Would You Believe it?

17. Considering the date, this is a premature claim; we are just getting rolling on discovering planets and the little ones (Read: “terrestrial”) are still beyond our detectability. Now, maybe astronomers develop some models of planet formation that overthow our current understanding, but that would be negated by the very fact we live on a terrestrial planet and moreover, there are three more of them in our planetary system alone! So, no, I wouldn’t believe this claim. As always the burden of proof lies on the shoulders of the claimant.

22. The date doesn’t matter so much here. I would almost reject it out of hand. After all giant planets, by definition, have large surface area, from which sunlight is reflected. Furthermore the 4 Jovians in our system have high albedos, all over 50% of the sunlight is reflected. How could we miss any? Well, there is a way, though of low probability in our solar system—a jovian planet could have been thrown out to a much higher orbit through gravitational interactions with other jovians early in the solar system’s history. Possible, but improbable, as we have such an orderly planetary system, one would expect to see planets of different types strewn all over the place.

23. The date is reasonable for such a discovery announcement. By that time, we should be getting pretty capable of discovery signs of life on other worlds, outdoing even Star Trek capabilities! The claim is plausible. Stay tuned in the real world for such announcements.

26. No and for several reasons. A white dwarf is the diminutive result of a period of relatively rapid evolution by a star. Moreover, it results after the planetary nebula stage in which the outer third or so of the star is ejected. This ejection would surely end all surface life on all planets, assuming the previous stage of evolution, the post-main sequence stage hadn’t eliminated surface life. Oxygen in the atmosphere would imply the presence of life. This may not be impossible, but for even more subtle reasons than I’m listing here, it’s nearly impossible.

Quick Quiz

27. a
28. a or a AND b, for ½ pt. extra credit. Book gives only “a” choice
29. c
36. b