

QUESTIONS FOR UNDERSTANDING – 1965 Differentiated Article

Murmur of a Bang

1. What type of radiation was discovered coming from all regions of space?
2. What is the importance of this discovery? What does it provide supporting evidence for?
3. What are the names of the two scientists who discovered this radiation and what were they actually trying to find when they discovered the radiation?
4. Who helped Penzias and Wilson recognize the importance of their discovery and why was he able to recognize the importance?
5. Why does this discovery weaken the Steady State Theory of the Universe?

Big Hiss Missed By Others

1. In 1961 Edward Ohm discovered the same microwave radiation that Penzias and Wilson found, using the same horn antenna. What incorrect assumption did Ohm make that prevented him from understanding the importance of that radiation?
2. When did LeRoux and Shamaonov discover the microwave radiation? Why did they not realize the importance of their discovery?

Cosmic X-Ray Sources Found Outside the Galaxy

1. Some objects in space give off powerful X-Rays. WHERE must instruments be placed to detect these X-Rays? WHY must the instruments be placed there?
2. What is unusual about the strong X-Ray source coming from the direction of the constellation Scorpius?

Quasars: Express Train to Netherlands

1. What type of astronomers first discovered quasars? What type of radiation must they have been studying?
2. Quasars are very _____ (close, distant) and very _____ (dim, bright).
3. What do quasars provide the key to?

Galaxies Still Misbehaving

1. How is the amount of starlight coming from a galaxy measured?
2. How is the mass of a galaxy determined?
3. What is a mass-to-light ratio? What object has a mass-to-light ratio of one?
4. What does it mean if an object has a mass-to-light ratio greater than one?
5. According to the article, what are astronomers discovering about galaxies everywhere?
6. How much of the mass in the Coma cluster of galaxies appears to be “missing” (not giving off light)?