Quasar riddle for big bang astronomy

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In the 1920s and 1930s, Edwin Hubble found that the redshifts (z) observed in the light coming from extra-galactic sources could be used to determine their distances (r). He confirmed this result by the use of independent distant measurements for nearby bright spiral galaxies, and this relationship of redshift to distance became known as the Hubble Law. Following on from Hubble, this law has been extrapolated to objects, the distance of which cannot be measured by other means, including 'quasars' which, because of their very large redshifts, are considered to be *extremely distant*, out near the edge of the universe.

Normally, we would not expect to see such distant objects, so the standard big bang view of the universe assumes that 'quasars' are super-luminous black-holes with a million or a hundred million times more mass than our sun. Material, from a surrounding disk, causes the huge luminous emissions of energy as it falls into the black-hole.

However, these assumptions are being questioned, as a quasar has been recently reported[1,2] to be embedded and near to the centre[3] of a *nearby* galaxy, NGC 7319. (In the figure 1 enlargement, the lower line indicates the location of the quasar.) The subtitle of the news report was 'Can a "distant" quasar lie within a nearby galaxy?' stating the riddle.

The quasar was initially found from its X-ray emission and subsequently identified in visible light with the Hubble Space Telescope. It has been classified as an ultra-luminous X-ray object (ULX), because of its very high emission of X-rays. Other ULXs have been found in and near galaxies, and recently Burbidges and Arp suggested they were quasars.[4]

From the Hubble Law relationship—$z = 2 \times 10^{-4}$ r for $z < 0.2$ and r expressed in Mpc[5]—we can determine the distance to the source. The galaxy NGC 7319 has a redshift of $z = 0.022$, which calculates to a distance of 360 million light-years. The quasar with a much larger redshift of $z = 2.114$ would be 100 times farther away or about 35 billion light-years.[6] So according to the prevailing belief, these objects cannot be physically connected to each other.

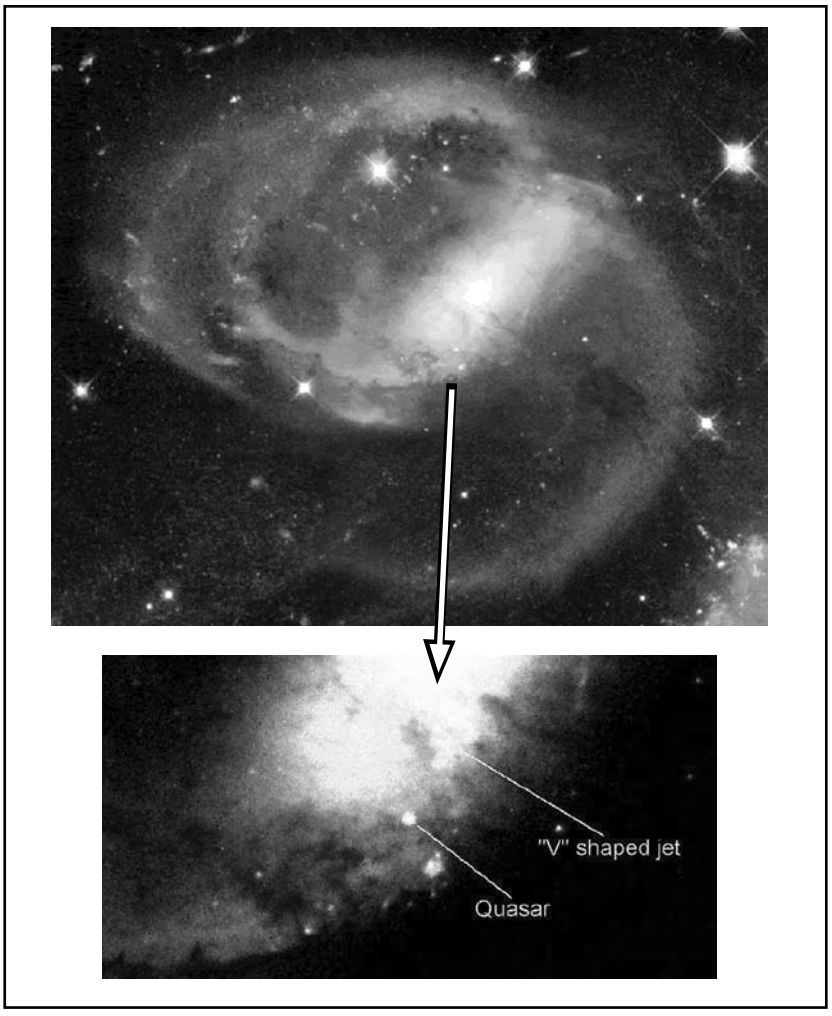
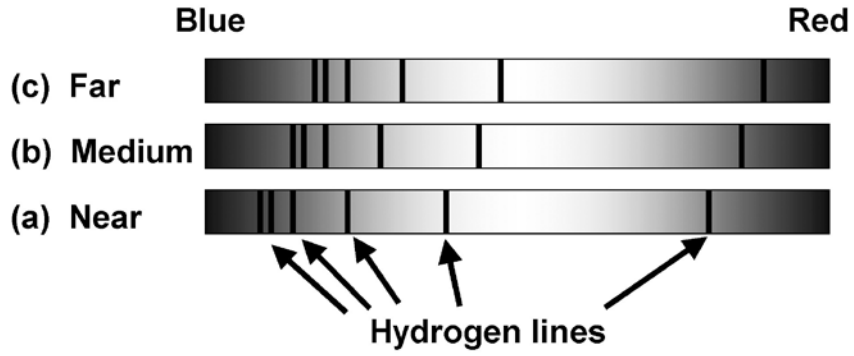


Figure 1. *Nearby spiral galaxy NCG 7319 with high red-shift quasar at arrow (below). V-shaped jet clearly seen entrained behind the ejected quasar.*

However, Arp has shown[7–11] that there is a very strong case that quasars are, in fact, physically associated with active galaxies they are adjacent to. That is, the closeness is not just a trick of the line of sight, with the quasars millions of billions of light-years behind the galaxy. Arp and others have gone on to contend that the quasars have been ejected from the hearts of their adjacent parent galaxies,[12] and suggest that new galaxies are formed by this ejection mechanism.

The case that the ULX quasar, or QSO,[13] in this report is not accidentally aligned due to a line of sight effect is quite strong. It is seen interacting with gaseous material in the host galaxy. The abstract of the paper states, in part:

> 'From the optical spectra of the QSO and interstellar gas of NGC 7319 at z = .022 we show that it is very likely that the QSO is interacting with the interstellar gas. [This is evident from the very strong oxygen emission lines in the spectra of the gases of the galaxy



Idealized galaxy spectra showing typical 'absorption' lines (black against a spectral blue-red background) produced by hydrogen atoms absorbing light. The more distant the galaxy, the more the lines are shifted to the red side of the spectrum (log scale).

adjacent to the quasar.]' [2]

In addition, a very strong outflow of gas is detected consistent with the ejection of the quasar entraining material with it. (See figure 1 enlargement.) The paper goes on to say:

> '… the QSO has been ejected from the nucleus of the Seyfert NGC 7319. It is seen that there is a luminous connection reaching from the nucleus (just at the top of the picture frame) down in the direction of the ULX/quasar, stopping about 3″ from it. It is also apparent that this connection or wake is bluer than the body of the galaxy ['Bluer' means that it is moving towards the observer relative to the galaxy (i.e. it was ejected)].'

The idea that quasars are ejected from galaxies is vigorously rejected by the big bang community, as it demolishes their key assumption of the creation of all matter at the big bang. Furthermore, the evidence from quasars casts enormous doubt on the distribution of galaxies in the universe, and thus the interpretation of big bang expansion models. [14]

The observations do, however, fit with a recent creationist cosmological model,[12] which proposes that the quasars are ejected from active galaxies in a grand creation process; and that, as we observe the light from quasars today, we are effectively looking back in time to events that occurred on Day 4 of Creation Week.

So the lesson is this. If you hang your hat on a non-biblical model, such as the big bang (because the majority believes it), you will be embarrassed when it falls. This quasar comes as a thorn in the sides of those who believe in the ruling paradigm. However, it is refreshing to see many cosmologists are rejecting the big bang model and are voicing their opinions.

The big bang today relies on a growing number of hypothetical entities, things that we have never observed—inflation, dark matter and dark energy are the most prominent examples. Without them, there would be a fatal contradiction between the observations made by astronomers and the predictions of big bang theory. In no other field of physics would this continual recourse to new hypothetical objects be accepted as a way of bridging the gap between theory and observation. It would, at the least, raise serious questions about the validity of the underlying theory.[15]

Instead, trust in the Word of the One who made it all and you'll never be dismayed.

References

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2. Galianni, P., Burbidge, E.M., Arp, H., Junkkarinen, V., Burbidge, G. and Zibetti, S., The discovery of a high redshift X-ray emitting QSO very close to the nucleus of NGC 7319, *Astrophyical J.* **620**:88–94, 2005.
3. The quasar is measured to be 8 seconds of arc (8″) from the centre of the galaxy. There are 60 seconds in a minute of arc, 60 minutes in a degree and 360 degrees in a full circle. So 8″ is a very tiny angular measurement when looking out into space.
4. Burbidge, G., Burbidge, M. and Arp, H., *Astronomy and Astrophysics* **400**:L17, 2003.
5. 1 Megaparsec (Mpc) = 3.26 million light-years.
6. The simplified Hubble Law equation given here is only approximately correct for z > 0.2, but correctly shows the magnitude variation.
7. Arp, H., *Seeing Red: Redshifts, Cosmology and Academic Science*, Apeiron, Montreal, 1998.
8. Arp, H., *Quasars, Redshifts and Controversies*, Interstellar Media, Cambridge University Press, Berkeley, CA, 1987.
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10. Arp, H., The distribution of high-redshift (z > 2) quasars near active galaxies, *Astrophysical J.* **525**:594–602, 1999.
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12. Hartnett, J.G., Quantized quasar redshifts in a creationist cosmology. *TJ* **18**(2):105–113, 2004.
13. QSO = Quasi-Stellar Object
14. Hartnett, J.G., The heavens declare a different story! *TJ* **17**(2):94–97, 2003.
15. <www.cosmologystatement.org/>, *New Scientist*, 22 May 2004.