Epilogue

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Looking back over the history of child psychology, one is struck by a dearth of reference to the nexus between the prenatal and postnatal development. Such was not always the case, as witnessed in the writings of Wilhelm Preyer (1841–1897) and Arnold Gesell (1880–1961), both of them attempted to apply embryological principles of growth to ontogenetic development in general. The subsequent rise of behaviourism, and its close cousin, reflexology, resulted in the depiction of the human fetus as nothing more than a ‘bundle of reflexes’, with the consequence that an interest in prenatal development diminished among the child psychologists. Even with the demise of behaviourism and the incursion of the so-called cognitive revolution, development during the 9 months prior to birth continued to suffer from neglect. How then have we reached the point at which we can claim that the foundations exist for the establishment of a fetal psychology?

To begin with, the recognition that the fetal movements under physiological conditions are spontaneous expressions of an inherently active nervous system and contribute to the emergence of recognizable behavioural states before birth opened the door to the search for evidence of learning in the human fetus. The driving force behind such a ‘paradigm shift’ was not only the applicability of 2-D real-time ultrasonography, but also improvements in registering the fetal heart rate as well as more recent advances in visualizing and registering fetal behaviour and brain activity. Up-to-date reviews of, and commentaries on, such advances form a cornerstone of the Special Issue. What these contributions make clear is that progress in the evolvement of fetal psychology is very much dependent on the further enhancement and integration of these research tools.

Turning from these methodological considerations to more theoretical ones, here we find the Special Issue’s other cornerstone. It is in some need of buttressing. The fetal programming hypothesis (FPH) is particularly attractive for promoting insights into the origins of a range of developmental disorders, including cognitive dysfunctions. The FPH, however, has not been immune from critical challenges (McEwen, 1998; Susser & Levin, 1999). But where fetal psychology needs a theoretical impulse if it is to succeed as a mature area of discourse and research is in terms of a theory of developing brain–behaviour relationships in the human fetus that accounts for functional continuities between the pre- and postnatal development as well as ontogenetic adaptations confined to existence in the uterus. Together with the FPH, a well-articulated theoretical scenario in this respect will enable the challenge of deriving principled methods of detecting fetuses at risk for subsequent (postnatal) disabilities.

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In accordance with the FPH, there is a recent evidence from animal studies demonstrating the epigenetic modification of gene expression in, for example, the influence of maternal stress on fetal development (Hyman, 2009). The usual caveat of taking care in extrapolating from animal to human studies has been raised with such findings (Szyf, McGowan, & Meaney, 2008). Nevertheless, animal models of prenatal development can serve as a source of theoretical inspiration for research with human fetuses (e.g. see Schaal, 2005).

In conclusion, research relevant to establishing fetal psychology on a firm footing is still in its infancy. This Special Issue highlights some of the questions and tentative solutions implicated in this endeavour. At a general level of abstraction, it sets out the agenda for future research in addressing such issues as the adaptive significance of developmental plasticity (that can have both negative and positive consequences), the nature of the complex interactions between the fetus and the social environment (e.g. in terms of maternal psychological state), and the types and contexts in which fetal learning, perception and action can occur. To use a well-worn phrase: watch this space!

REFERENCES