

naires, should also prove heuristically challenging. The authors admit perplexity. Environment appeared to account for half the variance in personality variables, but the environment was one for which the twin pairs were correlated close to zero. "We seem to see environmental effects operate almost randomly with respect to the sorts of variables that psychologists . . . have traditionally deemed important in personality development. [Environment] operates in remarkably mysterious ways, given traditional views on personality and motivational development." Loehlin and Nichols call for better ways of assessing both personality and environment in further explorations of the relationships between them; we second that call.

In this study there is generally a lack of support for a number of conventional hypotheses (innovatively tested) concerning personality—little evidence for differential heritability of traits, for any particular characteristics of twins as individuals, for sex differences, or for effects of early intrapair differences in identicals on later personality. If the authors' adolescent-sample-based conclusions are generalizable, it will be sobering. Personality researchers pride themselves on their gourmet tastes, with palates finely trained to detect subtle nuances in the flavor of their favorite traits or dimensions. Loehlin and Nichols seem to be telling us that we have fooled ourselves with the bright food colorings: everything is vanilla. In the 14 years since this study began remarkable advances have been made in neurobiology and biochemistry. The advances have been characterized by the large number of specificities uncovered neuroanatomically and functionally. Different brain sites, for example, are differentially sensitive to different neurotransmitters. We would speculate that it is only a matter of time before individual differences in the various specificities are related to individual differences in, first, abnormal and, later, normal behavior, including personality traits. Just as the venerable and revered internal combustion engine was the forerunner of solar power, the classical twin method using questionnaire measures of personality will be revered as a force moving psychology toward developmental biology. We owe a debt of thanks to Loehlin and Nichols for "hardening" the foundation for the construction of an integrated natural and social science approach to personality.

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