

The Twinning Phenomenon

1. *Twins and Culture*

TWINS IN OUR CULTURAL HERITAGE: MYTH AND RELIGION

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Any myth reflects the archaic conceptions of civilizations in a transhuman shape. Heroes and illustrious personalities grow into gods; mountains and earthquakes turn to stone-ejecting Cyclops. In its cosmic, earthly, and netherworld manifestations, myth thus becomes the natural substratum of any ancient religion, as well as the expression of the moral and social conceptions of a culture — to which, therefore, the study of mythology and, more generally, of ancient religious and ritual manifestations, brings us in closer contact.

Twins have an important place in this context: mythology frequently refers to them or the twinning phenomenon, and a sacred character seems to be attached to them since the most ancient times.

In ancient Egypt, for instance, it may be interesting to note the cult of the royal placenta, considered as the Pharaoh's twin (a conception that is still alive among certain African populations), or the idea of one's *Ka* or *astral body*, i.e., of one's twin, through whom it was supposed to be possible to operate with magical rituals to hit an enemy. Twin gods were worshipped by Babylonians and Assyrians, who also introduced them among astronomic constellations, and may be also found in the Persian and Veda religions.

In the classic world, then, the examples of twin gods and heroes are innumerable: from the famous twin sons of Zeus, the Dioscuri, or the opposite-sexed twin gods Apollo and Artemis (Diana), to the Homeric twin he-

ros (such as the sons of Diocles, both killed by Aeneas, or Esepus and Pedasus killed by Eurialus, etc.), and to Rome's founders, Romulus and Remus.

Since the most ancient times, a magic conception is connected to the twins, either in a positive or a negative sense, but often with some kind of a "fatidic" aspect (e.g., the Erinyes, the triplet avenging spirits who punished evildoers and inflicted madness). Such a two-faced approach to the phenomenon of twinning, that variously characterizes near-east, protomediterranean, classic, and other ancient civilizations, may still be found in contemporary primitive societies.

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ATTITUDES TOWARDS TWINNING AMONG PRIMITIVE SOCIETIES

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In primitive societies twinning raises emotions varying from extreme terror through the whole gamut of fear, repugnance, suspicion, anxiety, perplexity, hope, and joy. The first impulse prevailing among the less civilized people seems to be to regard twins as unnatural and monstrous, and therefore as portending evil. Accordingly, they must be put to death and the offence repudiated. This negative attitude stems from a series of explanations which can generally be connected with the widespread belief in superfactation and double paternity. In a few cases, only, would the custom of sacrificing twins arise from economic necessities rendering the simultaneous raising of two infants almost impossible. However, in many agricultural primitive tribes,

twinning is regarded as a happy event. In this case the worship of twins entrusts them, namely, with power over water allowing to confer fertility to the soil and also to women and animals.

In the past, the mother of twins was often executed with her offspring, or simply banished. In many tribes she is still compelled to go through elaborate purification in order to forestall the evil omen. If twins are welcomed their parents are similarly respect-

ed, as they symbolize the fertility power of the clan.

Superstitions and myths pertaining to twinning are universal and often present converging features among cultures without mutual contact. This would indicate the twin cult as one of the earliest religious beliefs of mankind.

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2. The Demography of the Twinning Phenomenon

IS WEINBERG'S METHOD VALID?

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Suppose that L like-sexed and U unlike-sexed twins have been observed. Weinberg's method estimates the numbers of dizygotic and monozygotic twins as $DZ = 2U$ and $MZ = L - U$. This method is based on the assumptions that (1) the sex ratio in DZ twins is $\frac{1}{2}$ and (2) the sexes of DZ twins are determined independently and with the same probability in all parents; in consequence there should, on average, be equal numbers of like-sexed and unlike-sexed DZ twins.

The first assumption is not exactly true, but the necessary correction is negligible. Departures from the second assumption would probably lead to an excess of like-sexed over unlike-sexed DZ twins; in consequence, Weinberg's method would underestimate the numbers of DZ twins and overestimate the numbers of MZ twins. The literature on the frequencies of like-sexed and unlike-sexed pairs among twins known to be DZ through other genetic markers is reviewed. It is concluded that there is no evidence of an excess of like-sexed twins among them, and that there is therefore no reason to doubt the validity of Weinberg's method. The extension of Weinberg's method to estimate the zygosity types of triplets and quadruplets is described; it is shown that the resulting estimates agree well with the results of direct zygosity determination by blood grouping.

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RETROSPECTIVE STUDIES OF THE TWINNING RATE IN SCANDINAVIA

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The human twinning was studied in Sweden and Finland since the 1650s. The material comprises continuous series of data of single and multiple maternities compiled from the parish records and from various other, partly unpublished, sources in the archives of statistics.

Until recent times the twinning rate in these countries, and particularly on the Åland Islands, has been one of the highest known among Whites. Highly significant temporal fluctuations in the rates of multiple maternities were noted. There was a secular decline in the DZ twinning, particularly during the last generation. In Sweden the twinning rate during the last part of the eighteenth century was almost twice as high as it was in 1966-70. The triplet and quadruplet rates were about three to four times as high as they are today.

The extent to which the frequency of multiple maternities has depended on changes in maternal age, parity, marital status, and socio-economic conditions, was analysed. These environmental factors do not wholly explain the steep downward trend in the twinning rate. The marked decline in the twinning rates in Nordic populations about one generation after the break-up of isolates has been interpreted as evidence for the hypothesis that the degree of relationship between the parents of the mothers of twins