

WAS THE FETAL ALCOHOL SYNDROME RECOGNIZED BY THE GREEKS AND ROMANS?

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Abstract — Ancient Greek and Roman philosophers/scientists are frequently quoted as expressing an awareness of potential harm associated with drinking during pregnancy. However, the statements attributed to these authors were not made by them. Instead, they are interpretations, presented in the form of verbatim statements, of their views relating to procreation. Although they did have something to say about the role of alcohol in procreation, it was the effects of drinking on the male body at the time of conception, and especially alcohol's effects on male body temperature, that concerned them. A cold body at the time of conception was believed to enhance the likelihood of conceiving a female, which to the Greeks and Romans was a 'deformity'.

INTRODUCTION

Fetal alcohol syndrome (FAS) refers to a pattern of anomalies occurring in children born to alcoholic women. When Jones and Smith (1973) published the initial report of this syndrome, they believed that theirs was 'the first reported association between maternal alcoholism and aberrant morphogenesis in the offspring' (Jones *et al.*, 1973, p. 1267). However, in a report published 6 months later, they presented an 'historical review' containing several anecdotes implying that the ancient Greeks and Romans had a rudimentary awareness of the association between maternal alcoholism and abnormal development (Jones and Smith, 1973). One of these anecdotes was an alleged Carthaginian law forbidding bridal couples to drink wine on their wedding night so as to avoid the conception of defective children.

Warner and Rosett (1975) published a historical survey in which they collected an extensive list of examples, primarily from the last 250 years, which they contended also supported the conclusion of Jones and Smith that an awareness of the effects of prenatal alcohol exposure long antedated its rediscovery. But like Jones and Smith, the evidence they cited was inaccurate. Warner and Rosett (1975) expanded the prohibition against drinking on the bridal night to Sparta, and cited several passages in Robert Burton's (1577–1640) *The Anatomy of Melancholy* (Burton, 1621), in which he

is apparently quoting verbatim statements from ancient Greek and Roman writers which imply more than a rudimentary awareness of alcohol-related birth defects.

The anecdotes and quotations mentioned in these two papers are frequently cited in contemporary reports to indicate 'the timelessness and persistence of FAS as a human problem' (Armstrong, 1998, p. 10). Despite their widespread acceptance, however, the authenticity or the meaning of these quoted passages or the anecdote relating to the Carthaginians have rarely been questioned. This same uncritical scholarship likewise characterizes acceptance of a passage from the biblical *Book of Judges* (13: 3,4) which has also been frequently cited as indicating a rudimentary awareness of FAS in the biblical world (see, e.g. Davis, 1980). However, even a cursory examination of the text indicated that it was concerned with cultic injunctions that are unrelated to damage from *in utero* alcohol exposure (Abel, 1997). Since the biblical evidence for a rudimentary awareness of FAS proved so illusory, it seems apposite to examine the evidence from the Greek and Roman era to determine if it likewise would hold up under scrutiny. An earlier and a briefer discussion of this evidence has appeared (Abel, 1984).

The first part of this article examines the evidence with respect to attribution and accuracy of the quotations cited as evidence that there was an awareness of alcohol's potential teratogenicity by

the ancient Greeks and Romans. The second part discusses how the views of the Greeks and Romans concerning alcohol's reproductive effects stemmed from their social attitudes toward women, who in Aristotle's words were 'deformed men'. The final section examines the biological explanation that the Greeks and Romans relied on to explain how deformities, which included women, could occur if men were drunk at the time their progeny were conceived.

THE SOURCES

Although Jones and Smith's (1973) citation of a Carthaginian injunction against drinking on the wedding night was mentioned first, the history behind this anecdote will be much clearer if its exposition is delayed until the statements quoted by Warner and Rosett (1975) are examined. The most frequently cited of those statements is one that Burton (1621) attributed to Aristotle (384–322 BC): 'foolish, drunken, or haire-brain women [for the] most part bring forth children like unto themselves, morose and feeble' (Burton, 1621, 1.2.1.6). Most authors citing this statement have assumed that Burton was quoting Aristotle's words verbatim, since he placed them in quotes and cited them as from the *Problemata* (Aristotle, reprinted 1927, 4.2). However, this statement does not appear in the *Problemata*, nor in any of Aristotle's other writings; these are Burton's words, not Aristotle's. In referring to women, Burton also does not accurately reflect Aristotle's views, since Aristotle expressly argues against the possibility that the female could have any such influence since she does not produce semen (Aristotle, reprinted 1963, 727b34–728a–729a33), which all his contemporaries agreed provided a child's physical and mental attributes (Aristotle, reprinted 1963, 730b15 ff.). The same is true of the other classical authors Burton appears to quote, e.g. the Roman miscellanist, Aulus Gellius (b. 125 AD) ('if a drunken man get a childe, it will never likely have a good braine') and the biographer/historian Plutarch (50–120 AD) ('one drunkard begets another'). These statements do not appear in any of the writings of either of these two authors. Burton also cited a number of other classical writers, such as Macrobius (ca. 380 AD), who he claimed agreed with these statements, yet he did not quote them.

Since Burton did not accurately quote his sources verbatim, it is clear that he was giving his readers a reconstructed synopsis of what he believed those authors would have said had they spoken directly on the subject of alcohol's effects (cf. Bamborough, 1989). For instance, Aristotle (reprinted 1927) did discuss alcohol's effects on reproduction in the *Problemata* (871a, 872b), but when he did so, his concern was with alcohol's effects on male libido and infertility, not with its effects on the conceptus: 'Why is it that those who are drunk are incapable of having sexual intercourse?'; 'Why is the semen of drunkards generally infertile?' Burton combined these statements with Aristotle's other views, which are discussed below, and created a new statement about drunken women on Aristotle's behalf.

Aulus Gellius likewise made no specific reference to the prenatal effects of drinking on offspring. The closest he came to anything pertinent are three statements. One is that '... the power and nature of the seed are able to form likenesses of body and mind'. Another is a remark a few lines later, that 'the nobility of body and mind of a newly born human being, [are] formed from gifted seeds'. And the third is a comment that a wet nurse should not drink wine. These statements were then woven together by Burton and attributed to Gellius as: 'if a drunken man get a childe, it will never likely have a good braine'.

The other writer Burton appeared to quote is Plutarch. Once again, however, Burton put words into his source's mouth, but in this instance, his reconstruction comes close to Plutarch's words. In *Symposiacs* (Plutarch, reprinted 1898, 1.6.1) Plutarch alluded to the 'chicken versus the egg' primacy question, and then said 'those being after these and formed in them, pay as it were a debt to Nature, by bringing forth another'. In other words, like begets like. In another of Plutarch's books, *Education of Children* (Plutarch, reprinted 1927, ch. 3), which Burton did not cite, Plutarch made a comment which is very similar to the one Burton attributed to him: 'children whose fathers have chanced to beget them in drunkenness are wont to be fond of wine, and to be given to excessive drinking'. In Burton's mind, this becomes, 'one drunkard begets another'.

The other text which is often cited as evidence that the Greeks and Romans had a rudimentary awareness that alcohol could cause fetal damage is

the alleged Carthaginian prohibition against newly wed couples drinking wine on the wedding night 'in order that defective children might not be conceived' (Jones and Smith, 1973). In citing this prohibition, Jones and Smith (1973) gave Haggard and Jellinek (1942) as their source. Although the latter did not state their source for this injunction, it has also been cited by other authors (e.g. Mathews Duncan, 1888).

However, no such law or ritualistic injunction existed in Carthage (Lancel, 1995). Its genesis appears to have arisen from a conflation between two statements of Plato (429–347 BC) in his *Laws*. The first is a reference to a Carthaginian law 'which ordains that no soldier on the march should ever taste of this potion [wine], but confine himself for the whole of the time to water drinking only' (Plato, reprinted 1952, 2, 674). The second is a statement Plato made advising parents to be sober when they procreate children since: '... it is not right that procreation should be the work of bodies dissolved by excess of wine, but rather that the embryo should be compacted firmly, steadily and quietly in the womb' (Plato, reprinted 1952, 6, 775c–d). The conflation between these two statements became the basis of the alleged Carthaginian prohibition forbidding married couples to drink on their wedding night. Although this conflation explains the origins of the Carthaginian anecdote, we must still account for Plato's advice. Before doing so, we need first to understand what most concerned Plato, Aristotle, and their aristocratic contemporaries regarding procreation.

THE PURPOSE OF MARRIAGE IN THE CLASSICAL WORLD

One of the reasons Greek and Roman philosophers, who were all aristocratic men, were interested in fertility and conception was their over-riding interest in conceiving males. From the standpoint of the male elite, the primary purpose of marriage was producing male children (Demand, 1994). Male succession meant continuing the family name and inheriting its property. Some Romans also felt duty-bound to produce male citizens for the state. 'Women', said the Roman physician Soranus (98–138 AD) 'usually are married for the sake of children and succession (which meant sons), and

not for mere enjoyment' (Soranus, reprinted 1991, 1.9.34).

Since boys were more important in classical society than girls, the Greeks and Romans were interested in increasing the likelihood of conceiving males; this led them into a consideration of how alcohol affected the body.

NATURAL HEAT THEORY

Since women resemble men more than they resemble animals, Aristotle concluded women obviously belonged to the same species as men. The reason they were inferior could only be because they are a departure from the male ideal, inferior in mind, body, and character. In essence, the female was a degenerated male; Aristotle at one point calls her a 'deformed male' (Aristotle, reprinted 1963, 737a28). Since the female's inferiority was recognized in every society known to Aristotle, he believed it was grounded in biology.

In elaborating his proof, Aristotle started from a premise which was widely held by the Greeks and Romans, that every living thing was essentially a combination in varying degrees of two elements, fire and water (Abel, 1973); fire gave a body its heat and dryness, water its cold and wetness. An individual's health, intelligence, and emotions depended on which element was predominant. Women were inferior because their bodies did not have as much 'natural heat' as the male. Evidence of women's lower body heat was the menstrual period. Semen and menstrual blood were analogous, he said, the difference being that semen was cooked ('concocted') by the male's greater body heat so that it was purer and white; the female's menses, by contrast, was a less refined concoction of nutrients. Excess bodily water was the basis of inferiority. The same inferiority that made a woman unable to control her body also made her less controlled in her behaviour, hence her period was called 'oistron' in Greek (from which we derive our term 'oestrus'), meaning 'gadfly' (Katz, 1990). The more 'natural heat' a body possessed, the greater its perfection. Heat, said the Roman physician Galen (129–199 AD) 'is Nature's primary instrument ... the female is less perfect than the male by as much as she is colder than he' (Galen, reprinted 1968, 14.299).

The idea that all living organisms had a 'natural heat' provided the classical world with an explanation for the origins of disease, as well as the differences between the sexes and their procreation. Health and maleness were considered the norm; by upsetting the balance between fire and water through external forces such as the weather, the influence of the planets, or food and drink, the conception of females, (inferior males) would take place.

Since food and drink were assumed to be the primary means by which the body's heat was maintained and replenished, the way in which food and alcohol influenced a conceptus was by altering the body's 'natural heat'. Moderation in eating and drinking was considered beneficial for replenishing the body's heat and for making a man amorously warm and active, and stirring his seed (Macrobius, reprinted 1969, 7.6.8; Ovid, reprinted 1985, 1.239–40, 244; Terence, reprinted, 1920, 732). Gluttony and drunkenness, on the other hand, had an opposite effect. By chilling the body they quenched the libido (Aristotle, reprinted 1927, 871a–871b; Plutarch, reprinted 1898, 3.5.2.). The effects of extreme cold and drunkenness were the same, said Macrobius (reprinted 1969, 7.6.9).

Drunken men who could still perform sexually were cautioned that their lower body temperatures would result in their conceiving females. This was because, instead of imparting his body heat to his wife, a wife's womb would remain in its usual cold state. Those of a moister and more feminine state of body were more likely to beget females, said Aristotle (reprinted 1963, 766b33). 'Seed which they (drunkards) sow is unfit for generation', added Macrobius (reprinted 1969, 7.6.9), 'since the excess of wine, as a cold substance, makes it thin or weak'.

The idea that drunkenness chilled the body is the explanation for Plato's (reprinted 1952) admonition that parents remain sober during coition. A man 'steeped in wine ... is clumsy and bad at sowing seed, and is thus likely to beget unstable and untrusty offspring, crooked in form and character'. By making a man 'clumsy' during intercourse, his sperm would take on his characteristics and likewise become 'clumsy' and that clumsiness would be passed on to his children.

The idea that a person's physical and mental inferiority stemmed from a difference in 'natural heat' passed down through the Middle Ages into

the Renaissance. The French physician Laurent Joubert (1529–1582), for example, said that Nature was always striving for perfection and therefore trying to create sons. Quoting Aristotle, Joubert (1578, p. 107) said that when Nature created a daughter it in effect was creating 'a mutilated and imperfect male'. Richard Burton's reliance on the 'natural heat' theory for his creative reconstructions is clearly indicated in the opening sentence of his chapter dealing with the effects of drunkenness on procreation: 'as the temperature of the father is, such is the sonnes ...' (Burton, 1621, 1.2.1.6).

GENERAL CONCLUSIONS AND COMMENTS

This examination of Greek and Roman statements regarding the effects of prenatal alcohol exposure indicates that the views expressed in that age are far removed from the issues raised by our current understanding of alcohol's effects. First, our current emphasis is almost entirely focused on maternal drinking, whereas among the Greeks and Romans, the focus was on the male's consumption of alcohol. Second, the Greeks and Romans were concerned about the effects of drinking at the moment of conception, whereas current research is focused on the effects of alcohol after conception. Third, the Greeks and Romans were not adverse to what we might label 'moderate' drinking prior to conception and in fact considered it beneficial to procreation; contemporary views of the effects of 'moderate' drinking are divided on whether there is danger to the conceptus from small amounts of alcohol (Abel, 1998).

Finally, Greek and Roman views of the effects of drunkenness were not based on empirical evidence, but were, instead, extrapolations of an ideologically driven theory that attempted to rationalize the inferior social status of women. While our own attitudes and efforts to understand alcohol's effects on development have also recently been questioned as to motive (Armstrong, 1998), the essential nature of these effects is not disputed (Abel, 1998).

In summary, FAS was not recognized by the Greeks and Romans. Comments from the past that were misquoted or taken out of context, and failure to consider the Zeitgeist that influenced those comments, have led to the mistaken view that the ancient Greeks and Romans were aware of the syndrome.

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