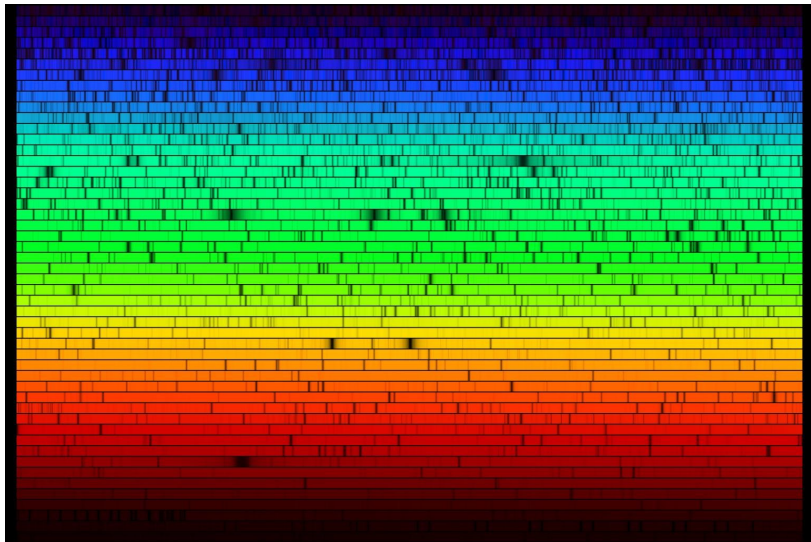
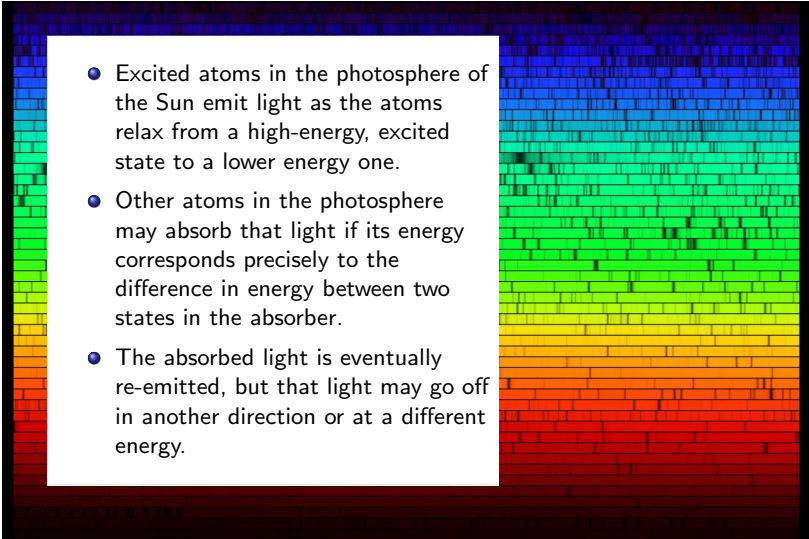
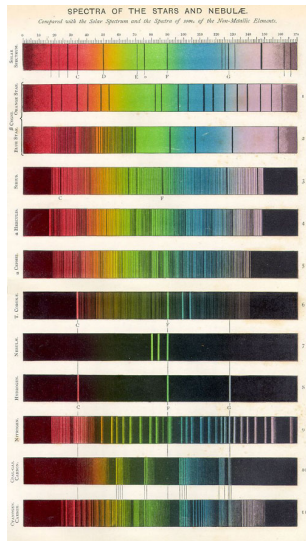
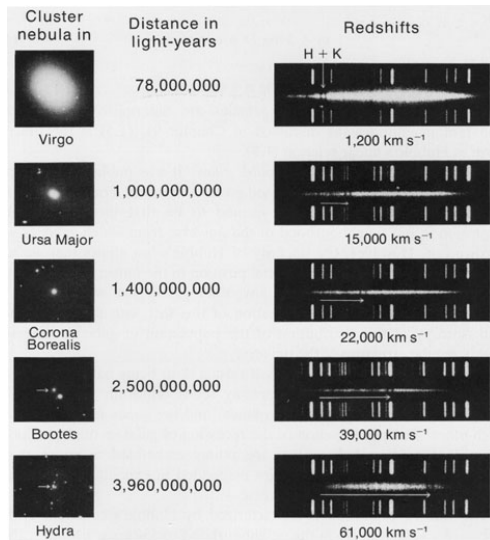


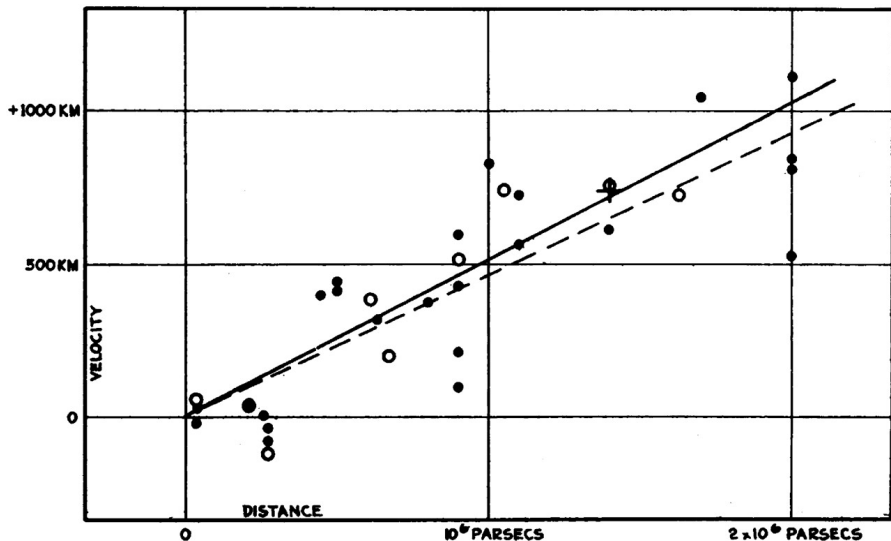
What is this? The Sun's Spectrum What are the gaps? 3



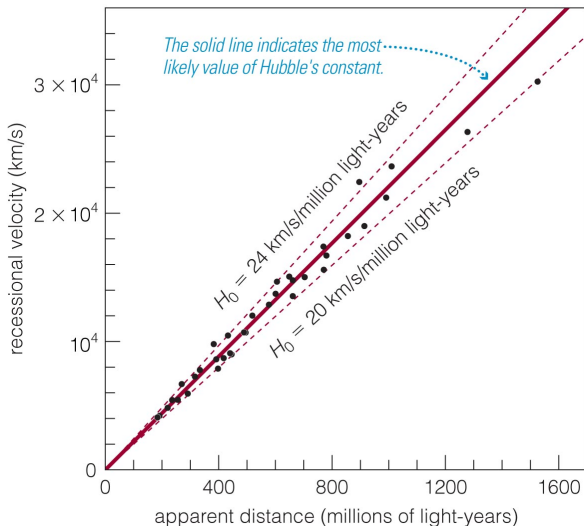
- 
- Excited atoms in the photosphere of the Sun emit light as the atoms relax from a high-energy, excited state to a lower energy one.
 - Other atoms in the photosphere may absorb that light if its energy corresponds precisely to the difference in energy between two states in the absorber.
 - The absorbed light is eventually re-emitted, but that light may go off in another direction or at a different energy.



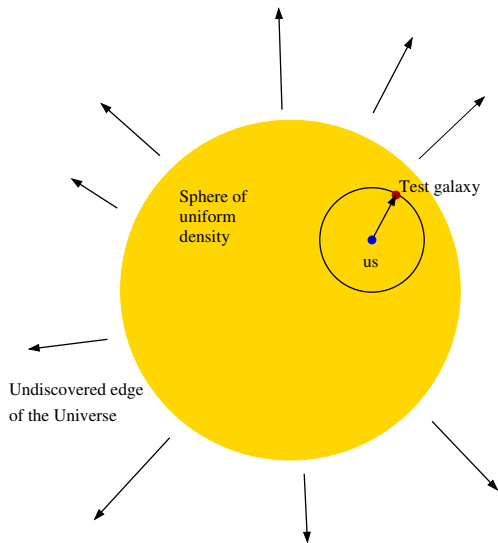


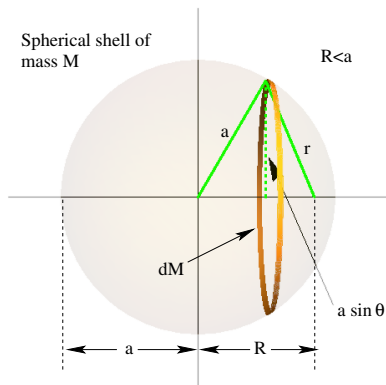
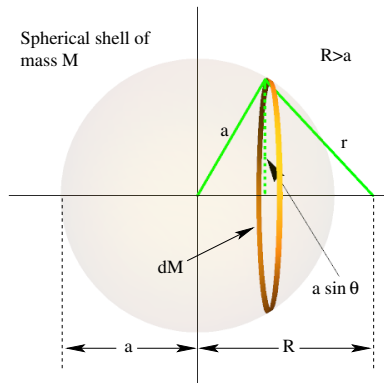


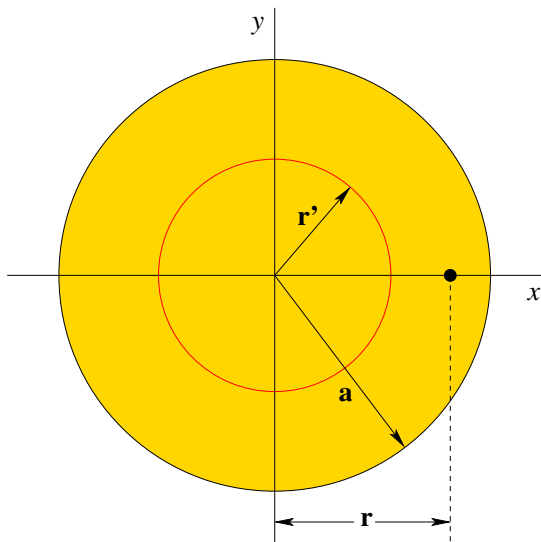
E.Hubble, PNAS 15, no. 3, 168 (1929).



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- 1 Is our model any good?
- 2 What determines the ultimate fate of the Universe?
- 3 What is $\vec{r}(t)$?
- 4 What is $\rho(t)$?
- 5 How old is the Universe?

