ward. September 15, 1888, he was discharged entirely recovered, the duration of his asylum residence having been about a year and five months.

The cause of the insanity in this patient was not suspected until after the admission of our second case, which I now describe.

CASE II. W. J. K., male, aged twenty-three, married, born in New York of Irish parents, admitted May 5, 1887. From himself and from those who brought him it was learned that he came from the same factory as Case I, and that five or six persons working in the same department of the factory had become insane. The patient himself ascribed his mental and nervous condition to the effects of inhaling a mixture of bisulphide of carbon and chloride of sulphur, used in the manufacture of rubber shields for ladies' dresses.

The patient was always strong, active, and bright until he got to this factory. He worked there two months, and left seven weeks before his admission to the asylum, owing to the nervousness and terrible headaches, which all his fellow workmen also suffered from. He is tremulous all over and has a sense of oppression in his chest, which had led him, in spite of his reason, to imagine his lungs were gone; and so peculiar a sensation in his mouth that in spite of himself he sometimes thinks his tongue is gone. His whole body feels as though electricity were continually passing through it. Has flashes of heat all over his body. Has slept well thus far. Told all of the above facts himself, ascribing the whole condition to his inhalation of the carbon-bisulphide mixture. On several occasions the ideas with regard to his tongue and lungs being gone have so overmastered him that he has nearly gone into maniacal excitement. But thus far

<sup>1</sup> Read before the New York Neurological Society, Tuesday, October 4, 1892.

<sup>2</sup> *Nouvelles Recherches sur l'Intoxication spéciale, etc.*, Paris, 1860.

could be easily recalled to reason and comprehension of his condition and the falsity of his delusions. His appetite is voracious. Feels hungry at every moment. Pulse 64. Tongue furred. Bowels regular. Kneejerks normal. Very considerable muscular tremor. Has terrible dreams at night that exhaust him. His father states that he remarked an unusual hilarity in his son for a week or so prior to the nervous trouble breaking out, and also a weakness of his memory. Would laugh inordinately in the house without apparent reason. All of the men working in this part of the factory were addicted to the same hilarious conduct.

Such was the history given us on admission of the patient.

The following are extracts from the two medical certificates: "He has a delusion that he is suffering from consumption, and is in constant fear of immediate death by suffocation. In his efforts to secure relief he has threatened to drown himself and has attempted to cut his throat. Is afraid to be left alone."

The duration seems to have been about four weeks.

May 6th. Depressed, unhappy, hypochondriacal. Goes about wringing his hands.

May 9th. Up to to-day rather sleepless, very hypochondriacal, sometimes in a hysterical condition. Tremor marked. Feels as if he were going to become insane, he says; cannot get his breath and feels a constriction about the lungs.

May 13th. Feels a "fever rushing to his head" and as if he were going into a delirium. Has no headache, but a numbness as if he had no head at all, and a feeling in his chest as if he could not catch his breath. His lungs are on examination perfectly normal.

From this time on his condition varied. At times he had delusions that his tongue, lips and lungs were gone, and had a variety of paræsthesiæ affecting all of his viscera, but generally his head. Occasionally he seemed feeble-minded. The sense of suffocation came to him often. By February, 1888, he had improved physically very much, but the mental condition remained about the same. May 10, 1888, he had recovered both mentally and physically and was discharged. He had been an inmate of the asylum one year and five days. I have seen him since, in New York, and he has remained well.

CASE III. M. B., male, age thirty-one, married, a Hebrew, born in Austria, admitted August 9, 1887. Worker in the same department of the rubber factory as Cases I and II. Little could be learned about him on admission except that he had been in a very maniacal condition for several days and had taken little or no food. Is very incoherent. Pulse weak and rapid. The medical certificates are to the following effect:

"The patient has acute mania, with periods of great excitement when he is both suicidal and homicidal."

"I have known M. B. for two years past as a sober man. On the nights of the 6th and 7th of August, he was in a condition of great mental excitement, disturbing the neighborhood by loud noises and violent praying."

He remained in a typical maniacal condition till about the middle of August, showing great motor excitement: being noisy, violent, destructive of clothing, filthy in his habits, perfectly incoherent, sleepless except with drugs, and resisting care. At one time dangerous symptoms of exhaustion were present, and

it was feared that he would die. After mid-August he made rapid progress both mentally and physically and was discharged recovered September 30, 1887, having been in the asylum less than two months.

In none of these cases was there any hereditary taint. All were young, healthy and strong men, working in the same department of a rubber factory where they were exposed to the fumes of the mixture of  $\text{CS}_2$  and  $\text{S}_2\text{Cl}_2$  commonly used in the preparation of rubber goods. In all it was the first attack. The first and third cases were in such a maniacal condition that the subjective and somatic toxic symptoms could not be studied. The second case illustrates, however, very well some of the peculiarities of bisulphide-of-carbon poisoning: the headaches, the electric paræsthesiæ throughout his body, the sensation of numbness in his tongue and head, the *globus hystericus*, the voracious appetite, the hilarious feeling of the early intoxication, the terrible dreams by night, and the general muscular tremor — all of them pointed out by many authors as characteristic of this species of disorder.

In none of the cases did we discover any neuritis.

I have delayed publishing these cases for some years, thinking that I might hear of other similar ones, or that I might acquire more information from the owners of the factory or from doctors in attendance upon their employees, but it is astonishing what a large amount of ignorance and secretiveness develops among the authorities connected with any factory, when questions arise as to the unhealthful conditions under which the operatives pursue their vocation.

## OCULAR HEADACHES: THEIR CAUSE, CHARACTERISTICS AND TREATMENT.<sup>1</sup>

BY MYLES STANDISH, M.D.,

Ophthalmic Surgeon, Carney Hospital; Assistant Ophthalmic Surgeon, Massachusetts Charitable Eye and Ear Infirmary; Instructor in Ophthalmology, Boston Polytechnic.

OCULAR headaches come from ocular strain, and ocular strain comes from extraordinary and unnecessary effort being required to enable the eyes to perform their ordinary duties. A normal eye is of such a length antero-posteriorly that parallel rays of light come to a focus upon the retina without any muscular effort, and that diverging rays (those originating within a few feet) can be brought to a focus upon the retina in the same place by increasing the convexity of the lens, that is, by muscular effort.

Now, if an eye is too short antero-posteriorly (hypermetropia), to allow parallel rays of light to come to a focus upon the retina, such an eye would not see in the distance distinctly as long as it used the same methods as a normal eye; but the possessor of such an eye early finds that by use of the muscular apparatus intended to enable the eye to focus for near he can make the lens more convex and thus bring the rays to a focus upon his retina, and so see distinctly in the distance. This he habitually does, and when called upon to look at near objects, adds to the effort which he maintains all the time the amount of effort which a normal eye has to use to see such near object; of course, such an effort is a burden.

If, on the other hand, an eye is too long antero-posteriorly (myopia), the possessor of such an eye cannot use his muscular apparatus to correct the error,

<sup>1</sup> Read before the Section for Clinical Medicine, Pathology and Hygiene, of the Suffolk District Medical Society, May 18, 1892.