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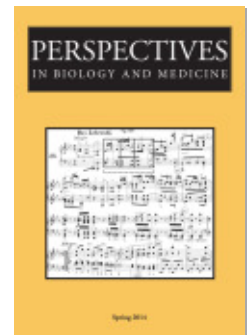
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## Some Possible Genetic Implications of Carthaginian Child Sacrifice

Nathaniel Weyl

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## SOME POSSIBLE GENETIC IMPLICATIONS OF CARTHAGINIAN CHILD SACRIFICE

NATHANIEL WEYL\*

When visiting Carthage in October, 1967, I was intrigued by the evidences of infant sacrifice and was tempted to speculate concerning the possible biogenetic implications of this gruesome institution. The evidence that the Carthaginians periodically sacrificed their very young children in vast autos-da-fé to their chief god, Baal Hammon, and later to the goddess Tanit comes from a variety of classical sources and is quite explicit. The most detailed account is that of Diodorus of Sicily, who wrote around 20 B.C., or more than a century after the destruction of Carthage, but who may have relied on earlier sources.

In his novel *Salammbô*, Gustave Flaubert faithfully copied Diodorus' account of a holocaust of neonates in which hundreds of the children of the leading Carthaginian families were incinerated. For this, he was taken to task by contemporary archeologists and historians who asserted that the accounts of this event by Greek and Roman writers should be dismissed as psychological warfare.

Excavations in 1921, however, fully vindicated Diodorus and his popularizer, Flaubert. In the *tophet*, or sanctuary, near the ancient harbor of Carthage where, according to legend, Queen Dido first beached her galleys and later immolated herself on her funeral pyre, crude stelae were discovered. Under these were urns containing the charred bones of thousands of very young children. That this practice was general to Carthaginian civilization and not peculiar to the city of Carthage (*Kart-Hadasht*, or New City) soon became apparent. Thus, since 1963 a cemetery of three thousand sacrificed children from one month to four years old has been under excavation in Sardinia, an area of Punic conquest and settlement. The inscriptions on the stelae and burial urns identify the

\* 4201 South Ocean Boulevard, Delray Beach, Florida 33444.

victims as the first-born sons of noble families and state that they were first strangled and then burned as offerings to Tanit.

### *Nature of the Sacrifices*

The Carthaginians demanded sacrifice of the first-born of the best families apparently on the theory that human blood was necessary to maintain the supernatural powers of the gods. As a nation of traders, they seem also to have believed that the more valuable the offering, the greater would be the gratitude of their deities. Accordingly, this was not a device for population control or a means of culling the less viable infants, but a practice which must have winnowed out much of the best in the Carthaginian gene pool and operated as a dysgenic factor.

Unfortunately, we lack either statistics or detailed records concerning the extent of child sacrifice, the way the victims were chosen, or the size of the population from which they were drawn. In at least one instance, a deaf and mute child was offered to the gods in return for the gift of a normal child, but sacrifice of the afflicted seems to have been the exception. As to the scope of the practice, we are informed that, when the city was threatened by Agathocles, who invaded Africa in 310 B.C., the priests blamed the calamity on impiety. Many of the leading families had been secretly substituting the children of slaves for their own first-born in the sacrificial holocausts, and there had also been delinquency in payment of tribute to Melkart. Accordingly, five hundred children of the upper classes were put to death in a single *auto-da-fé*. Thus, the power of the gods was not deemed absolute, for the Punic nobility had dared to deceive them, but it was considered sufficiently great for them to atone by surrendering their own children.

From how large a population were these victims drawn? Strabo estimated that the city had 700,000 inhabitants, but the writers of antiquity were notoriously inaccurate in dealing with large figures. On the basis of the area of the town and the carrying capacity of the surrounding agricultural land, Gilbert Charles-Picard, who headed the excavations at Carthage and directed the Tunisian Department of Antiquities for many years, concluded that the city itself never had more than 100,000 inhabitants and the environs at most another 100,000. If we assume 200,000 for the greater city and make the generous assumption that the "leading families" comprised 5 per cent of the total, then the impact of child sac-

rifice on the demography of the upper classes must have been considerable. Even with such a high birth rate as fifty per thousand, five hundred sacrifices every five years would have exterminated one-fifth of the children of the wealthy. These figures are arbitrary, but they may give some idea of the magnitudes involved.

### *Condemnation of Punic Practice*

Human sacrifice was fairly general in the earlier phases of the Mediterranean civilizations, but was later abandoned everywhere except in the Phoenician cities and in the Carthaginian empire created by Phoenician colonists. Greek and Roman writers consistently condemned the Carthaginians on this score. The Greek practice of exposing unwanted or deformed children did not seem analogous to classic writers. As for the burial alive of two Greeks and two Gauls in the Roman Forum in 216 B.C., this was an almost unique event and a response to the desperate military threat to Rome posed by the defeat at Cannae.

The extent of Greco-Roman abhorrence of Punic child sacrifice is indicated by the fact that Diodorus identified the supreme Carthaginian god, Baal Hammon, not with Zeus but with Cronos, whose chief claim on our memory is that, like revolutions, he devoured his own children—hence, the ecological term *kronism* for animal species which control population growth by eating their young.

There are echoes of approval of child sacrifice in the earlier historical books of the Old Testament. In the case of Isaac, the sacrifice is rejected but the offer lauded and considered sufficient reason for Jehovah to make the Jews his chosen people. The blood sacrifice of Jephthah's daughter is accepted by God, but there may be significance in the fact that Jephthah is identified as a Gileadite, not a Jew, and the son of a prostitute.

Solomon made an alliance with the Phoenician city of Tyre and may have reinstated human sacrifice (I Kings 11:7). Child sacrifice must have become rife in both Judah and Israel after the Assyrian conquest, but it was stamped out by Josiah (*ca.* 620 B.C.), who “defiled Topheth, which is in the valley of the children of Hinnom, that no man might make his son or his daughter to pass through the fire to Molech.”

In Carthage itself, the practice may have been somewhat softened with time and increased contact with Greco-Roman civilization. At least the chronologically later layers show charred animal bones mixed with those

of infants in the sacrificial urns. Nevertheless, for some reason which is difficult to conjecture, the Carthaginians remained faithful to this blood-thirsty ritual centuries after the complete razing of their city by the Romans, in 146 B.C. Tertullian, a patristic father born in Roman Carthage, wrote indignantly that the surreptitious practice of child sacrifice still continued and that Tiberius, a contemporary of Christ, had tried to stamp it out by lashing the Punic priests to trees and leaving them to die of exposure. Another Christian apologist, Minucius Felix, wrote that the parents who brought their children to the sacrificial altars stifled their children's cries with "kisses and caresses" because the gods did not want weeping victims.

### *Possible Genetic Implications*

Two aspects of Punic infant sacrifice may have adversely affected the innate mental ability of the population. The first is that it took its toll primarily from the upper classes. The second is that it affected primarily, if not exclusively, the first-born.

The upper classes in any society are the descendants of those who managed to seize and hold wealth, power, and position. While this may in some instances depend on pure chance, it is more likely to be correlated with mental ability. Furthermore, the upper classes, in human as well as in animal societies, have first choice of females. Thus, selective breeding is continuously operative wherever spouses are selected for brains, character, strength of will, health, and fecundity.

In modern society, the positive correlation between class and innate intelligence is suggested by controlled observations of people of diverse heredity reared together since infancy and of people of identical heredity reared apart. The institutional counterpart of the first is orphanage children, of the second monozygotic twins brought up in different homes.

When he served as psychological consultant to the London County Council, Sir Cyril Burt made a study of orphanage children on the basis of observation and case records. He found to his astonishment that, even when the children had been admitted during the first weeks of infancy and subjected to a largely uniform environment since admission, "individual differences in intelligence, so far from being diminished, varied over an unusually wide range. In the majority of cases, they appeared to be correlated with differences in the intelligence of one or both of the

parents" [1]. Among the more striking instances of this rule were orphanage children of high intellectual ability who were revealed by case records to be the illegitimate offspring of fathers of superior social or mental status who had never acknowledged or cared for them. In these cases, superior intelligence could not be attributed to environmental factors. Lawrence (1931) found that orphanage children showed almost as great variability in I.Q. as children of diverse heredity living with their own families, suggesting that the influence of familial environment was secondary. Moreover, the correlation between the I.Q.'s of the orphanage children and the socioeconomic class of their real parents was found to increase steadily with the period of institutionalization [2].

A large and growing literature on monozygotic twins reared apart (and frequently in homes of widely disparate socioeconomic levels) reveals the powerful influence which heredity exerts on intelligence. As summarized by Dobzhansky, a recent review of the data in fifty-two twin studies showed mean I.Q. intrapair correlations of .75 for identical twins reared apart, .53 for fraternal twins, and a mere .23 for unrelated children brought up in the same foster homes or orphanages. The mean I.Q. correlation between foster children and their foster parents was a mere .20 [3, pp. 62-63]. This is illustrative of the comparative magnitudes involved.

Selective slaughter of the progeny of the upper classes could have had just as deleterious an effect on the gene pool as sterilization of the leading families. As for the latter state of affairs, Gilfillan has with great ingenuity traced the decline of Roman invention to the class-selective influence of lead poisoning, which tended to make matrons of the upper classes sterile [4].

We are handicapped in any effort to trace the effects of sacrifice of the first-born of the upper classes on Punic civilization by the dearth of written evidence concerning the latter. We know that the Carthaginians left no architecture worthy of note, that they were grossly inferior in the plastic arts, and were more imitative than inventive even in those fields in which they excelled, such as war, exploration, and trade. They apparently failed to enrich literature, philosophy, or science with anything of consequence. At least the only Carthaginian book which has partially survived, and that only in fragments quoted by Greek and Roman writers, is a treatise on agriculture by Mago. If Punic writers had produced anything original or important, there is every reason to believe that Greco-

Roman writers would have preserved and quoted from it. In addition, the Carthaginians seem to have been aesthetically underdeveloped and obsessed with death and suicide. Their insensitivity to human suffering was notorious, and they were in the habit of crucifying their unsuccessful generals [5, pp. 71, 98, 203, 204; 6, pp. 58-60].

“The untidiness of the *tophet*, the meagre offerings and the crudity of its funeral monuments,” wrote Gilbert and Colette Charles-Picard, “emphasize the aesthetic indifference of the Carthaginians, and their artistic insensibility, and are out of keeping with the atrocious nature of the sacrifices they felt called upon to make. These people who stood so much in awe of God that they suppressed their most natural and human impulses were never capable of giving expression to their religion through the plastic arts” [5, p. 38].

Archeology and history agree in presenting us with the portrait of a somewhat uncouth people, obsessed by *deisidaimonia*, “melancholy and barbaric,” odious to their more civilized Greek, Etruscan, and Roman neighbors, neither intellectually creative nor living the life of the mind [6]. This lack of creativity explains both the dearth of historic records and our ignorance of Punic social and intellectual history. We do not know whether superstition, blindness to beauty, and intellectual sterility of the Carthaginians were constant factors in their history or the end result of a process of intellectual decline caused in part by dysgenic child sacrifices which progressively impoverished their genetic heritage.

#### *Birth Order and Infant Sacrifice*

An intriguing question is whether the choice of the first-born for sacrifice was also dysgenic. The fact that the first-born tend to be markedly more successful, more eminent, and more highly concentrated in the academic profession in advanced modern societies has been established by a long line of investigators from Francis Galton through Havelock Ellis [7, p. 103], Ellsworth Huntington [8, p. 292], and Corrado Gini [9], to more recent workers in the field [10; 11, p. 3]. The literature on birth order in relation to achievement, intelligence, and character structure has been ably summarized in a recent article by Altus, who concluded: “Ordinal position at birth has been shown to be related to significant social parameters, though the reasons behind the relations are as yet unknown or at best dimly apprehended” [12].

A question relevant to the dysgenic implications of Carthaginian child sacrifice is whether the differences in intelligence between the first-born and other siblings are wholly due to environmental factors or only partially so. Investigators have stressed such social factors as that the first-born is normally subjected to greater parental strictness than his younger brothers and sisters and enjoys a high degree of parental attention and interaction during the period when he is an only child.

We do not have enough evidence to judge whether these and similar environmental factors operated in favor of the first-born in Carthage. Even if one assumes that these factors did operate with sufficient force to give the first-born a significant advantage in intelligence and achievement, this question would still remain unanswered: Would the first surviving child—that is to say, the oldest sibling of the first-born offered to Baal Hammon—have enjoyed the same preferential parental treatment as his slaughtered sibling?

If the observed differences in psychometric intelligence between first-born and subsequent births are partially due to genetic factors, then the birth order of sacrificial victims must have been relevant to the impoverishment of the Punic gene pool. Evidently, in those instances in which medical complications prevented further pregnancies, sacrifice of the first-born eliminated all the genes from the mating of the victim's parents. My attention has been drawn to a possible second causal factor, namely, that in instances of blood-group incompatibility, particularly Rh, the first-born is more likely than his siblings to escape unscathed and that the probability of maternal isoimmunization and erythroblastosis fetalis is correlated with birth order. A third set of factors is the tendency of chromosomal abnormalities, such as trisomies, to increase with the age of the mother. There is also some evidence that point mutations are more frequent in the sperm of older fathers. Perhaps the pathologically most prevalent trisomy is Down's syndrome, or mongolism, a congenital affliction occurring in more than one-tenth of 1 per cent of all births and causing amentia. It had long been known that mongolism occurs more frequently among the children of older mothers, and it had therefore been argued that the syndrome was due to environmental factors. The discovery that monozygotic twins are concordant for Down's syndrome, whereas dizygotic twins are much less so, forced abandonment of this view. In recent years, geneticists have established that mongoloid children



have three chromosomes 21 rather than the normal two. This still does not explain why mongolism occurs with proportionately greater frequency when mothers are older. A suggested explanation is that the female's ability to reject imperfect gametes may decline with age or order of birth [13]. In a letter in *Nature* on the relationship between sperm redundancy and chiasma frequency, Jack Cohen hypothesized that internal fertilization is "primarily an opportunity for sperm selection, so that only 'perfect' gametes are offered at fertilization" [14].

Blood-group incompatibilities and trisomies would tend to produce mentally retarded and grossly defective children. Sacrifice of the first-born would raise the proportion of defectives to total population. Given the predominance of males in the leadership of ancient societies, another contributory adverse factor would be the slight decline in sex ratio with increasing birth order.

The genetic factors mentioned operate primarily by increasing the proportion, and hence the burden, of defectives. They could not be more than a minor contributory cause of the observed superiority of the first-born in achievement and psychometric intelligence. If the main causal factors at work are overwhelmingly social and environmental, one would expect to find first-born superiority more evident in respect to achievement than I.Q. The reason for this is based on the belief that psychometric intelligence reflects innate intelligence more and environment less than does the achieving of eminence or status in life. No tacit assumption is involved that I.Q. tests are culture-free or that they measure genetic intelligence exclusively.

Consider rosters of achievement and eminence first. In 1938, Huntington analyzed those 1,210 Americans, living and dead, whom he considered most worthy of fame. Of those from two-child families, 64.1 per cent were first-born. A study of 235 Rhodes scholars from two-child families revealed that 61.3 per cent were first-born; an analysis of *Who's Who in America* entries produced a corresponding figure of 64 per cent; a study of 1,817 college students from two-child families on the Santa Barbara campus yielded 63 per cent first-born [8, 12, 15]. The unweighted arithmetic mean of these four indexes is 63.1 per cent.

A comparable analysis of the relation of primogeniture to high intelligence is the unpublished paper of R. C. Nichols on 1,618 National Merit finalists [16]. Nichols writes that these selected high school students

scored "almost three standard deviations above the mean of the general population." In psychometric intelligence, they probably rank in the first of 0.5 per cent of the American population and are, therefore, a considerably more select group than Terman's California gifted. Of the 568 finalists from two-child families, 66 per cent were first-born. This is more impressive than the average of four indexes cited above. Amazingly enough, the first-born constituted 52 per cent of the finalists from three-child families, 59 per cent of those from four-child families, and 52 per cent of those from five-child families. Almost 60 per cent of the finalists from families with two to five children inclusive were first-born.

The pre-eminence of the first-born is much less marked when one considers activities requiring merely moderately above-average intelligence. Among 4,300 University of California undergraduates, who must rank in the first 10-15 per cent of their high school classes in grades to qualify for admittance, only a small excess of first-born was noted [12]. The performance superiority of the first-born seems to be markedly higher in the scholastically more exacting colleges than in less exigent institutions. At Reed College, 66 per cent of a sample were first-born; at Yale, 61 per cent; but, at the University of Minnesota, only slightly more than 50 per cent [12].

It thus appears that the advantage of the first-born tends to be larger in psychometric intelligence than in achievement and tends to be greatest at the higher intellectual levels. On the basis of the environmental causal explanations offered, neither of these differences would have been expected.

We do not know what the causes of first-born superiority are, nor do we know the extent to which they are hereditary and the extent to which they are environmental. Hence, it would be illegitimate to assume that the pattern which seemingly emerges from contemporary American studies is applicable to Punic civilization. If the pattern is applicable, however, slaughter of the Carthaginian first-born would not merely have thinned the ranks of the ruling class and to that extent impoverished the gene pool in respect to intelligence, but would have acted, by reason of birth order, to strike down a disproportionately large number of the most gifted progeny of this upper class. This suggests the possibility that the enormous stress placed upon birth order by the Hebrew patriarchs and by many other prescientific societies may have reflected more than

merely legal and testamentary considerations. We might find that this was one of those instances in which folk traditions were based on sound empirical inferences from the collective experience of tribe or nation and that the reason for insisting that the first-born inherit was a well-grounded belief that they were likely to be more capable than their younger brothers.

#### REFERENCES

1. CYRIL BURT. *Amer. Psychol.*, 13 (January):1, 1958.
2. E. M. LAWRENCE. *Brit. J. Psychol. Monogr. Suppl.* 16, 1931.
3. THEODOSIUS DOBZHANSKY. *Heredity and the nature of man*. New York: Harcourt, Brace & World, 1964.
4. S. C. GILFILLAN. *J. Appl. Nutrition*, 19(3, 4):95-99, 1967.
5. GILBERT and COLETTE CHARLES-PICARD. *Daily life in Carthage*. New York: Macmillan, 1961.
6. HENRI PAUL-EYDOUX. *The buried past*. 1st ed. New York: Praeger, 1966.
7. HAVELOCK ELLIS. *A study of British genius*. Rev. U.S. ed. Boston: Houghton Mifflin, 1926.
8. ELLSWORTH HUNTINGTON. *Season of birth*. 1st ed. New York: Wiley, 1938.
9. CORRADO GINI. *J. Hered.*, 6:37, 1951.
10. J. M. CATTELL. *Sci. Monthly*, 5:371, 1917.
11. A. ROE. *Psychol. Monogr.* 352, 1953.
12. WILLIAM D. ALTUS. *Science*, 151:44-49, 1966.
13. CURT STERN. *Perspect. Biol. Med.*, 10:500-506, 1967.
14. JACK COHEN. *Nature*, 215:862, 1967.
15. F. L. APPERLY, J. *Hered.*, 30:493, 1939.
16. R. C. NICHOLS. *Birth order and intelligence* (unpublished).

#### THREE LOG RONDELET

Ten to the third?  
That's enough germs to kill a mouse,  
Ten to the third.  
That's enough sperm to grow a herd  
Of mice, or men, or frogs, or lous-  
Es, enough fools to fill a madhouse,  
Ten to the third.

K. D. BEERNINK