GALACTIC EVIDENCES FOR THE TIME-SCALE OF THE UNIVERSE

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An important phase of modern astronomical research is concerned with the time scale of the universe, i.e., with the specification of a natural unit of time in which it would be most convenient to describe the changing aspects of the astronomical universe. Stated in this manner, it is apparent that the solution to the problem of the time scale will not permit us (not at any rate in the first instance) either to "date" the present epoch in a "fundamental" calendar or to forecast with definiteness the "end." What it would allow us, however, is to specify an interval of time in which various aspects of the astronomical universe may be expected to change appreciably. Conversely, the solution to the problem of the time scale will ultimately depend on the study of a variety of different aspects of the universe and the establishment in each case of a time interval during which the aspect studied might change to an appreciable extent. And if such studies should lead us in most instances to time intervals which are of the same order of magnitude, it would not be unreasonable to attribute to a unit of time of this order of magnitude a fundamental significance. It would appear that this is the only manner in which a rational approach to the problem of the time scale can be made. However, in formulating the problem in this manner it is evident that a certain element of arbitrariness has been introduced into the discussion. But this is unavoidable and inherent in a problem in which the emphasis is on an order of magnitude and not on an absolute measure.

During the past twenty years many attempts have been made to establish a time scale in the sense de-