

TIME SCALES

by

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From the dawn of written history man has been trying to determine the age of the world about him. The Bible keeps track of the generations of members of families and tribes, so much so, that reading about all of the children who were begotten from Cain to Noe gets rather tiresome. But for a while the written word was the only real method for peering back into the past of men's lives. In about 540 A. D. a Roman monk, named Dionysius Exiguus, devised the method of using the Bible as a source of dates for the time of creation.

The Biblical approach led to some rather interesting conclusions not only of the past but for the future, because somewhere the interpretation was made that the world would last only about six thousand years before the final judgement. There is some evidence that much of the fatalism of the middle ages was based on this assumption that the last millenium was about to arrive. As you can see from the dates of the ancient deluge and other biblical events there was a dispersion according to several independent investigators.

However, this was really the only method and people even into the last century believed that the world began only about five thousand years before. Then with the beginning of the modern era of scientific investigation Lord Kelvin and others proposed a new kind of time scale by which one could derive the age of the oceans. In all time scales, whether arising from written history to the present, or from geologic strata and other natural deposits, like the patina on old engravings, for example, certain assumptions were made. Lord Kelvin began by assuming that the waters of the oceans were originally salt-free and that all of the salt in the sea was washing down from the land as the rivers drained the rainwater back to the main sea level. Looking at the map of the land area of the earth as viewed from the north pole, we see approximately five big rivers that do most of the drainage of the continents. The Nile, the Niger, the Amazon, the Mississippi and perhaps the Lena in eastern Siberia. These five rivers carry about ninety percent or better of all of the water from the continents. Measuring the amount of salt per volume at the mouths of these rivers and their rate of flow Kelvin calculated the length of time it would take to put the amount of salt per unit volume of sea water in the five oceans. His result came out to be about one hundred million years. This we might call a chemical time scale and it is still used today.