Scientific and Political Elites in Western Democracies

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ABSTRACT

Examples are examined where science conduct falls far short of the ideal. Similar failings in political processes are considered. The question is asked whether there are common roots to these failures and if so how they can be corrected.

1. Evolution of an Elite into an Oligarchy

In the 1940's the largest telescope of its time, the 200-inch at Palomar, was conceived and built. Since Rockefeller and Carnegie were rival capitalists the Rockefeller Foundation could only give the money to California Institute of Technology rather than the Carnegie Institution of Washington where the world's leading astronomers were. Cal Tech, however had no Astronomy Department so an agreement was signed between the two Institutions that they would jointly operate the Observatory. The noted Carnegie astronomers such as Hubble, Baade, R. Minkowski then initially used most of the telescope time. Younger staff members were gradually included.

Quasars were discovered in 1963 and astronomers rushed to observe them because they assumed their high redshifts meant they were at great distances and that the nature of the universe would thereby be revealed. The Cal Tech radio astronomer who isolated the positions of the first quasars asked for telescope time to observe their spectra and obtain their redshifts. He was told only certain of the faculty could observe with the 200-inch telescope. Those select few went on to measure the spectra and reap the headlines and the original discoverer left the field in disgust.

As a Carnegie astronomer I was observing on the telescope but the radio positions of the quasars were kept secret and so I did the next best thing - photographing peculiar and disrupted galaxies to see how they were formed and evolved. Ironically, in the end, they turned out to be surrounded by quasars which were obviously not out at the edge of the universe. That news was not welcomed by the observers who had inflated their reputations with discoveries of a new "most luminous object in the universe" every few weeks.

There followed a interregnum of about 17 years in which the Cal Tech astronomy Department pressed for a larger and larger share of the telescope time. One must know that in the operating agreement for the Observatory that the Carnegie astronomers were appointed full faculty members at Cal Tech. Then in 1980 Cal Tech broke the agreement, taking over the 200-inch and severing the faculty appointments of the Carnegie astronomers. There were bitter protests by the suddenlly discharged faculty (Appeals to the American Association of University Professors were not heeded). In the subsequent allocation committees Cal Tech included only a few of the less senior Carnegie staff who then received small amounts of time but more time than the senior Carnegie members whose time was cut to nil. Telescope time was, and is, the currency of the realm, and in the competition for scientific preeminence the senior Cal Tech Faculty had just helped themselves to large bonus from the company assets.

But it is not just a question of territorial expansion and control, there is also the question of eminence and prestige and the impossiblity of being wrong. This becomes clearer to me now when look back at the events of 1982-83. At that time I received a letter from the joint, Carnegie Institution of Washington - California Institute of Technology, telescope time allocation committee. It was unsigned but it said that if I did not give up my present line of research they would not allocate me any further telescope time. I responded with data showing my publications and citations far exceeded those of the committee members as well as other senior Cal Tech astronomers. But the following year Cal Tech had taken over 75 percent of the 200-inch time. Next year my time was reduced to zero. I resigned my supposedly tenured position.

This is how the elite body of astronomers, which is now the reigning authority in Astronomy, was formed. By now, of course, the students of Cal Tech have gone on to many other elite faculties and astronomers from Harvard, Princeton, Cambridge etc. have arrived in Pasadena. So as with many self selected elites, their power has grown to be almost monolithic.

But why were they so intent on suppressing the small amount of observation time which tested the current paradigms? I must describe at this point a few of the observations which are so threatening. I think some specific cases can make it clear that the current paradigm is fundamentally incorrect. It will also become clear that the longer the contradictory information is suppressed the greater the catastrophe modern science will suffer.

2. Examples of Intrinsic Redshifts and non Big Bang cosmology

There are many crucial pieces of evidence I could cite but I will single out only three here as examples of the many similar kind of results which by now, with great difficulty, have managed to be published.

a) NGC 7603

Number 92 in my Atlas of Peculiar galaxies has a large companion on the end of a luminous arm. In 1971 a spectrum revealed that this companion was 8,000 km/sec higher redshift than the central, active Seyfert galaxy. This amount of excess redshift can not be accomodated in the conventional picture where redshifts mean velocities in an expanding universe. They could not be at such different distances and be physically interacting. When Fred Hoyle heard about this he came up from the Cal Tech campus to my Carnegie office and asked to see the original picture. In 1972 he gave the prestigious Russell Lecture at the Seattle meeting of the American Astronomical Society and outlined a theory whereby younger galaxies radiated intrinsically redshifted photons. His theory of growing particle masses was a more general solution to the conventional field equations but was physically a Machian (not Einsteinian theory). At the end of the lecture he said the NGC 7603 observation created a crisis in physics and we needed to cross over the bridge to a radically more general physics.

Over the years the evidence for non-velocity redshifts has grown enormously, both for quasars and galaxies. A number of researchers have tried to make the establishment admit the consequences of this evidence. But it has been suppressed and ignored. *However, In an event of great irony, 30 years after Hoyle's talk featuring NGC 7603, two young Spanish astronomers have announced the finding of two quasar-like, much higher redshift objects imbedded in the arm which connects the low redshift galaxy to the higher redshift companion of NGC 7603.* As in many past cases, this result alone should have settled instantly and finally the existance of intrinsic redshifts. Instead the paper was turned down by Nature Magazine, rejected by the Astrophysical Journal and only finally accepted by the European Journal, Astronomy and Astrophysics.

b) The Virgo Cluster

In another case, the brightest quasar in the sky (3C273) was found in 1966 to be paired with one of the brightest radio galaxies in the sky (3C274) across the brightest galaxy in our Local Super Cluster. The chances were a million to one that they belonged to the Local Supercluster and that quasars were not at their redshift distances. Then this region was measured in high energy X-rays and the connection from the central low red shift galaxy to the quasar 3C273 was explicitly visible. The influential journal Nature refused to publish it although they had just published the top half of the X-ray map of the cluster. Then the gamma ray satellite came along and showed the cluster in the highest possible energy range, greater than 100 MeV. Not only was the 3C273 quasar at redshift = .158 attached to the central galaxy at z = .003 but the famous quasar 3C279 at z = .538 was also part of this high energy filament. The data was interpreted by Arp, Narlikar and Radecke as showing birth of new matter and new galaxies and the evolution of redshift from high values to low. It was published finally in Astroparticle Physics vol 6, 1997. The clear pictorial connection has been suppressed ever since and the original author of this extraodinarily important result is no longer a professional researcher.

The above is another kind of failure of the scientific system, unfortunately more common today. The orbiting observatory had been built at great expense, reduction procedures financed, and analytical personnell salaried. When a great discovery was made it was hidden, not shown in conferences or published, because, for one reason, I believe, the team feared that they would be attacked as incompetent observers.

Some of the orbiting instruments that made epochal breakthroughs published results but ignored their significance. I visited one director regularly pointing out the obvious discoveries. He politely nodded and then went about ignoring the crowning achievement of his project.

c) The radio quasar 3C343.1

Science is based on repeatable observations of real objects and the relationships between them. In order to avoid generalizations, however, we show here another specific object which demonstrates the foundation of current extragalactic astronomy and cosmology is fundamentally, inescapably, incorrect. Fig. 3 shows a radio map of a strong radio source. Two redshifts are measured for this object with one much larger than the other. According to conventional cosmology they are in different parts of the universe. But we see they are, in fact, joined by a bridge of radio material. The chance of this observed configuration being an accident is one part in one hundred thousand billion! Other examples like this have been observed where the chance of accidental occurrence is only one in a billion. But this would seem to be the ultimate *experimentum crucis.*

The ejection in opposite directions of material from active galaxies, including very high redshift material like quasars, has been building up now for over 37 years. Yet the radio map shown here and the notation that his object had "two redshifts", one a "background object," lay unoticed and unchallenged in the voluminous literature for 4 years! When it was finally submitted to the Astronomical Society of the Pacific it was rejected. In spite of my being a past President of this organization they refused other observational results and communications and I had to resign. It is particularly vexing that the A.S.P. has as a primary goal educating the public about astronomy. But since it was hijacked by fanatical Big Bang adherents, it has been exactly misinforming the public.

We might also mention in passing that if the quasar redshift is transformed to the rest frame of the galaxy that it becomes z = .31, very close to the redshift z = .34 of the galaxy and to the quantized redshift peak of z = .30. Evidence has also been piling up for redshift periodicity 36 years - a result which is an instant refutation of conventional expanding universe theories. From time to time incorrect papers claiming to refute quantization of redshifts are published and papers demonstrating it are rejected.

3. Can Academia Reform?

Since this enormous amount of contradictory empirical evidence has not been accepted over the last generation I personally believe that it will not be accepted until there is a fundamental change in the structure of academia. To start with routine operations, electronic communication today make it not sensible to pay for wasteful transportation of observers to remote sites in the world. Buttons can be pushed as easily in the home office. Observations could be performed by email request with small key observations having priority over larger, more critically reviewed programs. Countless conferences in exotic places of the world between mutually agreeing researchers tend to be vacation treats for the elite and their helpers.

Certainly Academic Science is overfunded in terms of the usefulness of their current end product. If more of this money were channelled instead to non-academic researchers there would ensue a pressure for the academics to consider seriously some of the more innovative and realistic work of people who were primarily interested in understanding their subject. Of course a more democratic science would introduce a lot of wild ideas but then research only by the elite seems to produce only bandwagon ideas which are sure to be wrong.

The only alternative to censorship (a.k.a. refereeing) in professional journals is personal communication between individuals and groups. Recently that has taken a great step forward with the internet. In any case, the professional academic journals will soon be expanding their shelf space faster than the speed of light. That will not break any physical limit because there will be no information involved (like cosmic inflation theory). But for the life blood of science, which is communication, there appears to be no hope in the public media which at present appears sound asleep.

4. The Media

When a newspaper like the N.Y. Times hears about an event of international interest they call up the Whitehouse and ask the President what it means. That is featured on the front pages and perhaps a few Republican and Democratic Senators, and "think tanks" are quoted on following pages. Letters to editors and columnists with "respectable" views are reported further inside. Deep inside the Sunday Times, which hits the apartment door with a sound like thunder, can be found scraps of opinions by foreigners, artists and miscellaneous people. Very democratic, you say, with opinions being represented roughly in proportion to their numbers in the society.

Not so. The Bush Republican's stole the 2000 election by stopping recounts in Florida, disfranchising thousands upon thousands of democratic voters, and finalizing it all with a right wing coup in the Supreme Court. The Times together with a few other "respectable newspapers" thought it over for a long while and finally issued a lame opinion that "Bush would have won anyway" - hail the chief! Aside from the loser being awarded the winner, no one mentioned that if the U.S. had the more representative democratic structure of many European nations, that they would today be governed by a democrat (plurality) -green, coalition of Gore and Nader.

The bad news is that the Times is the very best. The rest of the newspapers, the entirety of the TV and huge amounts of radio programming is given over to the most shallow repetition of what is believed to be patriotic slants of the news. Is it any wonder that most of the rest of the world was against premeptive war while the U.S. was reported to be 70 percent in favor? (Actually in Bay Area San Francisco, and other more enlightened communities, the sentiment was clearly reversed).

But now what happens when a scientific event occurs? The N.Y. Times calls up Princeton and asks their opinion. The professor tells them, "That report of a new observation has been shown to have been false. Everyone agrees that my theory is the correct one." If the Science reporter really gets serious he calls up Harvard, Cal Tech or Univ. of Chicago. He gets the same story that "Contradictory observations are incorrect and that the real controversy is over whether the undetectable "dark" matter in the universe is 90 percent like I say, or 95 percent like some other prestigious scientists claim." The rest of the national media, understandably, do not mention it. Occasionally they run a story "Einstein invented dark matter and space is curved!"

Real investigative reporting is truly a lost art. In science it is horrific, with reporters never lifting their feet off their desk or their hand off the telephone. In politics, which people believe is more important, however, there are a few brilliant exceptions which show what can be accomplished with hard work. Two I would mention are Michael Moore and Greg Palast. (See internet for biographies and books published). They actually get the original records and confront the "experts" with what they have said and enumerate the statistics and facts which contradict the establishment consensus. And of course there is Noam Chomsky who is the leading founder of linguistics and speaks brutal truths for anyone who cares to consult his political writings.

How does reporting of astronomy and cosmology to the public compare with political reporting? What are the factors which control this science and does the kind of democracy which exists in western nations today control scientific knowledge?

5. Democracy and the Media

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The inescapable fact about western democracy is that it is heavily controlled by money. We all know that money buys political influence for the people who invest in public relations and lobbying. This influence in turn leads to the more monetary return which can be used to gain more influence. In Science it is rather direct with Institutions and researchers applying to the government for grants and support. In politics one must influence legislation. But a public relations department is crucial for the image and most academic institutions have one. This activity is usually conflated with "educating the public." One can try to limit funding contributions to politicians but it will be difficult to limit the euphemistic term "public education". Perhaps we could try under the motto of "separation of church and state".

The countervailing force of investigative journalism is difficult to encourage because it is so easy to just accept predigested hand outs from respectable sources. One must fall back on old fashioned democratic populism. The wide and wild opinion forum of the internet; the Meta Research Bulletin by Tom Van Flandern; books published by small publishers like Apeiron. Two books have now been written compiling all the discordant evidence; Quasars, Redshifts and Controversies (in Italian, La Contesse Sulle Distanze Cosmiche e le Quasar, Jaca Book) and Seeing Red: Redshifts, Cosmology and Academic Science (in press in Italian by Coelum). Presently a "Catalogue of Discordant Redshift Associations" is in press at Apeiron, Montreal. A Different Approach to Cosmology. Burbidge, Hoyle and Narlikar and all the references therein is available.

It is possible that long lasting changes must grow from the grass roots upward and that independent decisions by enough citizens will force the media to discharge its responsibilities and ultimately help redirect money into more productive channels.

6. Problems With Directors, Chairpersons and CEO's

Aside from Engineering and Medical Faculties which generally have to produce something that works, Academic Directors tend to be crippled with problems of power, prestige, cronyism and issuing degrees only to students who demonstrate that they know the correct answers in the subjects they have studied. The best results I have seen is in Departments who rotate the then onerous job of chairperson every one to two years. Diversity of independent faculty - while faculty still remains a working concept - seems best suited to achieve balance of power and interests.

Business is no less ruthlessly competitive and ethically challenged. Excessive executive compensation just welds seamlessly the connection between money and prestige. One overpayed entrepeneur was known to remark "Money is just a way of keeping score". In a capitalist economy stockholders seem to be the only hope. They are beginning to realize executives most interested in money for themselves are not usually most interested in the health of the company or the world. In the very long run it may be that unregulated capitalism produces an exploitative evolution for humanity that is self limiting in that it destroys its own environment. A more adaptive type evolution may be slower but safer.

I might make a few summary remarks: Why has all the observational evidence been disregarded when it falsifies almost everything that is supposedly known about extragalactic astronomy? Perhaps the informal saying, "To make extraordinary changes one requires extraordinary evidence" really means, "To make personally disadvantageous changes no evidence is extraordinary enough". I felt it was necessary to resign because freedom of research was the the most important issue and here was a rare factual issue that should have strong reformative effect when it turned out to have been improperly suppressed. As a relief from the diasterously competitive climate in the U. S. I found more tolerance in Europe. And the opportunity to change to X-rays, a different observational wavelength furnished new kinds of data and stimulation .

7. The Beliefs of Society

But finally, in the long view, is improvement in the moral basis of society necessary to bring about beneficial changes in both Science and Democracy? By moral I mean an operational definition of "that which will promote long term survival". One of the problems is that we have a culture that rewards conformity more than innovation. Children are generally taught that there is always one correct answer. Not to get that answer means failure. That produces fear. One can see the effects in classes where the students do not ask questions (as in the graduate classes I taught at Cal Tech). One can see the effect persisting in mature scientists.

Education tends toward social indoctrination. The most important task of a school is not to teach *what* to think but *how* to think. Grades should also depend on questions asked as well as answered. The value of experiments, empirical versus theoretical analysis and testing fundamental assumptions should be emphasized. For many people this would mean liberal schools and elements of home education.

On the psychological and philosophical front one can ask questions like: "Why do people seek power? What can be done to make society and media less exploitative. How best to promote tolerance for divergent views and respect for nature. In the media, can we combat the unbearable hypocrisy surrounding military agression?

In a democracy scientific truth should not to be voted on by a self selected elite. I remember Linus Pauling, a double Nobel Prize winner, who nevertheless had trouble defending his professorship at Cal Tech, enuciating his Golden Rule: - "Do unto others 10 percent better than they do unto you (10 percent to allow for subjective judgement)." Perhaps then we may permit the race to evolve in the direction of what we call intelligence.

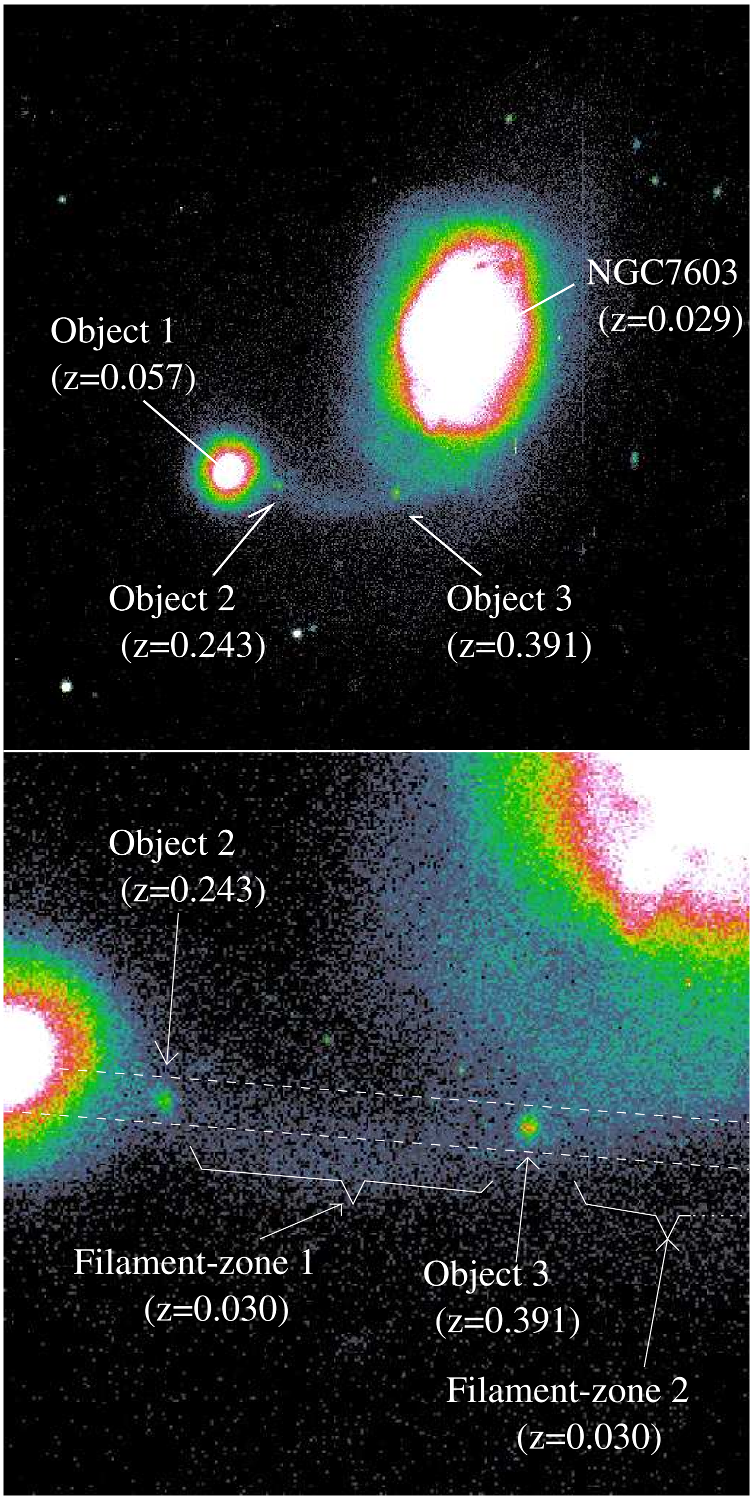

Fig. 1.— NGC 7603 is a Seyfert galaxy of redshift 8,700 km/sec. The companion attached to the arm has a red shift of 17,100 km/sec. Two quasar like objects of 72,900 and 117,300 km/sec have been discovered in this arm by Lopez-Corredoira and Gutierrez.

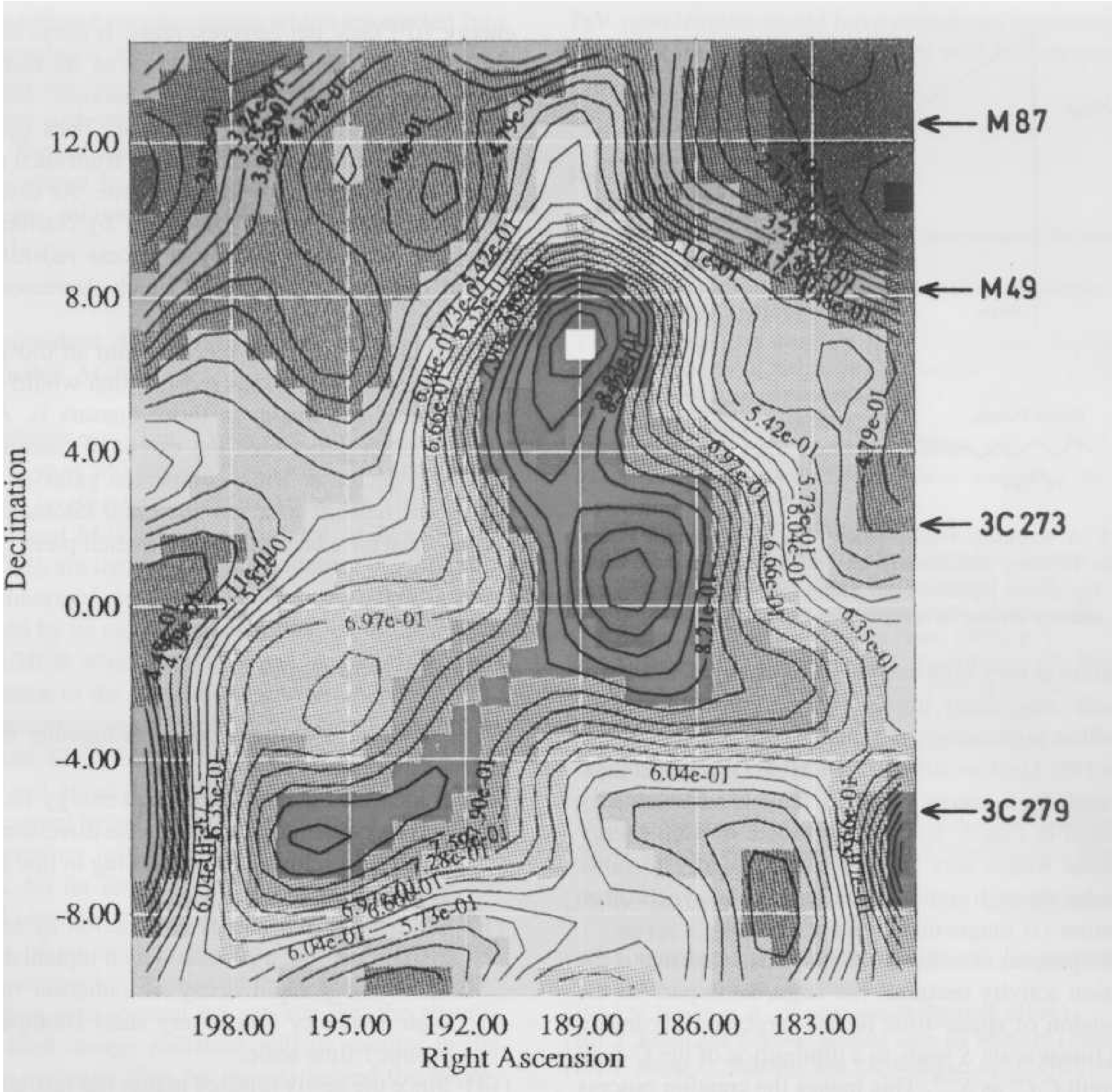

Fig. 2.— Gamma rays, greater than 100 MeV showing connection from M49 (z = .003) to the quasars 3C273 (z= .158) and 3C279 (z = .538).

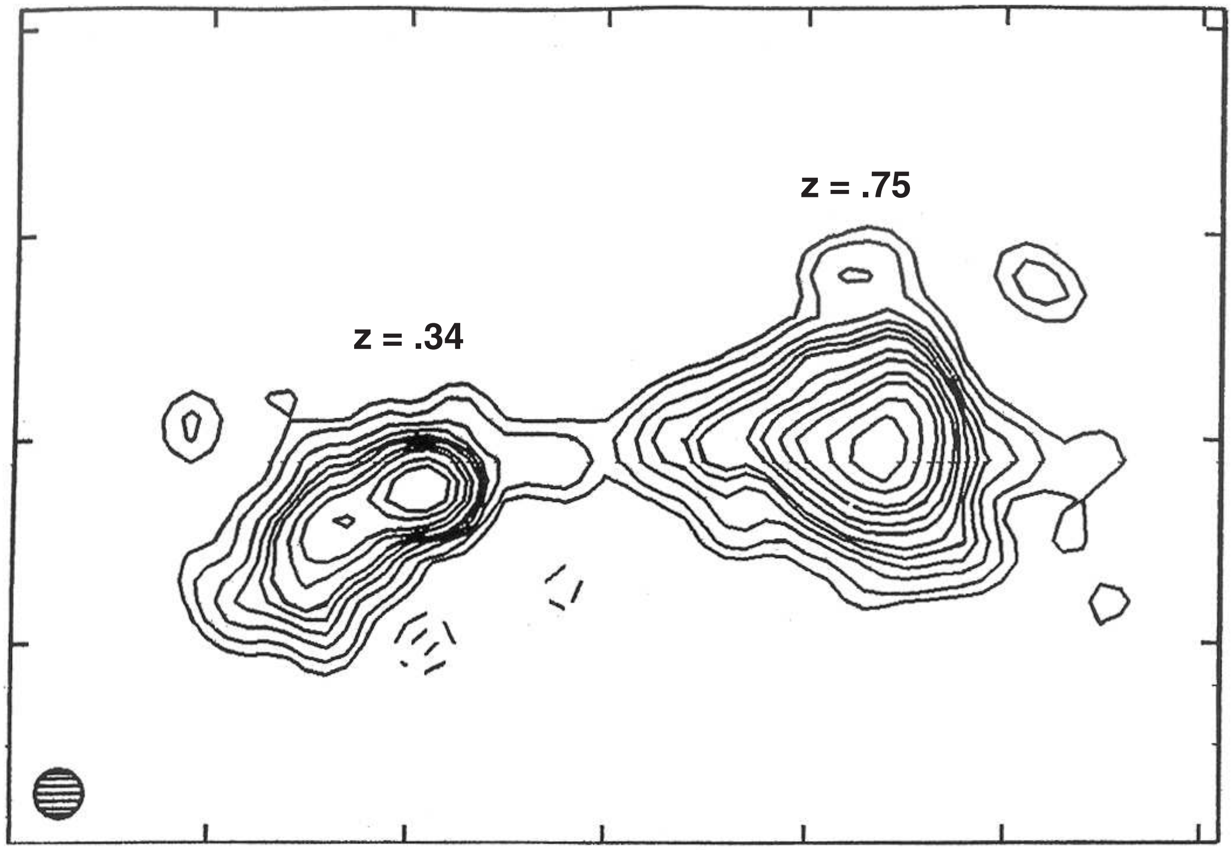

Fig. 3.— Radio map at 1.6Ghz of 3C343.1 by Fanti et al. A&A 143, 292, 1985. (Separation of sources about 0.25 arcsec .