

SCIENCE:

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JOHN MICHELS, Editor.

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The crime of Guiteau has directed public attention to the subject of mental diseases; we will therefore endeavor to explain the teachings of some of the most prominent of modern alienists who have recorded the results of their investigations, and classified the various phases of this, the greatest curse of humanity.

The first point of interest to be discovered is, can any line be drawn between partial and absolute insanity; if one faculty of the mind is affected do all succumb?

On this point, as on most others bearing on this subject, there is much difference of opinion; but the most advanced alienists appear to be now satisfied that a partial form of insanity exists, which is termed monomania. The German and French alienists have long since recognized this distinction and invented terms to express it, but it appears to be due to Dr. Edward C. Spitzka to have introduced this term with its proper modifications into English psychological literature.

The delusions of the monomaniac are what would be day-dreams in other people, "but which have become fixed realities for the former, owing, it is said, to a faulty cerebral association system, which permits collateral circumstances to act as supports for the patient's erroneous conception."

The general intellectual status of monomaniacs, though rarely of a very high order, is moderately fair, and generally the mental powers are sufficient to keep the delusion under check for the practical purposes of life, and although many are what is termed crotchety, irritable and depressed, yet the sole mental symptoms of the typical cases of this disease consists of the fixed delusions.

Without describing in detail the various features of

monomania, let us take an imaginary case of this character, and sketch its leading characteristics. To protect us from any reproach of exaggeration or of drawing a fictitious image, we will take an extract from a paper by Dr. Edward C. Spitzka read before the New York Neurological Society, as far back as November 1880.

The monomaniac after experiences incidental to the early stages of the disease at length concludes that he is a person of some importance.

"Some great political movement now takes place, he throws himself into it either in a fixed character that he has already constructed for himself, or with the vague idea that he is an influential personage. He seeks interviews, holds actual conversations with the big men of the day, accepts the common courtesy shown him by those in office as a tribute to his value, is rejected, however, and then judges himself to be the victim of jealousy or of rival cabals, makes intemperate and querulous complaints to higher officials, perhaps makes violent attacks upon them, and finally is incarcerated in a jail."

The writer of this paper had no intention of being prophetic in his utterances, but our readers cannot fail to observe the very close relation the above picture bears to any mental portrait which might be drawn of the assassin Guiteau.

It is curious that all through this train of ideas to which the monomaniac abandons himself there is seen a chain of logic and inferences; there is no gap anywhere. If the inferences of the patient were based upon correctly observed facts and associated with a proper correlation with his actual surroundings, his conclusions would be perfectly correct.

We have therefore in the monomaniac an individual with full reasoning powers, and intellectually the equal of most men. In what respect does his status differ from the sane man? The answer is, that he is possessed *with a fixed delusion* or insane project.

To follow the subject intelligently, let us now enquire what an alienist terms a delusion, and analyze its nature. This can be done profitably, for we are told that such a preliminary investigation is the most direct step for those who would be initiated into the mysteries of the insane mind.

Genuine delusions are divided into two fundamental classes; the first styled **SYSTEMATIZED DELUSIONS** as contrasted with the second class of **UNSYSTEMATIZED DELUSIONS**.

It may be here stated, that assuming Guiteau to be a monomaniac, his delusions would be of the first class.

The highest general mental development among constitutional lunatics is found among those who cherish

systematized delusions of social ambition; the delusion being often the outgrowth from a dream, or from an actual hallucination. These men usually imagine themselves the worst enemies of mankind, or are social reformers, inventors, poets, &c.; but as Spitzka remarks, it is often noticed, especially with patients of high culture, that the delusions are not so monstrous as to lead to an error in the patient's sense of identity, but limited to his self-esteem in the abstract.

Systematized delusions may also be of an expansive erotic character, when the patient constructs an ideal of the other sex, and may on some occasion discover the incorporation of his ideal, in an actual personage, usually in a more exalted position than his own. Systematized delusion may also be of an expansive religious nature, or lastly of a DEPRESSIVE CHARACTER.

We would like to give our readers a formula by which they might detect a *systematized delusion*, but although alienists are specific in their language and ample in their detail, brevity is not attempted, as perhaps not possible in treating so complicated a subject.

When, however, we see an individual without any manifest disturbance of his emotional and effective states, in full possession of the memories accumulated in the receptive sphere, and able to carry out most or all of the duties incident to his social position, yet firmly believing in the reality of that which from his education and surroundings, we should expect him to recognize as absurd, or radically wrong, the probability is that the phenomenon is due to a *systematic delusion*.

The one fundamental character which distinguishes the delusions of systematic delusional lunatics, is the correlation with their surroundings, or of their unelevative physical status. However falsely the patient's sensations and external circumstances may be interpreted, yet, after all, there is a *pseudo* logical chain running from them to the delusion which they keep to create and to sustain. This is absent in the case of patients exhibiting unsystematized delusions. Again, up to a certain stage, the *systematized delusion* is analogous to a healthy conception, this is never the case in an *unsystematized delusion*.

The factors engaged in producing the systematized delusion are two-fold. One, the predisposition we have recognized as presumably based upon anomalous condition of the brain, and the other some exciting cause which must be studied.

For instance; the general mental tone of the patient. If he be of sanguine disposition, the delusion is often the outgrowth of a day-dream, on the plan of the saying that the wish is father to the thought. If he be of a suspicious turn, delusions of persecutions are apt to arise.

Again, the physical state may influence the patient. If this be fair, delusions are apt to be expansive, and to involve social and sexual matters.

And lastly, the circumstances of the patient, as the age in which he lives; the education he receives, his social condition. All these modify the character of

the delusions of this class of the insane. It is admitted that while all these factors are of the highest importance, they will never create a *systematic delusion*, unless the cerebral predisposition exists.

Of the *unsystematic delusions* we shall be brief, as they are characteristic of the acuter insanities, and are, therefore, more easily recognized. The patient exhibiting them never acts in strict accordance with his assumed character, and there is no consistency in his behavior. The unsystematized delusional lunatic will tell you that he is possessed of a million dollars, but he cannot account for his being richer to-day than he was yesterday.

It is pointed out that the great line of demarcation between the two classes of delusions lies in the fact, that, in the systematized delusion all the powers of logic and mental qualities that the man ever had are utilized by him in the construction and defense of his delusion, and as Spitzka points out is of great medico-legal importance, are also utilized in the carrying out of his schemes of defense or *revenge*. On the other hand, the unsystematized delusionist is deprived of his logical power, and apart from his hallucinations is unable to specify any support for his morbid ideas, and his actions betray that same lack of system which his delusions do.

We are indebted to two papers* by Dr. Edward C. Spitzka in presenting this classification of delusions of Monomaniacs, and we are somewhat surprised to find that he appears to ascribe all these classes of delusions to direct cerebral troubles, in fact he ridicules their being attributed to functional complications and diseases of other organs of the body.

The expert alienist can no doubt draw the distinction, and decide correctly on the true source of the mental disturbance, but it cannot be doubted that much error in this respect is exhibited by the inexperienced, for delusions of every kind are manifested at least temporally in many forms of disease, which in some cases may be so persistent as to appear chronic. As Dr. Spitzka himself frequently protests in his papers on the indiscriminate power which courts and physicians possess, who often consign "useful members of society to the living tomb of an asylum, and to the tender mercies of an ex-horse car conductor, or ex-night watchman or other politician," he will excuse the exception we take to the too ready desire of many persons to place in the category of "maniacs," men who are merely hypochondriacal or depressed and vicious in disposition.

We have indicated the form of insanity, which may be ascribed to the case of Guiteau, but we have no desire to prejudge the case. The crime was barely committed before Cabinet Ministers, Physicians, Editors, and a large portion of the public, immediately jumped to the conclusion that the assassin was mad; that such a verdict was hastily given all must now admit. Whether the evidence, which will undoubtedly be produced at the trial, will justify the first impression, and release the prisoner from the responsibility of this crime, will be a matter to be watched with considerable interest.

*Insane delusions, their mechanics and their dragnostic bearing. The Journal of Nervous and Mental Disease, January, 1881. Monomaniac or "Primäre Verruecktheit." Read before the Neurological Society, Nov. 5, 1880. Reported in St. Louis Clinical Record.

WE recently called attention to a report made by Professor Leeds to the Chemical Society, of New York on the adulterations of certain articles of food. The tenor of the report was to show that food products in general were unadulterated and pure, and to cast ridicule on those who asserted to the contrary. Among other specific statements Prof. Leeds stated that he had made a special examination of sugar syrups, and asserted that the result of his investigations showed, that they were free from any admixture of glucose.

Side by side with Prof. Leeds' report we gave the statement of Prof. Wiley that 500 tons of glucose was made daily in the United States, the bulk of which was used for adulterating cane sugars, and that the glucose of commerce as sold in the Western States was largely composed of syrup made from starch.

We publish in this issue a letter from Prof. Wiley in confirmation of his report, stating that the manufacture of a sugar, which is a mixture of glucose and cane sugar, is carried on in New York city or its vicinity.

AMYLOSE.

As a thousand tons of sugar made from starch will within a few months be placed on the market daily, half that amount being already the consumption of that article of commerce, it appears desirable to make use of some name by which this substance may be known and at the suggestion of Prof. Wiley, we propose "AMYLOSE" as an appropriate term.

AMYLOSE will include all varieties of syrups and sugars manufactured from starch. (Lat. *Amylum*, *Starch*).

NOTE ON PHOTOGRAPHS OF THE SPECTRUM OF THE COMET OF JUNE, 1881.

BY PROFESSOR HENRY DRAPER, M. D.

The appearance of a large comet has afforded an opportunity of adding to our knowledge of these bodies by applying to it a new means of research. Owing to the recent progress in photography, it was to be hoped that photographs of the comet and even of its spectrum might be obtained and peculiarities invisible to the eye detected. For such experiments my observatory was prepared, because for many years its resources had been directed to the more delicate branches of celestial photography and spectroscopy, such as photography of stellar spectra and of the nebulae. More than a hundred photographs of spectra of stars have been taken, and in the nebula of Orion details equal in faintness to stars of the 14.7 magnitude have been photographed.

It was obvious that if the comet could be photographed by less than an hour's exposure, there would be a chance of obtaining a photograph of the spectrum of the coma, especially as it was probable that its ultra-violet region consisted of but few lines. In examining my photographs of the spectrum of the voltaic arc, a strong band or

group of lines was found above H, and on the hypothesis that the incandescent vapor of a carbon compound exists in comets this band might be photographed in their spectrum.

Accordingly, at the first attempt, a photograph of the nucleus and part of the envelopes was obtained in seventeen minutes on the night of June 24th, through breaks in the clouds. On succeeding occasions, when an exposure of 162 minutes was given, the tail impressed itself to an extent of nearly ten degrees in length.

I next tried by interposing a direct vision prism between the sensitive plate and object glass to secure a photograph which would show the continuous spectrum of the nucleus and the banded spectrum of the coma. After an exposure of eighty-three minutes, a strong picture of the spectrum of the nucleus, coma and part of the tail was obtained, but the banded spectrum was overpowered by the continuous spectrum.

I then applied the two-prism spectroscope used for stellar spectrum photography, anticipating that although the diminution of light would be serious after passing through the slit, two prisms and two object glasses, yet the advantage of being able to have a juxtaposed comparison spectrum would make the attempt desirable, and moreover, the continuous spectrum being more weakened than the banded by the increased dispersion the latter would become more distinct.

Three photographs of the comet's spectrum have been taken with this arrangement with exposures of 180 minutes, 196 minutes and 228 minutes, and with a comparison spectrum on each. The continuous spectrum of the nucleus was plainly seen while the photography was in progress. It will take some time to reduce and discuss these photographs and prepare the auxiliary photographs which will be necessary for their interpretation. For the present it will suffice to say that the most striking feature is a heavy band above H which is divisible into lines and in addition two faint bands, one between G and λ and another between λ and H. I was very careful to stop these exposures before dawn, fearing that the spectrum of daylight might become superposed on the cometary spectrum.

It would seem that these photographs strengthen the hypothesis of the presence of carbon in comets, but a series of comparisons will be necessary, and it is not improbable that a part of the spectrum may be due to other elements.

271 MADISON AVENUE, NEW YORK.

OBSERVATIONS ON SIREDON LICHENOIDES.*

BY WM. E. CARLIN.

Como Lake is a body of water about two miles and a half in circumference. It has no known outlet, but is fed by a stream of pure spring water about two feet wide and a foot deep, which, continually running, prevents the lake's absorption by evaporation. The lake is quite shallow and can be easily waded at almost any part, being not more than 10 feet deep in the deepest place that I have been able to find. The bottom of the lake is soft and is covered in most places with grass and weeds. The water is strongly impregnated with alkali, and a large number of cattle are said to have died a number of years ago from drinking it. It is very disagreeable to the taste. The amount of water varies about 14 inches during the year, being highest in the spring from the melting snows, and lowest in the autumn. This is the home of the *Siredon lichenoides* (Baird). They never enter the stream of fresh water, preferring the alkali water of the lake. They seem to suffer no inconvenience, however, if placed in fresh water. I have caught as many as a hundred and fifty and

*From the Proceedings of United States National Museum.