Letters

Anthropology and Advocacy

The article "Anthropologists turn advocates for the Brazilian Indians," by Gina Kolata (Research News, 5 June, p. 1183) accurately describes some of the hard questions facing anthropologists who advocate on behalf of the indigenous people with whom they work. However, I would like to point out that at least since the early 1950s anthropologists have been advocates on behalf of indigenous peoples and have thought hard about the scientific and professional difficulties that result. In fact from 1948 until the mid-1960s two major anthropological projects faced these dilemmas: the University of Chicago–based Fox Project sought to help resolve difficulties faced by the Mesquakie Indians in Tama, Iowa (*1*), while the Cornell-Peru Project worked on behalf of the Quechua-speaking people of Vicos (*2*). Both projects carried the commitment that learning and helping through advocacy *is* anthropology.

These and other projects led to substantial and serious discussions of the issues raised when anthropologists shed the role of "objective observer." The Society for Applied Anthropology published in its journal *Human Organization* a symposium on "Values in action" in 1958 (*3*). More recent discussions have grappled with issues of social responsibility (*4*), paternalism (*5*), the implication of advocacy for research (*6*), methodological implications of anthropological action (*7*), the pragmatics of advocacy (*8*), advocacy on behalf of indigenous peoples (*9*), and the professional difficulties of advocacy (*10*).

Anthropological advocacy on behalf of indigenous and other peoples is an important though difficult professional activity. It is therefore especially important to recognize that a rich literature exists that can serve as a resource to help those newly encountering the problems it raises.

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The Largest Galaxy

It was certainly exciting to read about "the largest known galaxy" in the universe (13 March, cover picture; Reports, p. 1367). This is a variation on the ever-popular game "the most luminous quasar" and "the greatest distance" seen in the universe. These fabulous discoveries rest on the one little assumption that astronomical red shifts measure distances. There is no way for a galaxy as strange as NGC 262 (Markarian 348) to define a Hubble relation (a linear relation between red shift and apparent magnitude). Other galaxies somewhat like it violate a Hubble relation (*1*). Therefore there is no proof that it is at its red shift distance and indirect evidence that it is not.

Belief must suffer a further shock when one realizes that the total velocity excursion over the face of NGC 262 is only about 100 kilometers per second. The largest galaxy in the universe is going to have quite a mass, and this mass must exert a pull on gas in the galaxy. The velocity for previous "largest" galaxies has been well over 500 kilometers per second (*2*). This means that the apparent magnitude-rotational line width (Tully-Fisher) distance criterion places it extremely close by. Distorted, noncircular features would argue against perfectly face-on rotation. Except for its red shift the object would be considered a hydrogen-rich dwarf with a low surface brightness and an active nucleus.

Moreover, its red shift, apparent magnitude, and high hydrogen content all place it with a group of objects with low surface brightness that cluster around nearby galaxies (*3*). NGC 262 itself occurs very near in the sky to the Local Group galaxies M31 and M33.

Most interesting of all, if galaxies like NGC 262 and other supposed supergiants like it, such as NGC 753 and UGC 2885 (*2*), are really more than five times bigger than the most giant galaxies for which we have reliable data, like M31, then their volumes should be 100 or more times greater. The supernova rate in M31 is estimated (*4*) to be one per 21 years. If NGC 262–like galaxies were really as big as claimed, they would have more than five supernovae per year!

Perhaps after watching carefully for several years for this ongoing Fourth of July display, the authors will be ready to reexamine their premise that large red shifts always mean large distance.

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Response: We believe that Arp's iconoclastic insistence that astronomers carefully examine their assumptions about the Hubble velocity-distance relation has led to more new and interesting astronomical discoveries in the past 20 years than have 90% of the astronomy Ph.D. thesis projects over this same period of time. For this reason, combined with Voltaire's dictum about the importance of free exchange of ideas, we believe his objections to a piece of research should be examined seriously. In this light we wish to make three points about our paper on Markarian (Mkn) 348.

1) The primary objective of our study was to gather data to test the hypothesis that Mkn 348 was a tidally disturbed galaxy. Arp's reservations about the distance of this object do not seriously alter our conclusions. If he is correct, bringing it closer simply makes it less massive and thus more easily subject to tidal disturbance.

2) If this galaxy is tidally disturbed then the Tully-Fisher relation cannot be used to determine its distance. In fact, since neither the neutral hydrogen (H I) velocity profile (*1*) nor the overall H I velocity field shows "normal" differential rotation, the Tully-Fisher relation is inapplicable ad initium.

3) A lower limit to this object's distance can be determined with assumptions that do not involve the Hubble law. If the optically bright part of the galaxy is composed of

stars, some of these should be red supergiants. These would have an apparent p-magnitude of 18 to 20 if Mkn 348 is associated with the M31 group as Arp suggests. Our 0.9-meter charge-coupled detector-(CCD) calibration frames of this object can detect individual stars fainter than magnitude 21 (*2*); however, we see no such individual stars in our measurements, which suggests that it is more distant than the M31 group. If the telescope time can be found for such a project, a definitive confirmation of this could be obtained with one or two 20-minute R-bandpass CCD exposures with a 4-meter or 5-meter telescope.

If, on the other hand, Mkn 348 is at the distance derived from its red shift and the Hubble law, there is no reason to expect that it would have a supernova rate any greater than that of M51. Supernovae, after all, are associated with stars, and the low optical surface brightness in the outer regions of Mkn 348 implies a small number of stars in the extended outer regions of this galaxy.

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Reference Manager

Ruth E. Wachtel's review (27 Feb., p. 1093) of bibliographic software designed for the scientific community served a useful purpose in bringing the features of such programs to the attention of investigators. Although I was naturally pleased with her favorable evaluation of Reference Manager, I would like to correct several inaccuracies. Reference Manager *does* perform searches using the Boolean operator OR (as well as AND and NOT). Although this is not indicated in the main menu, it is clearly explained both in the help messages that can be brought up on the screen and in the documentation that comes with the program. The results of a search *can* easily be alphabetized not only by author but even by year of publication or journal name.

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