

CLASSICS OF THE ALCOHOL LITERATURE
AN EARLY MEDICAL VIEW OF ALCOHOL ADDICTION AND
ITS TREATMENT.
DR. THOMAS TROTTER'S "ESSAY, MEDICAL, PHILOSOPHICAL AND
CHEMICAL, ON DRUNKENNESS."

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An Early Medical View of Alcohol Addiction and
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MANY writers on inebriety have been credited with recognizing, for the first time, alcohol addiction as a disease. Earlier and earlier instances are mentioned in historical notes and perhaps the original coiner of the phrase will never be ascertained. Certainly Dr. Thomas Trotter was not the first writer to assert this, as a few years before him Benjamin Rush had referred to alcohol addiction as a disease. On the other hand, it was probably Trotter who was the first to go farther than merely stating the fact and who actually dealt with the question in a truly medical sense.

Thomas Trotter (1760-1832) studied medicine in Edinburgh and in 1778, at the age of 18, became a physician in the British Navy. He later returned to the University of Edinburgh where he worked for his medical degree which he received in 1788. His ambition was to submit a doctor's thesis on a subject "that had never been noticed by any former graduate." After much consideration he decided on the subject of "ebriety," but doubted "whether such a thesis was proper matter for an academic exercise." The subject was found acceptable by the faculty and in 1788 Trotter submitted his thesis, *De Ebrietate, ejusque Effectibus in Corpus humanum*. For this work he received the thanks of the Royal Humane Society. Dr. Hawes in transmitting the thanks of this institute observed that "the investigation of so important an inquiry, in a regular scientific manner, was never before thought of: it was a subject left, happily left, to be ingeniously executed and amplified by Dr. Trotter."

In 1804, after having served again in important positions in the Navy, Trotter greatly amplified and revised his inaugural dissertation and published it as a book of over 200 pages. The passages given below are quoted from the 1813 edition published by Bradford and Read of Boston and A. Finley of Philadelphia. This *Essay* dedicated to Dr. Jenner is an important document on the knowledge at the opening of the nineteenth century relative to the physical and chemical effects of alcohol. The book is even more important as representing an early medical view of alcohol addiction and as a first systematic consideration of psychotherapy of this disease.

Trotter gives the following definition of alcohol addiction:

In medical language, I consider drunkenness, strictly speaking, to be a disease; produced by a remote cause, and giving birth to actions and movements in the living body, that disorder the functions of health.

The reason why it was not treated as a medical subject and why it should be treated so he explained in the introduction:

Mankind, ever in pursuit of pleasure, have reluctantly admitted into the catalogue of their diseases, those evils which were the immediate offspring of their luxuries. Such a reserve is indeed natural to the human mind: for of all deviations from the paths of duty; there are none that so forcibly impeach their pretensions to the character of rational beings as the inordinate use of spirituous liquors. Hence, in the writings of medicine, we find drunkenness only cursorily mentioned among the powers that injure health, while the mode of action is entirely neglected and left unexplained. . . . The priesthood hath poured forth its anathemas from the pulpit; and the moralist, no less severe, hath declaimed against it as a vice degrading to our nature. Both have meant well; and becomingly opposed religious and moral arguments to the sinful indulgence of animal appetite. But the physical influence of custom, confirmed into habit, interwoven with the actions of our sentient system, and reacting on our mental part, have been entirely forgotten. The perfect knowledge of those remote causes which first induced the propensity to vinous liquors, whether they sprung from situation in life, or depended on any peculiar temperament of body, is also necessary for conducting the cure.

Trotter was fully cognizant of the medical literature dealing with the effects of alcohol on the body, but as far as medical discussion of addiction itself was concerned, his statement was in order.

There are various etiological remarks in the *Essay*. That alcohol addiction could be transmitted from father to son had been said before him, but the hereditary role was envisaged by Trotter in a much more modern sense.

Drunkenness itself, is a temporary madness. But in constitutions where there is a predisposition to insanity and idiotism, these diseases are apt to succeed the paroxysm, and will often last weeks and months after it. Wounds and contusions of the brain and cranium, with other organic lesions, have a similar effect. I have known numberless instances of these kinds of *Mania* and *Amentia*.

He was a believer in psychogenesis of the habit:

Again, are not habits of drunkenness more often produced by mental affections than corporeal diseases? I apprehend few people will doubt the truth of this. Does not the inebriate return to his potation rather to raise his

spirits, and exhilarate the mind, than to support and strengthen the body? The diseases of body, if unattended with dejection, have no need of vinous stimulus; and three-fourths of the human race recover daily from all the stages of debility without ever having recourse to it.

Trotter had also some etiological ideas relating to early nutritional habits:

The seeds of this disease, (the habit of ebriety,) I suspect, like many other, are often sown in infancy. I do not merely allude to the moral education: In the present stage of society, human kind are almost taken out of the hands of Nature: and a custom called *fashion*, a word which ought to have nothing to do with nursing, now rules every thing. The early stages of our existence require a mild bland nourishment, that is suited to the delicate excitability of a tender subject. But it too often happens that the infant is deprived of the breast, long before the growth of the body has fitted the stomach for the reception of more stimulant food. Instead, therefore, of its mother's milk, the infant is fed on hot broth, spiced pudding, and, perhaps also, that enervating beverage tea. The taste is thus early vitiated, the stomach and bowels frequently disordered; and, to add to the mischief, the helpless child is forced to gulp down many a nauseous draught of medicine or bitter potion, that its unnatural mother may acquit her conscience of having done every thing in her power to recover its health. Dyspeptic affections are in this manner quickly induced: a constant recourse to medicine, wine, cordials, and spirits, must be the consequence; and the child of the fashionable lady becomes a certain *annuity* to physic; a drunkard at twenty, and an old man at thirty years of age.

Etiological theories of this type are encountered also at present.¹

Relative to the therapy of alcohol addiction Trotter expressed ideas which are still being reiterated by psychotherapists. Previous to Trotter, Benjamin Rush had presented some ideas on the therapy of addiction, such as religious conversion and even conditioning,² but Rush's ideas on the subject were not systematic and did not show the psychiatric insight which is revealed in Trotter's discussion.

It is to be remembered that a bodily infirmity is not the only thing to be corrected. *The habit of drunkenness is a disease of the mind.* The soul itself has received impressions that are incompatible with its reasoning powers. The subject, in all respects, requires great address; and you must beware how you inveigh against the propensity; for the cravings of appetite for the poisonous draught are to the intemperate drinker as much the inclina-

1. Carroll, R. S. *What Price Alcohol*. New York, The Macmillan Co., 1941.

2. "The association of the idea of ardent spirits with a painful or disagreeable impression upon some part of the body has sometimes cured the love of strong drink." Rush, B. *An Inquiry into the Effects of Ardent Spirits, etc.* Brookfield, Merriam & Co., 1814, 8th ed.

tions of nature, for the time, as a draught of cold water to a traveller panting with thirst in a desert. Much vigilance will often be required in watching these cravings; for they are sometimes attended with modes of deception, and a degree of cunning, not to be equaled. I have known them employ force in the rudest manner in order to gratify their longing after spirituous liquors. I firmly believe that the injudicious and ill-timed chastisement of officious friends have driven many unfortunate inebriate to ruin, that might have been reclaimed by a different treatment. Nay, if such corrections are applied when the mind is ruffled with nervous and hypochondrical feelings, and depressed with low spirits, which so frequently follow a last night's debauch, the consequences may be fatal; and it is well known that suicide has sometimes been first resolved upon after these ghostly admonitions.

When the physician has once gained the full confidence of his patient, he will find little difficulty in beginning his plan of cure. I have on several occasions wrought myself so much into the good graces of them, that nothing gave them so much alarm or uneasiness as the dread of declining my visits after they had been argued out of the pernicious practice. This confidence may sometimes be employed to great advantage when your regimen is in danger of being transgressed, for frequent relapses, and promises repeatedly broken, will, in such situations, render the physician's visits a work of great trial to his patience. This disease, I mean the habit of drunkenness, is like some other mental derangements; there is an ascendancy to be gained over the person committed to our care, which, when accomplished, brings him entirely under our control. Particular opportunities are therefore to be taken, to hold up a mirror as it were, that he may see the deformity of his conduct, and represent the incurable maladies which flow from perseverance in a course of intemperance. There are times when a picture of this kind will make a strong impression on the mind; but at the conclusion of every visit, something consolatory must be left for amusement, and as food for his reflections. . . .

I have mentioned, above, the necessity of studying the patient's temper and character, that we may acquire his confidence. These will lead us to the particular cause, time and place of his love of the bottle. The danger of continuing his career may be then calmly argued with him, and something proposed that will effectually wean his affections from it, and strenuously engage his attention. This may be varied according to circumstances, and must be left to the discretion of the physician.

The modern principle of suiting the treatment to the individual was also expressed by Trotter:

In treating these various descriptions of persons and characters, it will readily appear to a discerning physician, that very different methods will be required. The patient already knows, as well as the priest and moralist that the indulgence is pernicious, and ultimately fatal: he is also aware, without the reasonings of the physician, that the constant repetition will destroy health; but it is not so easy to convince him that you possess a

charm that can recompense his feelings for the want of a grateful stimulus, or bestow on his nervous system sensations equally soothing and agreeable as he has been accustomed to receive from the bewitching spirit. *Hic labor, hoc opus est*: this is the difficulty; this is the task, that is to prove your discernment, patience, and address. That little has been done hitherto with success, we may be assured, by very rarely meeting with a reformed drunkard. The habit, carried to a certain length, is a gulph, from *whose bourne no traveller returns*: where fame, fortune, hope, health, and life perish.

Trotter did not forget that the bodily diseases attendant upon inebriety had to receive attention too.

In order to strengthen the body if debilitated, general remedies, as commonly employed, may be resorted to; such as the cold bath, chalybeate waters, exercise in the open air, condiments, vigorous diet, etc. . . .

The chief complaints which require medicine are of the dyspeptic kind. The pain and uneasiness which they create is almost constant; and if accompanied with a hypochondriacal disposition, nothing can be more harassing. It is always necessary in such cases to correct the acidity prevailing in the stomach and bowels; which may be done by Pulv. chel. comp. Pulv. cretæ comp. Mag. ust. Aq. calcis, etc. Acidity with flatulence often produces spasmodic pains and twitches, as they are called, as well as that irregular and tumultuous motion of the intestines called borborygmi. Bitters are readily combined with these anti-acids, such as colombo, quassia, chamœmelum, etc.; they likewise impede fermentation in the stomach, and also correct acidity. Iron, in its most suitable state, (for the form ought to be studied) given in small quantity, and continued long, is justly celebrated in these cases. I would have the belly preserved in a soluble condition by gentle laxatives; but all the harsher purgatives must be avoided: if the diet can be so conducted as to supersede the use of medicine in regulating this discharge, so much the better. The cramps and spasms which so often attend the weakened stomach are readily relieved by æther. vitr. and opium, with other stimulants; but these generally yield when the acidity is overcome. The physician, in directing his *formula*, will cautiously avoid every preparation that has ardent spirit in its composition. I have seen and known many instances where the most nauseous and fetid tinctures were devoured with an avidity not to be conceived, when it was found that they were compounded of brandy. The taste of the mouth on such occasions has little to do in exciting the desires of the patient; there is a *vacuum* in sensation, if I may so term it, that can be supplied with nothing but the vinous stimulus while the habit remains, and the mind not earnestly in pursuit of something that can engage it.

The treatment of dyspnea of drunkards and "schirrous liver" were also considered.

Relative to diet Trotter thought it best

to put him on food in direct opposition to his former modes of living, and consign him to the lap of nature as if his existence were to pass through a

second infancy. Indeed the reformed drunkard must be considered as a regenerated being.

He advocated immediate withdrawal of alcohol in opposition to the contemporary ideas on the harmfulness of such procedure (ideas which even at present are occasionally expressed).

As far as my experience of mankind enables me to decide, I must give it as my opinion, that there is no safety in trusting the habitual inebriate with any limited portion of liquor. Wherever I have known the drunkard effectually reformed, he has at once abandoned his potation. That dangerous degree of debility which has been said to follow the subtraction of vinous stimulus, I have never met with, however universal the cry has been in its favour; it is the war-whoop of alarmists; the idle cant of arch theorists.

Trotter's ideas on physiology and biochemistry of alcohol are naturally reflections of the status of knowledge in those fields at his time. Historically his opinions are of considerable interest and they are given here without further comment.

The stimulant action of ardent spirit is first exerted on the stomach, and spread, by sympathy, from thence to the *sensorium commune*, and the rest of the system. But there can be no doubt that much of the liquor also enters the circulation, and gives there an additional stimulus: for we are acquainted with no particular appetency inherent in the lacteal vessels, that can confine the absorption only to mild and bland fluids. It is true that the urine, perspirable matter, and serum of inebriates have never yet been so carefully analyzed as to discover alcohol; but that vinous spirit mixes with the blood we know to a certainty, from the hydrogenous gas which escapes from the lungs, to be perceived in the fœtor of the breath. We are, however, ignorant what combinations the hydrogen, or other parts of the alcohol, may form with the human fluids. But, besides the effect which spirits may have, in directly exciting the nervous system, it would appear that intoxication and delirium are also much increased, by the force of the circulation in the blood vessels of the brain, and the mechanical compression as a consequence of their surcharged state. This being admitted, at once explains why so much comatose affection attends ebriety. It is also observed that some liquors, more than others, produce sopor: porter, and all strong malt liquors, are of this description, as characterized by the swoln and bloated countenance, stupor, sluggishness, drowsiness, and sleep: while gaiety and an immense flow of spirits distinguish the frisky delirium from drinking champagne, and some other liquors. Obesity and fulness commonly follow the long indulgence of strong ale, strong beer, or porter: the blood vessels would appear to be clogged with a dense blood; and I have observed, in such cases, that the drunken paroxysm lasts much longer, than when it has been produced by any kind of wine, or even ardent spirit diluted or otherwise. The fixed air in champagne must give but a temporary

stimulus; and the tartar, which is an ingredient in all wines, probably facilitates their evacuation from the body, by its diuretic quality.

Indeed the only way of accounting for the solution of the drunken paroxysm, must be as follows: the ardent spirit must either be attenuated, diluted, neutralized, or evacuated, that it ceases to have effects. It probably partakes of all these. It is also peculiar to the living fibre, to remain a given time in the state of excitement only, unless a new portion of stimulus is supplied. But the body does not immediately return to the former condition after the solution of the disease. It has been weakened by excessive stimulation; and it is only by the exhibition of moderate stimuli, such as pure air, animal food, and mental exhilaration, that it can resume its former health and vigor. The head-ach, nausea, languor, and low-spirits, which follow a debauch, are so many proofs of a debilitated frame. . . .

That *alkohol*, independent of its intoxicating quality, possesses a *chemical* operation in the human body, cannot be doubted. Applied directly to the animal solid, it constricts and hardens it: and suspends its progress towards putrefaction when separated from the body. It coagulates the serum of the blood, and most of the secreted fluids.

Alcohol certainly, deoxygenates the blood in some degree; at least decomposes its floridity. The arterial blood of a professed drunkard approaches to the color of venous; it is darker than usual. The rosy colour of the eruptions about the nose and cheeks does not disprove this: for it is probable that these spots attract oxygen from the atmosphere through the cuticle that covers them, just as Dr. Priestly observed venous blood, confined in a bladder, to acquire a more florid colour from the exposure to his dephlogisticated air. In the sea scurvy, a disease, where, in the advanced stage, the blood is always found of a very dark colour, we know that spirituous liquors more than any thing else, have a manifest tendency to aggravate every symptom. This fact has often come under my observation; and a very correct statement of the kind is to be found in my first volume on the Diseases of the Fleet, page 410.

The component parts of alcohol are not sufficiently known; but it has a large proportion of hydrogen, which is proved by its combustion in pure air, when water is produced. Thus fourteen ounces of alcohol burnt in a proper apparatus, with a sufficient quantity of oxygen gas, yield sixteen ounces of pure water; hydrogen and oxygen being the component principles of water, as proved by modern chemistry. Alcohol has a strong attraction for water, and readily mixes with it, and it is the chief vehicle in which it is drank; but in what manner it is separated from the water within the body, would be difficult to find out. The evolution of hydrogenous gas is chiefly learned from the fœtor of the breath; it seems to be sent off from the surface of the lungs, in a disengaged state; and so pure in its kind from the expiration of a dram-drinker, that it is easily inflamed on the approach of a candle. The process of respiration probably effects this; and I should think at such a time there must be an unusual consumption of vital air. No experiments have been made on the blood of inebriates: and we are not informed, that in the circulating state, it exceeds the common temperature of the human

body. But it is said, on the authority of Mr. Spalding, the celebrated diver, that after drinking spirits he always found the air in his bell consumed in a shorter time, than when he drank water. This gentleman was lost in Dublin bay in 1783, in attempting to take the treasure out of an imperial Indiaman that sunk there, on her passage from Liverpool where she was built: the misfortune, it appeared, was owing to the negligence of the attendants in not renewing the air.

If the blood of drunkards is strongly charged with hydrogen, must not that very much affect the quality of the biliary secretion, independent of any effect it may have on the liver itself? Might not the resinous matter which bile is found to contain, be greatly increased after spirituous potation? The liver is an organ very liable to be injured by hard drinking; this gives cause for suspicion, that the *chemical* operation of alcohol on the blood and the bile, has also some share in producing hepatic diseases. It may increase the generation of *biliary calculi*, and the disposition of dyspepsia, which prevail in the constitution of drunkards.

Trotter also enumerates and describes in great detail the bodily ailments of inebriety, but neither his lists nor his descriptions differ in any way from the well known lists of his times.

While Trotter's *Essay* is an indictment of excessive drinking, and while he even believed that moderate drinking was unnecessary for younger people, he conceded advisability of drinking from middle age on.

I am of opinion, that no man in health can need wine till he arrives at forty. He may then begin with two glasses in the day: at fifty he may add two more; and at sixty he may go to the length of six glasses *per diem*, but not to exceed that quantity even though he should live to an hundred.* Lewis Cornaro, the Venetian nobleman who lived upwards of a hundred, used fourteen ounces of wine in the day. The stimulus of wine is favourable to advanced age.

Further medical use of alcoholic beverages he saw in the case of typhoid fever, but generally he cautioned against the therapeutic administration of alcoholic beverages.

E. M. J.

*Let it be remembered that I only apply this quantity to the abstemious man who has never indulged in wine.