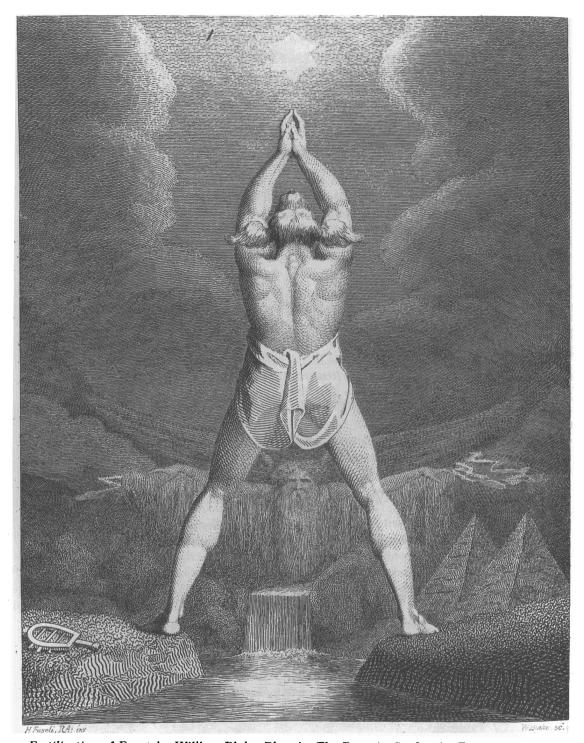
of astronomy educators, and solutions devised at the appropriate levels to solve the problems that they address.

## Discussion

- J.-C. Pecker: I am surprised that no one has so far mentioned the need for introducing in all curricula some coherent teaching about the history of ideas, of instruments, of astronomy in general. In my view, this is essential.
- M. Zeilik: How does one rally the support for the practical, project, and experimental aspects of the University College London curriculum, which I admire?
- D. McNally: It is a matter of tradition. The degree, when first established by C.W. Allen, had a considerable committment to practical work. The project came later, but at a time when funding could still be considered "liberal." The amount of practical work per student has been reduced because of increase in student numbers without concomitant increase in provision of facilitities however, the demand on resources is still about the same as in the original scheme. I seriously doubt we could get such support if starting from scratch in today's straitened times.
- W. Bisard: Is astronomy a required course of all elementary teachers in your teacher education colleges?
- D. McNally: No. Astronomy in the Education Colleges only exists where enthusiasts bring astronomy into their science curriculum there is no formal requirement unfortunately.
- J.V. Narlikar: Unfortunately, no, but we are trying to change that.
- B.W. Jones: The University College London astronomy degree is primarily aimed at producing professional astronomers, yet only  $\sim$  15 per cent of the graduates enter astronomy in some form. Is this viewed with disquiet, or is it thought that "yuppies" who know some astronomy will be better "yuppies" than those who don't?
- Reply: The latter where "yuppies" = all sorts of non-astronomical professionals.
- W. Bisard: The results of well-founded educational research firmly supports projectoriented or hands-on science and astronomy projects over lecture techniques. Unfortunately, university science educators do not realize this fundamental finding of science education research.
- <sup>2</sup>Ed. note: "Young urban professionals" led recently to the word "yuppie," connoting shallow lives with much available money.



Fertilization of Egypt, by William Blake; Plate in The Botanic Garden, by Erasmus Darwin. Chapin Library of Rare Books, Williams College. Further information on page 433.