



*This X-ray picture from the Einstein satellite shows some of the structure of the quasar 3C 273 and its jet (at the 5 o'clock position).*

*A map of the spiral galaxy M81 and its companion NGC 3077 at the neutral hydrogen wavelength of 21 cm.*

Some, however, consider that the difference between elliptical and disc galaxies requires further explanation. It could be that outside influences have in some way affected the manner in which star formation proceeded, or possibly it has had something to do with activity in the nucleus. S0 galaxies could well be spirals which have been swept clear of gas, either through the pressure of the intergalactic gas in clusters or, less frequently, by direct collision between galaxies.

After forming, a rotating gas disc becomes thinner with time: gas passing through the plane of the disc collides with other gas and so tends to lose its motion perpendicular to the plane. Stars, however, can pass freely through the disc, and their distribution does not become thinner. This scenario is consistent with the distribution in our Galaxy of stars of different population types where the younger populations (stars which formed later) have thinner disc distributions.

Our general theories of galaxy formation and evolution have a long way to go before they can properly be related to real galaxies. It is not yet clear, for instance, whether all galaxies go through a phase of being active galaxies, perhaps early in their lives, although this is a question of fundamental importance.

