EARLY CONTRIBUTIONS TO THE STUDY OF DELIRIUM TREMENS*

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AMONG the acute incidents which occur in the course of chronic alcoholism, delirium tremens is the most common. As with many poorly understood clinical phenomena, speculative etiologic concepts and uncritical therapeutic enthusiasm have led to considerable confusion. When one reviews the early descriptions of delirium tremens, it is apparent that the physicians of the period were well aware of the condition as we understand it today. Essentially, there has been little or no increase in our knowledge of the cause, course, or management of the delirium since then.

The first accurate description of delirium tremens is usually attributed to Thomas Sutton (1813). While it is true that he first employed the name which the disease still bears, a review of the English and American literature revealed earlier and more detailed descriptions.

John Coakley Lettsom (Fig. 1)

Lettsom (1744-1815) was a popular and successful Quaker physician of London, three times president of the Medical Society of London, author of medical, scientific, biographical, popular and philanthropic works. Generations of medical students are vaguely familiar with his name through the original lampoon or the many variations which followed it.[1]

> When any sick to me apply,
> I physicks, bleeds, and sweats 'em;
> If after that they choose to die,
> What's that to me,
> I. Lettsom.

Recently,[2] it has been noted that he is responsible for the first accurate description of alcoholic neuritis. In this communication,[3] there is evidence to suggest that Lettsom was aware of a delirious state in alcoholism and perhaps of the protracted delirium, which we understand today as Korsakow's confabulatory amnestic neuritic syndrome.[4]

In relating a train of symptoms which follow the excessive ingestion of alcoholic liquors, "especially where late hours and illicit amours have been superadded," Lettsom stated the following.

> The appetite now fails, but an insatiable thirst continues, and if it be not supplied with an exhilarating cordial, the vital spirits instantly flag, and such horrors take place as are dreadful even to a bystander; the poor victim is so depressed, as to fancy a thousand imaginary evils; he expects momentarily to expire, and starts up suddenly from his seat; walks wildly about the room, breathes short, and seems to struggle for breath; if these horrors seize him in bed, when waking from slumber, he springs up like an elastic body, with a sense of suffocation, and the horrors of frightful objects around him; at the same time the pain of the precordia continues and augments; the sight of whole-

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some plain food gives disgust instead of appetite; drink is his cry; or if hunger is excited, it is after tasty, salt or acrid nourishment.

Certainly, this description leaves little doubt that Lettsom was aware of the motor restlessness, the fearful mood and the hallucinatory experiences of the delirious patient.

Lettsom believed alcoholic neuritis occurred more often in women than in men. In his description of the course of events in those patients suffering from neuritis for a long period of time he stated:

> Whether they really undergo the agonies they appear to suffer, I much doubt, as at this period their minds appear idiotish; they often shriek out with a vehemence that may be heard at a considerable distance, but upon inquiring about the seat of pain, they have been vague and indecisive in their answers. When a cramp comes on the lower extremities, involuntary motions draw up the legs, and they produce the most piercing shrieks; and the features of the face, altered by convulsive twitchings, excite pain in a spectator. For some months before they die, these shrieks are more incessant, and as violent as the strength will admit. They talk freely in the intervals of mitigation, but of things that do not exist; they describe the presence of their friends, as if they saw realities, and reason tolerably clear upon false premises.

Lettsom's description of the mental status is reminiscent of that noted in Korsakow's syndrome. The fact that it occurred in women more often than in men and that it occurred in the course of advanced alcoholic neuritis is further circumstantial evidence to support this contention.

SAMUEL BURTON PEARSON

Pearson was an English physician who lived and practiced in Lasonby, Cumberland. In 1801, he wrote an account entitled "Observations on Brain-Fever." This original pamphlet had a very limited circulation but because of its importance it was republished twelve years later, together with additional remarks of the author in the *Edinburgh Medical Journal* (1813).[5]

FIG. 1. JOHN COAKLEY LETTSOM, M.D.

Pearson's clinical perspicacity was amazing. Boldly and briefly, he dismissed the various and opposing medical dogmas then in existence and proceeded to narrate his observations made at the bedside.

> A medical review will convince anyone how the faculty worry each other at the present day, about their different dogmas, with much injury to themselves and patients. For the above reasons I disavow all theory, and briefly state the circumstances

as they occurred to me at the patient's bedside.

Pearson called the condition Brain Fever, as this was the term used by him and by others in Newcastle and the vicinity. He attributed the cause to frequent and excessive intoxication. He distinguished it from putrid fever in that it was not contagious, in that it did not have purple spots, in that it did not possess a cadaverous smell nor "ever being received from human effluvia." Further, the delirium was never as impetuous in putrid fever as in the fever caused by excessive intoxication. From inflammatory conditions of the brain or its coverings Pearson distinguished brain fever by the less vehement fever, the relative absence of turgescence and redness of the eyes and face; the lesser degree of impatience of light or noise; of hard pulse and "by opposite causes and opposite method of cure."

His description of the clinical state is remarkably keen. "It is preceded by tremors of the hands; restlessness; irregularity of thought, deficiency of memory, anxiety to be in company, dreadful nocturnal dreams, when the quantity of liquor through the day has been insufficient; much diminution of appetite, especially an aversion to animal food; violent vomiting in the morning, and excessive perspiration from trivial causes."

As the symptoms progressed Pearson noted the acceleration of the pulse, the hot and dry skin followed by a clammy sweat and the progressive confusion with marked motor unrest, hallucinatory and illusory experiences, occupational preoccupations, fearful mood and fluctuation in the level of awareness.

> . . . confusion of thoughts arises to such a height, that objects are seen of the most hideous forms, and in positions that it is physically impossible they can be situated; the patient generally sees flies or other insects, or pieces of money, which he anxiously desires to possess; and often occupies much time in conversations of negotiation, if he be a commercial man. Often, for many days and nights, he will continue without rest, notwithstanding every effort is made on the part of the physician to appease his mind, by variety of conversation, and variety of stimuli. He frequently jumps out of bed in pursuit of a phantom and holds the most ineffable contempt for the practitioner, if he do not concur in his proceedings. He commonly retains the most pertinacious opinion that he is not in his own house, and that some of his dearest relatives have sustained a serious injury. During the concourse of these symptoms, he often can answer medical questions properly for a short space of time, and then relapses into the raving state.

Pearson's treatment of the delirious patient was based on physiologic and psychologic premises. He advised the cautious use of opium in order to bring about sleep and rest. He advised that the patient be fed wine, nourishing gruels, and soups. He was aware of the exhaustion provoked by restraint and remarked that each patient necessitated individual understanding and treatment. He stated that bleeding, impoverishment and restraint were harmful and that sympathy, tact and understanding should be expressed by the physician, attendants and family.

With his conservative method of treatment he treated successfully ninety-three patients. He added, ". . . but, when a contrary mode has been attempted, few have recovered, and those only whose constitutions were sufficiently vigorous to resist its ravages."

In additional remarks published by the author twelve years later he informed the readers of certain exchanges

of medical experience between him and various others, and of the successful adoption by others of his method of treatment. Moreover, he emphasized the dangers of strait jacket restraint. He insisted that the attendants should not dispute the validity of the sense deceptions of the delirious patient, as the contradiction which followed accentuated the fearfulness of the patient. This principle of management is as sound today as it was in Pearson's day, although Pearson seemingly went to unusual and unnecessary measures in this respect.

When phantoms, or optical allusions appear, they should never be represented by the assistants as having no existence, as that implies contradiction, and thus induces an unpleasant argumentative process of reasoning in the mind of the patient, which defeats for a time the practitioner's intention; but, on the contrary, the attendants should acquiesce with his sentiments, and immediately strike with a cudgel at the place engaging his attention, and by thus apparently dispersing them, the patient will gradually acquire the consoling idea of their hostile impotency, and will felicitate himself with permanent security from the strenuous exertions of his confidential fellow-prisoners. The last observation has often a wonderful tendency to diminish the irregular mental excitement. . . . About 16 years ago (1797) I attended Mr. George Frost, at present a publican at New Castle, and, as Frost is a man of veracity, the curious reader may be informed from himself of the success of the practice. Frost asserted, during his illness, that he saw a cow standing on the floor on one leg, on a chew of tobacco; I negatived the idea, and I soon perceived the increased fury of his eye, and general disturbance. From this case, I learned the indispensable necessity of never rudely contradicting the patient, but always of using consoling language. Frost's case lasted three days and three nights, and I never left his house all the time.

The quotations attest to Pearson's awareness of the anxious and fearful moods of the delirious patient. His awareness led him to adopt an explanatory and tactful bedside manner which is a tenet of the present day management of delirious patients.

FIG. 2. JOHN ARMSTRONG, M.D.

JOHN ARMSTRONG (Fig. 2)

Armstrong (1784-1830) physician to the Fever Institution of London[6] is known principally for his work "Practical Illustrations of Typhus, and other Febrile Diseases" (1816). He reported his experiences with patients suffering from "Brain Fever Produced by Intoxication" (1812).[7] He was aware of Pearson's communication on the subject and quoted generously from this source. He noted that the course of the disease usually lasted from four to six days, seldom longer than ten days.

If the patient falls into a sound and tranquil sleep he generally wakens refreshed and collected, and from that time recovers rapidly; but short disturbed slumbers,

accompanied with subsultus tendinum, from which the patient starts with affright and then falls into a low muttering delirium, are amongst the most dangerous indications. I have seen one case accompanied by convulsions from the very beginning of the disease; but they were speedily subdued by a large dose of aether, and the patient recovered very well.

In relating a train of symptoms which are interpreted as having prognostic significance, there is a good description of the sense deceptions experienced by the patients.

> . . . visual deceptions, more particularly, when the patient declares, upon anything while being shown to him, that it is spotted or striped; or when he imagines that vermin crawl over the bed, and constantly endeavors to pick them off; or when he frequently puts out his hand, as if to catch something floating in the air before him. When such symptoms continue to increase, he at last sinks quite exhausted, or dies suddenly in convulsions.

Armstrong was not as successful as was Pearson in his treatment of these patients. Of fourteen patients, eleven recovered and three died. However, Armstrong hastened to add that ". . . two of the latter were old, infirm men, who had long drunk spirituous liquors to an enormous excess, and the third was a young man, who, for some years before his death, had seldom been a day sober."

Cautious Armstrong avoided any speculation as to the proximate cause of the delirium ". . . because I have never had an opportunity of examining the body of any patient who died of the disease; and because I do not like to rest medical reasonings on partly conjectural grounds, but upon broad and substantial matter of fact alone." There was little doubt in his mind, however, as to the exciting cause. "It is invariably intoxication; though its effects are produced at different periods in different individuals. Some cases, for example, I have seen in which the complaint did not occur till two or three days after the debauch; but in by far the greater number of instances this was not the case; the disease in general, being the most immediate consequence of inebriety."

In a later case report (1813)[8] Armstrong described a patient who experienced auditory hallucinations. The nature of the sense deceptions, together with the patient's reaction to them, is suggestive not of delirium tremens but of acute alcoholic hallucinosis. Combinations of delirium tremens and acute hallucinosis are more common than the acute hallucinosis in pure culture. When the latter occurs, its causal relationship with schizophrenia is usually manifest. Armstrong's patient may have illustrated this combination of symptomatology. That Armstrong was aware of the difficulty in this distinction is attested to by his remarks. "The case already described bears so striking a resemblance, in some of its features, to insanity, that it is probable, if any practitioner not well acquainted with this peculiar disease of the drunkard had been called, in the present instance, to give an opinion, he would have hardly ventured upon the highly stimulating treatment here used and recommended."

In 1816, Armstrong published a monograph, entitled "Practical Illustrations of Typhus and Other Febrile Diseases."[9] In this he included a discussion of Brain-Fever occurring in drunkards and repeated much of what he had stated previously. He appeared to be concerned with the priority of Pearson's description. He mentioned

that Dr. Ramsay Young, a fellow townsman of Pearson had treated the condition with opium long before the latter had used it. He added that Sutton's work had not acknowledged the previous clinical reports and that he knew of no other previous description other than that of a patient described by Hippocrates. In two instances, Armstrong performed autopsies and found slight congestion of the brain.

THOMAS SUTTON

Thomas Sutton, member of the Royal College of Physicians, Physician to the Forces, and Consulting Physician to the Kent Dispensary was a medical practitioner who had considerable opportunity to study the effects of chronic alcoholism, as he stated, "on the coast of East Kent, where I was first led to distinguish this affection, and at the time alluded to, spirits brought in by smugglers might be had in great abundance at a cheap rate; and such as labored under delirium tremens in that quarter, were mostly those who confessedly indulged in the use of spirits to excess."

Sutton's tract on delirium tremens was published in 1813.[10] It was reviewed in the *Edinburgh Medical and Surgical Journal* of the same year. Sutton gave to this condition the name it has continued to bear. The reviewer criticized the method of presentation of data, finding Sutton's case histories unnecessarily bulky.

> We disapprove of inflating a volume with individual cases, unless when each case contains something important, which could not be so well detailed in a more general way, or when a number of individual cases, with all particulars, are required to establish new facts, which might otherwise be disputed. We have no hesitation in saying, that the substance of this volume, excellent as it is, might have been well, indeed far better, condensed into the space of half a hundred pages.

Concerning the priority of the description, the reviewer added,

> The first of these Tracts (the others were concerned with peritonitis and gout) consists of cases and observations on Delirium Tremens; a name employed by Dr. Sutton to designate a disease, concerning which we have already occupied our pages, in giving the valuable communications of Dr. Pearson and Dr. Armstrong. It appears that Dr. William Saunders has, for many years, lectured on this affection at Guy's, discriminating it from phrenitis. We agree with Dr. Sutton, that the investigation of the delirium tremens has been unaccountably neglected; but, from what we have ourselves published on the subject, it can scarcely be said, that it "has not yet taken a station in medical writings."

Sutton's description of the onset, signs and symptoms did not differ essentially from the previous descriptions. Sutton believed delirium tremens was an idiopathic disease of the brain. Among other reasons, he based this assumption on the examination of one brain. This patient had had a recent head injury followed by delirium. When the dura was opened, a quantity of serous fluid was discharged. Sutton also found the cerebral blood vessels to be turgid. He distinguished delirium tremens from inflammatory cerebral conditions, from fever with delirium, and from mania. He disapproved of the depleting plan of treatment and used opium to provoke sleep. However, he believed that conservative blood letting was necessary in some cases. With this method he treated twenty-two patients in three years. Four of these patients died. However, when one examines Sutton's case reports the

therapeutic efficacy of opium alone is not very striking. Of the sixteen reports presented in detail, ten patients

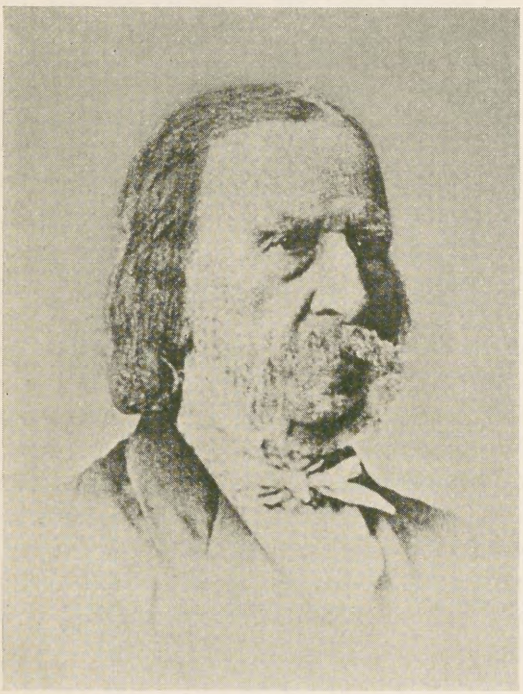

Fig. 3. Walter Channing, M.D.

had been bled and treated with the "anti-phlogistic" method and all had recovered. Of the remaining six who were not bled, four had died.

Walter Channing (Fig. 3)

An early communication in the American literature was contributed by Channing (1786-1876) in the *New England Journal of Medicine* (1819).[11] At this time Channing was professor of obstetrics and medical jurisprudence in the Harvard Medical School and had recently been made dean. Undoubtedly, Channing was stimulated to discuss delirium tremens after reading the reports of Armstrong and Sutton. One of the most interesting observations offered by Channing was in relation to the role of sudden withdrawal from alcohol as a provocative factor in the delirium.

From a remark in Dr. Armstrong's paper on delirium tremens, it might be inferred that this disease may be produced by sudden abstinence from spirituous liquors. An opinion like this is common among those who are addicted to the debasing habit of drunkenness, and some have hesitated about giving it up, lest they might suffer from some dangerous disease in consequence. From diligent inquiry on this point, I am authorised to say, that this has not happened in any case in which the patient has possessed resolution sufficient at once to break the habit, nor have I learnt that in the almshouse of this place (Boston), where habitual drunkards are almost daily admitted, and where they are at once taken from all use of spirits, and kept upon a diet, anything but stimulating, that a case of delirium tremens has occurred. On the contrary, these men from being emaciated, enfeebled and tottering in their gait, have left the house in very tolerable health.

Channing's opinion is valid today. However, there remain a number of clinicians who still believe that delirium tremens results from the sudden deprivation of alcohol in the heavy drinker.

Isaac C. Snowden

In an inaugural thesis in 1817, Snowden, a resident student in the "most extensive of our clinical schools (Philadelphia)" discussed "Mania à Potu." A review of his thesis was published in 1820.[12] The description of the circumstances preceding the delirium, and the train of signs and symptoms throughout its course do not differ from the previous reports. Post-mortem investigations revealed gastric and hepatic disease, pleural and pericardial effusions, congestion of cerebral vessels. Treatment consisted of the use of opium, whiskey, and emetics.

GEORGE HAYWARD (Fig. 4)

Hayward (1791-1863) was the first to do a major surgical operation with ether anesthesia. He translated Bichat and Beclards "General Anatomy," thus first bringing to the attention of the American professors the science of histology. In 1835, he was made professor of the principles of "surgery and clinical surgery in Harvard.[13]

In 1822 he communicated "Some Remarks on Delirium Vigilans; Commonly Called 'Delirium Tremens,' 'Mania à Potu,' or 'Mania à Temulentia'" to the *New England Journal of Medicine*.[14] Hayward was dissatisfied with the name of delirium tremens, as he thought the tremor was not always present. Other names which had been suggested including "mania à potu," and "mania à temulentia" were unsatisfactory to him as mania meant a chronic type of mental disorder and because the name derived from the supposed cause and not from an accompanying symptom. He stated further,

> Delirium and watchfulness united are its two characteristic symptoms, and are sufficient to distinguish it from every other morbid affection. . . . Why might not then some name be adopted, which would express this peculiar combination of watchfulness with delirium, which distinguishes it from every other species of insanity, and every other variety of disease, and which as far as I know always exists? Why might not the term Delirium Vigilans be substituted for those now in use? Would it not convey a more accurate idea of the disease, and be liable to fewer objections than any other that has been proposed?

Hayward included the post-mortem report of a patient who had died from delirium tremens. Turgidity of the cerebral blood vessels and dural sinuses together with an increase in the subarachnoid and ventricular quantities of cerebrospinal fluid were observed by

FIG. 4. GEORGE HAYWARD, M.D.

him. He did not share Sutton's enthusiasm for opium treatment, believing that in some instances bloodletting and purgation were necessary. In a case report he mentioned the beneficial use of a tub bath at 94°F. temperature.

At this time a number of observations and clinical reports were published by other American clinicians. Klapp,[15] Coates,[16] Staughton[17] added no new data. Klapp used emetic treatment; Coates, opium; Staughton a combination of drugs. Wright[18] used the warm bath. He stated, "If it were asked on what I conceived to rest the main efficacy of the treatment here reported as having almost uniformly overruled

temulent delirium in its most grave forms, I should reply, first, the warm bath (90°F.); secondly, liberal cupping

Fig. 5. John Ware, M.D.

on the abdomen and head, the latter especially." Although Armstrong and Hayward had used warm baths, Wright was the first to use them systematically.

Carter[19] and Jackson[20] did not share the current enthusiasm concerning opium therapy. Carter was familiar with the fundamental disturbance in delirium, i.e., the fluctuation of the level of awareness.

John Ware

Ware (1795-1864) was the Hersey Professor of the Theory and Practice of Physic in the Harvard Medical School (1856-1858). Among his contributions to medical literature was his essay on delirium tremens (1831).[21]

In the course of fourteen years, Ware had seen seventy-seven deliria in private practice and twenty in the Boston Almshouse. In addition to these ninety-seven more or less classical deliria, he had seen a large number of incipient deliria in drunkards. He was aware of the unpredictability of the occurrence of delirium tremens in drunkards.

> It supervenes on a very slight indisposition in one individual, whilst another will pass through an attack of great severity, without exhibiting any indication of its approach. Neither does the degree of indulgence in the use of ardent spirits, afford any rule for measuring the probability of its occurrence. It often happens that the confirmed sot will escape its visitation for years, and perhaps for life; whilst a young man who has just begun the habit of indulgence, may have an attack on the slightest indisposition. Much of this difference depends no doubt on the constitution of different individuals.

He noted that there may be individuals with "strong predispositions" to deliria. He believed that abstinence had little or nothing to do with provoking the delirium.

Ware noted the circumstances following which delirium would occur. "As the immediate consequence of a particular excess, or of a succession of excesses, in individuals not otherwise disposed to disease." This type he thought was benign in nature and was treated with equal success by varying methods of treatment.

"As the consequence of habitual intemperance, without being occasioned by any particular or extraordinary excess," Ware noted this type was much more severe and was usually associated with gastric symptoms.

"In connexion with other regularly-formed and well-marked diseases, or

else as the consequence of injuries." In these instances the delirium appeared in the convalescent period following the primary disease.

In all instances, Ware described the delirium assuming the form of a regular paroxysm, terminating in sleep; but this was not always the case, particularly when it supervened on other diseases, its course was apt to be variable.

Delirium, watchfulness and tremor were the principal symptoms. Tremor was the least important of the signs as it occurred in many alcoholic patients who were not in a delirious state. The program of treatment was conservative and expectant.

Where we are satisfied that the delirium is the immediate consequence of the excessive use of liquor in an individual previously in good health, no medical treatment is necessary. If the patient be left to himself, and be debarred from ardent spirits, the attack subsides spontaneously. In the worst cases no medicines can be required beyond a dose of salts, and an infusion of valerian, of wormwood, or of hops. In those cases which are preceded by some general derangement of the system without any well defined disease, our course is to be determined by the nature of the derangement and the state of the constitution. Where the patient is robust and vigorous, more particularly where in such a patient there has been convulsions, or severe pain in the head, general bleeding should be freely adopted, and is the most important remedy. In almost all cases, let the constitution be what it may, local bleeding may be regarded as beneficial, if not indispensable; and it is particularly called for, where there is dizziness, pain in the head, or much flushing of the countenance, with heat on the head or face. When the digestive organs have been long in a deranged state, especially when the stomach appears to be loaded with a mass of secretions which are offensive to it, and which excite it to ineffectual vomitings, a powerful emetic is of essential benefit. This may be followed by a cathartic of calomel, either combined with, or followed by some other article which will promote its full operation. It is afterwards only necessary to regulate the bowels by mild laxatives, unless some unusual symptoms arise which indicates a more active evacuating treatment.

Ware did not believe that alcoholic liquors should be given to the delirious patient. He insisted on the use of nutritious liquids. He avoided restraint and advised adequate personnel for nursing care. Ware's essay had a considerable influence in medical practice of that time.

Later (1838) Ware tabulated the results of various methods of treatment.[22]

	No. Cases	*Bled*	*Died*	*Recovered*	*Complicated with Acute Disease*
Opium, large doses	8	0	4	4	1
Opium, small doses	7	1	2	5	1
Emetics	12	1	1	11	2
Bleeding	2	2	0	2	0
Eclectic	9	5	3	6	7
Quinine	1	0	0	1	1
Mercurials	1	0	0	1	0
Expectant	29	4	1	28	1
	69	13	11	58	13

This statistical table left no doubt in Ware's mind as to the efficacy of the expectant means of treatment.

THE MODERN PERIOD

In the century which followed, there appeared a number of hypotheses concerning the cause and the treatment of delirium tremens. During the latter part of the nineteenth century the

"toxin" hypothesis was offered to explain the cause of the delirium. It was believed that a secondary or intermediate product of protein decomposition arose in the gastro-intestinal tract, the central nervous system, or the kidneys, and that the delirium was caused by the flooding of the cerebral cortex with this toxin. There have been no adequate data to confirm this hypothesis.

Later, dehydration played an important part in the treatment of the delirious patient. It was believed that dehydration would relieve the cerebral edema which was thought to be present. Ergot, oral hypertonic saline solutions, parenteral hypertonic saline, glucose and sucrose solutions, spinal fluid drainage were utilized. However, it is not possible to demonstrate increase of spinal fluid pressure in most delirious patients. At present, there is a tendency to increase the fluid intake and to insure the adequate administration of sodium chloride.

Since the interrelationship between nutritional deficiency, cardiovascular disease, and alcoholic polyneuritis, there has been a tendency to use various components of the vitamin B complex in the treatment of delirium tremens. While many are aware of the possibility that the delirium may be a manifestation of the nutritional deficiency which accompanies chronic alcoholism, the data collected up to the present are not conclusive in establishing proof that lack of thiamin chloride or nicotinic acid cause the delirium.

From a psychologic point of view we do not know very much more than was known by Pearson and Armstrong. If anything, we have learned to listen and study the form and content of the delirious production as it may reveal further understanding of the personality structure of the patient. Then, as now, the patient was fed and allowed to sleep. We are more fortunate today. Paraldehyde is safer than opium and as efficacious. Continuous tub baths are used more often today. The patient is placed in a pleasant environment and the room is well lighted to avoid provoking illusions and hallucinations. The patient should be attended by nurses or attendants who reassure and explain the various medical procedures to the patient. Restraint is avoided and while we do not extend ourselves to the extremes that Dr. Pearson did, we take care not to dispute the validity of the sense deceptions experienced by the patient.[23]

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