Authors’ Response

Sir:

We appreciate Michael Warren’s attention to the details of our brief communication published in the November 1998 issue of this journal. Warren suggests that we made two errors when dealing with issues critical to gestational or lunar age determination: calculation of lunar cycle length; and human fetal gestational length, which can be determined from date of conception or date of last (normal) menstrual period (LMP).

Each of Warren’s points, while having merit, has underlying methodological complications. First, he states that a source of confusion arises about the use of gestational age to represent a source of solar dates, rather than lunar dates, for describing the age of a fetus. Although he did not show his calculations, we assume that he arrived at this value by the following: 365.25 days/12 months = 30.43 days per month. Olivier and Pineau (1,2; French anatomists not lay persons as to dating fetuses), chose to define a gestational month as 31.1 days. The formula for this calculation is as follows: 280 days/0 “mois civils” = 31.1 days. Having followed these researchers and expanded on their published Table 3, we chose to keep their calculations. We expanded but did not substantially alter their published table when we listed conversion between gestational age and lunar age prior to four-and-a-half months.

As Olivier and Pineau’s publications serve as indirect major references for forensic specialists who practice forensic fetal osteology, it is essential to know their underlying relationship between lunar months and “civil” months. When scientists change Olivier and Pineau’s dates by modifying their charts without addressing their (and indirectly our) calculations, it puts other researchers at risk for interpretational errors. For instance, someone who feels competent in forensic fetal osteology could apply the work of Olivier and Pineau, figure 36 in Stewart’s Essentials of Forensic Anthropology (3) and assume that 10 lunar months is comparable to 9.2 gestational months with Warren’s conversion chart. Both sets of calculations begin at conception rather than LMP and both end at 280 days. Warren’s conversion chart accounts for a calendar month of 30.44 days, while our conversion chart is based on Olivier and Pineau’s civil month. If using our chart, please keep in mind that the nine-month gestational period is based on 31.1 days. If using Warren’s chart, please do not directly compare it to Olivier and Pineau without intermediate conversion between 30.44 to 31.1 days. While we agree with him that the math must be correctly applied to arrive at a valid conclusion for the age of the fetus, correction for dates based on the 30.44 days is inherently risky, since some of the very standards used by forensic anthropologists—Olivier and Pineau—have an inherent bias of 31.1 days. Perhaps, as Warren suggested, the forensic scientist should move away from gestational months to gestational weeks, which are based on 7 calendar day cycles. In closing, we chose to follow Olivier and Pineau’s standard convention rather than modify same and thereby introduce another source of potential error.

References


