

Public Health Then and Now

Anstie's Alcohol Limit

Francis Edmund Anstie 1833–1874

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The avenue to medical fame can be oblique, a deviation from the major accomplishments of a life time. Such appears to be the case with Francis E. Anstie.

“Anstie's Limit” or Rule refers to the daily amount of alcohol that the average drinking individual can consume without risk of deterioration of health. His counsel became a widely respected and quoted opinion in medical and insurance circles.^{1, 2} A hundred years after his death the 25th edition of Dorland's Illustrated Medical Dictionary lists³ the dictum as a rule used in connection with life insurance examination: the maximum amount of absolute alcohol taken daily without injury is 1 ½ ounces, equivalent to about 3 ounces of hard liquor, a pint of light wine, or 24 ounces of bottled beer or ale.

How did Anstie have such a forum to command attention, and from what base did he speak! A search for the answers unveiled a social and medical controversy, and a physician-scientist-reformer, cut down tragically in his most productive years.

London in the 1860's was experiencing the full impact of the development of the railways and the concentration of population masses in congested squalid quarters. Alcoholism was widespread, particularly among the working class. Out of revulsion for this social disorder arose the fervid temperance cry for total abstinence (“teetotallers”). At the same period the medical world was swept up in debate over the status of alcohol and its place in medicine “Is it food, a medicine or a poison?”⁴ Metabolism became the question; the answers lay in the laboratory.

Anstie came to a central role in this arena through early pursuit of three interests. In his training under Robert B.



Francis Edmund Anstie
Source: *Practitioner* 16, 1876

Todd (1809–1860) at Westminster Hospital King's College, he became convinced of the caloric value of alcohol for sustaining nutrition in cases of wasting fevers, as a nutritive that spared body protein.

Secondly, he acquired a concern with scientific procedure in studying disease; his first appointment was in pathology. He divided his time between the laboratory and the

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medical wards where he was one of the first to use Marey's sphygmograph. Lastly, he was drawn to neurology and the manner of action of drugs on bodily systems. In short he was an acknowledged leader in the scientific revolution in medicine.

Among the protagonists of alcohol as a poison were the Frenchmen Lallemand, Duroy, and Perrin who, wrote Anstie, "were the first observers who clearly proved the elimination in the urine of unchanged alcohol, but concluded too hastily that the whole amount taken was thus eliminated." Anstie perfected the reagent which allowed more quantitative measurement of urinary excretion after a moderate dose "which lasts over a few hours only; entirely contrary to what we know of the behavior of those poisonous substances which are wholly eliminated in an unchanged form."⁵ Here he speaks from the vantage point of his lectureship in *matéria medica*.

Far from being a detractor, Anstie was more properly regarded as the defender of alcohol in moderation, even in the lay press. At the urging of his friend William Makepeace Thackeray he wrote a series of articles for the literary magazine *Cornhill* dealing with weight control and the use of tobacco and alcohol. He concluded that alcohol in small doses is a pure stimulant, in large doses a purely depressant poison. Like common salt it was impossible to draw an absolute line between poison and medicine; in various acute disease conditions the dose of alcohol borne without intoxication was much increased, a shifting of the "poison line." In the heat of the prohibition debate he urged medical men not to be silent or to become mouthpieces of the "teetotal party", but to continue the use of alcohol in treatment as an admirable substitute for solid food.⁴

Anstie was on the editorial board and a frequent contributor to *The Lancet*. He published a treatise on "Stimulants and Narcotics", wrote a section on alcoholism for Reynold's System of Medicine, and became editor of the *Practitioner* journal. His stature in the medical world was such that he was offered several professorships in American medical schools.⁶ But he never crossed the Atlantic. English biographies stress his many talents, the interests he pursued and his concrete successes in several fields, but make no reference to his rule on alcohol. Even in the British medical literature of his day one looks in vain for his statement on limitation. Rather the only publication of his rule that I can find under his name consists of an 84 page hard-cover booklet from a New York printer in 1870 entitled "On the Uses of Wine in Health and Disease."⁷ The title page acknowledges his editorship of the "London Practitioner" without mentioning his other professional credentials. In a style intended for the lay public he sets down the amounts of rough equivalents of various beverages, and states, "The daily allowance above-mentioned includes an amount of absolute alcohol which our own experimental researches have shown to be about the limit of what can habitually be taken by persons leading a not very active life without provoking symptoms of chronic malaise, indicative of actual alcohol poisoning."

He then noted the existing lack of a clear recognition and uniform counsel regarding the alcohol problem. "We wish to compel the upper and middle classes and their medi-

cal advisors to look the facts of alcohol consumption honestly in the face,—(tho) we fear that a good many persons will characterize these points of advice as utopian in its standard of temperance."⁷

It would appear a bit ironic, in light of his other achievements, that it was his Rule that brought Anstie enduring notice, and that the dictum gained prominence primarily in American rather than British professional circles.

Anstie was described as a person of melodious voice and genial presence, bold in opinion and expression (even to a false air of arrogance) and of restless energy.⁸ In the last ten years of his short life he emerged as a tireless leader in the public health field. He combined vision, idealism and pragmatism to prod reform. "For the State to decline to inquire about such matters as the bodily habits and health of its members is not in favor of liberty, but in favor of immorality, dirt, disease and death."⁹ He insisted upon the appointment of special qualified persons to report and advise in questions of lunacy, sanitary police, food adulteration and food inspection, and to give evidence on criminal trials and coroners' inquests.⁸

Public scandals over the deficiency of medical and nursing care in workhouse infirmaries led to his appointment on a *Lancet* Commission which visited 38 such institutions. Anstie made most of the visits and wrote the report which generated many reforms.⁸

At his instigation the Royal College of Physicians petitioned the Premier to provide some remedy for the great and increasing overcrowding of the population in the metropolis. He protested "the destruction of multitudes of poor habitations without making any considerable effort to supply their place"⁸; some authority was needed with power to control urban renewal and insist upon the building of compensatory housing for the poor. This resulted in the passage of an Act by Parliament "for the working classes in large towns."

As editor of the *Practitioner* Anstie established the first special journalistic section to provide intercommunication in the field of public health. His editorial positions led to an inquiry into the unstandardized conditions of the drug trade in London. The controversial first medical school for women was one of his last endeavors as dean in 1874.¹⁰

Death came prematurely and abruptly at the age of 41. Asked to investigate a series of infectious fatalities in a school, Anstie pricked his finger in doing an autopsy on a case of peritonitis, contracted septicemia and was dead in a week. English medical journals registered shock. Tributes to his brilliant career came from all quarters, perhaps best expressed by Florence Nightingale, "I can not express adequately how great is the loss to our country in Dr. Anstie. Many will fall victims to the want of (pursuing) the public health measures of which he was such a devoted supporter."¹¹

But what of Anstie's Limit? With increasing sales of alcoholic beverages per capita in the United States his rule could be both relevant and timely. Are his conclusions still valid one hundred years later?

The obvious has not changed—inebriation is acutely too much! However, drunkenness on the highways has a legal definition, expressed in terms of per cent blood alcohol con-

centration, varying a little between countries, but generally set at values above 0.100 per cent. Anstie as a neurologist studied acute alcohol poisoning, but his Rule focuses on the chronicity of daily intake as well as the amount.

How could Anstie presume to establish a universal daily limit? He was quick to introduce qualification, "for those living a not very active life." He defined an individual guide, a state of "chronic malaise", which sometimes is addressed by drinking more to try to feel better. Today we have evidence through radioactive carbon studies that individuals differ in the rate of metabolism of alcohol.¹² and that there are differences among races.¹³ With prolonged consumption, tolerance develops through adaptation of a secondary oxidation system in the liver which may speed alcohol clearance from the blood. But this does not protect the hepatic cells.^{14, 15} In today's psychosocial thrust there are even those who attack the "Safe Level Myth", concluding that when, how and why of drinking are just as important as how much.¹⁶

From the standpoint of alcohol-related injury and death, Anstie would be aghast today at the toll levied by the advent of the auto and drunken driving. Whether valid or not, his dictum followed would go far to keep blood levels of alcohol in the safe range for driving, and would curtail much subtle, silent loss of vibrant good health.

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Alcoholism

Alcoholism is a reaction pattern, a way of living, in which an individual attempts to handle his anxieties by use of a socially acceptable sedative, alcohol, which in turn, by its ego disorganizing effect on him personally makes increasingly difficult his existence with society in the form of his family and community.

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