of this Grand Canyon we find sandstone and we find various strata of rocks of various types above it. The geologist can make some educated guesses as to how long it took to lay down those strata of rock. And again, how long it took for the Colorado River to cut a canyon that deep. For further evidence he goes up into Yellowstone National Park in Wyoming and he finds a ridge there which-apparently at one time there grew a forest down on the plateau. The forest was engulfed by the lava from a volcano and eventually was petrified. A second forest grew on top of it. That eventually was engulfed by a volcano and eventually became petrified. And we find twelve different forests stacked up one on top of the other. Obviously a considerable amount of time was involved in the growth and petrification of these forests. And on top of that a canyon a couple of thousand feet deep has been cut through that ridge by a stream - a considerable time involved in the water erosion of the rock. So the geologist puts together information which he gleans from rock strata and he pushes back the age of the earth a good bit further than what many of us think. He pushes it back to the realm of approximately 2 billion years - nine zeros behind it. This we might call the contribution of the rock, the consideration of the age of the earth. The astronomer enters into the picture here in determining the age of the universe. He observes the stars, he finds that many of them are relatively close to the earth, that is in terms of stellar distances several hundred light years perhaps. He finds that there are some that seem to be a great deal further away and seem to be running away from us. His telescopes and particularly his spectroscopes; that is those instruments which pick up light, will tell you what color it is. The spectra or the light from different stars is produced by the elements in the stars and observing the spectra we can tell what elements are present. Comparing the spectra, or the light, from the stars which appear to be running away from us, with those which do not appear to be running away from us, they find that there's an elongation or a lengthing of the wave length. Now I imagine many of you have stood on a railroad station as a train went roaring through with its whistle blowing, and it seemed that there was a change in the pitch of the whistle as it passed you and headed on down the tracks. It seemed to have a lower pitch. This is known as the (10.) effect. Light, if the particles or the stars are moving fast enough, has the same effect. If it's moving fast enough away from you, it appears red,or redder than the rest of the light. If it's moving toward you, it will appear more blue. And