subsequent layer.

4. The presence of cyclothems in many parts of the stratigraphic record, where coal seams are seen as just another layer in the overall sequence of rock layers, indicates that coal formation was a rapid event as well, one that came about when the lush vegatative material from the antediluvial world (uprooted, ground into pulp by the water agitation, and left floating on top of the flood waters) became waterlogged or heavy due to accumulation of debris from the atmosphere and sank periodically to the ocean bottom there to form the coal layer. The great lateral extent of these coal layers also calls for a global ocean. The fact that there are no root systems growing into the layers below the coal seam argues against a grown-in-place theory and for a come-from-elsewhere theory.

5. The fact that there are such huge oil deposits throughout the world, the ingredients of which had to come from living sea and land animals and plants, necessitates that these deposits are the sites of vast graveyards of these animals. The remains have been transformed into their present form by heat and pressure. Only catastrophic motion within a global ocean could have moved all this mass into such extensive accumulations.

6. The mass graveyards of animal remains which have not been so transformed to oil also agree well with the rapid layering scenario. Aniamls of diffenent types who are normal enemies do not congregate together for their last rites. They must have been caught up in flood waters and transported to the place of burial, there to be covered rapidly for fossilization and preservation by the subsequent layers of sediment.

7. Polystrate fossils argue persuasively for a rapid layering rate. How could a tree remain intact and vertical for such extended periods of time as to have 10 to 12 distinct layers of the column built up around it if each layer took centuries to make? Contrariwise, the tidal layering mechanism could place those 10 to 12 layers in less than a week.

8. The fact that no meteorites have ever been found buried in the geologic column but rather are concentrated near the earth's surface is further evidence that each layer was not on the surface very long before being covered over and that the whole column was placed within a short time span. Meteoritic activity was probably greater in the past when the universe was younger and so more not less meteor deposits should be found in the column if it is geologically old.

Wave Phenomena.

Two types of wave phenomena can be associated with the formation of the sedimentary column. The tsunami is a wave motion associated in some way with sudden shifts in crustal position, either the subterranean subaquatic earthquake or the slippage of a great earth mass down a slope into a large body of water. Early during the flood year, when the "fountains of the great deep" were building up the water depths on the earth and before the gravitational attraction principle could have significantly affected the waters, large tsunami waves could have moved much sediment from place to place. Such depositions would, however, have lacked order and the layers thus deposited would have been haphazard and without pattern. Once anything near a global ocean was present, the tsunami would have lost its major role. It could have persisted in conjunction with the tidal wave mechanism for a while but would have been relegated to a minor role as the waters gained in depth or as the eruptions of the fountains ceased.

The dominant mechanism in the rapid formation of the sedimentary column must have been the gravitational attraction phenomenon created by the present of the moon (and to a lesser degree the sun). A global ocean in the presence of such a large earth satellite would have had to react to it with the formation of semi-diurnal bulges of water which touched every point of the earth's surface. These bulges would have had wavelengths equal to half the earth's circumference. The parameter yet to be determined is their amplitude. As mentioned previously, present day tides range from 5 to 15 feet in amplitude at most places on the earth. Where they are larger than this, the phenomenon of resonance is the cause of the increase. The Bay of Fundy in Nova Scotia has tidal amplitudes of 50 feet but it has an appropriate bottom slope and geometric planform and length so that the reflections of the tidal waves from the end of the Bay reinforce the incident waves coming in at the mouth in just the right way so that resonant buildup of amplitude occurs.

There is little doubt that much larger tides would occur today if the tidal action was not interrupted by the large continental land masses. The amplitude buildup that could occur without such interruptions would be of a different kind than that which occurs in the Bay of Fundy. There the wave reflection phenomenon is dominant. Reflected waves, carrying their own sediment load, could have played a secondary role in the buildup of the column. Reflection sites could be attributable to uneven terrain on the ocean bottom or land masses not yet covered by the flood waters or land masses uncovered as the flood waned. Resonance on a global ocean of uniform depth would occur when the forced wave speed equals the free wave speed. The forced wave speed, due to the gravitational attraction of the moon, is known since the period of the moon is known to be 24 hours and 50 minutes. For a semi-diurnal wave length of half the earth's circumference at the equator (12,450 miles), the forced wave speed is 1003 miles per hour. The free wave speed is the speed of travel of a disturbance imposed on the ocean, say by some giant drumstick hitting the ocean or by a subaquatic earthquake which causes a surface disturbance to emanate therefrom. Since tidal waves can be classified as shallow water waves because of their large wavelength, the speed of a disturbance is given by the square root of gd where d is the ocean depth. The depth to obtain the 1003 miles per hour value would be 12.72 miles. For a global ocean of this depth, the resonance condition would be met at the equator. Since the mean depth of today's oceans is about 2 miles, the 12.72 mile depth would represent a huge increase in the amount of water needed to fill the global ocean. However, if a latitude of 60 degrees rather than the equator is considered, the forced wave speed is halved since the circumference at 60 degrees is halved. The depth to obtain a free wave speed of 501 miles per hour is only 3.18 miles, a much more reasonable answer.

The resonant condition, with its extremely large amplitudes, can be thought to develop as follows: The moon attracts the waters of the global ocean pulling them up to form a tidal bulge. Due to its rotation on its own axis, the earth moves underneath the moon. The bulge then takes on the characteristics of a wave moving over the ocean as the moon seemingly moves over the earth. At each instant, the moon is essentially creating a new wave much the same way as the great drumstick would create a wave. After each new wave is created, it moves over the ocean at a speed equal to the free wave speed. If the ocean depth is 12.72 miles, the free and forced waves travel at the same speed at the equator and each new wave created by the moon would travel at that speed as well. The accumulation of these waves all moving at the same speed would be manifested by a buildup of amplitude to enormous heights.