

gether are inconsistent with results of observations of distant galaxies. These examined the redshifts of the galaxies to determine trends that could be interpreted as a velocity of our galaxy toward some preferred direction or other. For the velocity of the local group of galaxies, the observations of distant galaxies give either 450 kilometers per second toward galactic longitude 160° and latitude -10° or 310 kilometers per second toward longitude 180° and latitude +50°, depending on the sample of galaxies used. The present microwave background work gives 540 kilometers per second toward longitude 280° and latitude +30°.

In a well-behaved universe, as cosmologists have conceived it, our local group's velocity with respect to these two frames of reference should be the same. Scientists are striving to reconcile the discrepancies, but Wilkinson and collaborators suggest

that other alternatives be considered. One of them is that the cosmic blackbody has an intrinsic "dipole moment". "Suppose part of what we're seeing is due to a built-in primordial dipole moment, and not motion," Wilkinson says. He has no physical picture of what process in the early universe might have made the blackbody thus anisotropic, but physicists should keep it in mind as a possible explanation of the "sharp disagreement" between the two kinds of velocity measurement. Another possible explanation is that there are random motions at velocities around 500 kilometers per second by large-scale gangs of galaxies (gangs around 100 megaparsecs across). In that view the galaxies used by the galaxy measurers (principally Vera Rubin and Kent Ford) are going somewhere, we're going somewhere, and what is being measured is the sum or difference velocity. □

workmen's compensation — and attached it as a rider to the public-works bill.

President Carter said he signed the bill "with regret" to avoid a "divisive veto battle" that might divert congressional attention — and undoubtedly support — from more pressing issues.

And what about the fish? Some 2,000 transplanted snail darters appear to be thriving in another Tennessee river. □

Heart death decline examined

During the past few years, deaths from heart disease have fallen off dramatically in the United States, regardless of age, sex or race (SN: 11/11/78, p. 328). Between 1968 and 1976, for instance, the decline was 20.7 percent. Michael P. Stern, a physician with the University of Texas Health Science Center in San Antonio, has examined all the scientific studies published on heart disease that might illuminate which factors contributed to the decline in heart disease deaths between 1968 and 1976.

As he reports in the November *ANNALS OF INTERNAL MEDICINE*, the fall could be largely attributed to changes in lifestyles — eating less cholesterol and animal fats and smoking fewer cigarettes — and also to improved medical care for heart attack victims, especially in the form of coronary care units.

A number of studies, Stern explains, convinced him that a decrease in a high cholesterol-high animal fat diet (implied in the past as a coronary artery disease risk factor) has been a major contributor to the decline in heart attack deaths between 1968 and 1976. Estimates prepared annually by the U.S. Department of Agriculture show that the consumption of animal fats, which contain cholesterol and are largely saturated, has declined between 1909 and 1973. Concomitantly, consumption of polyunsaturated, cholesterol-free vegetable fat has tripled. Thus, these dietary changes may have led to a gradual decline in the average blood cholesterol concentration in the United States, particularly since the early 1960s (SN: 7/23/77, p. 58). And two Scandinavian studies demonstrated that the protective effects of the lower cholesterol levels occur quickly.

Another significant contributor to the lowered heart disease mortality between 1968 and 1976, Stern continues, is a decline in cigarette smoking—a well-documented heart disease risk factor. The Framingham Study showed that between 1950 and 1968 cigarette smokers declined from 61 percent to 37 percent among men and from 40 percent to 31 percent among women. The National Clearinghouse for Smoking and Health found that the percentage of male cigarette smokers declined from 53 to 37 percent between 1964 and 1975, and that a modest decline in the percentage of

Snail darter vs. dam: 'Pork barrelers' win

Admitting that he was bowing to political pressures — which he presumably felt could weaken his bid for reelection — President Jimmy Carter signed into law a \$10.8 billion public-works appropriation bill last week. In so doing, he removed the last obstacle standing in the way of completing the \$145 million Tellico Dam project in Tennessee, famed for its role in the threatened extinction of the snail darter.

The continuing saga of the fish versus the dam has played before audiences large and small, from the Supreme Court (SN: 6/24/78, p. 403) and the Cabinet-level Endangered Species Committee (SN: 1/27/79, p. 55) to local affected homeowners. It has also figured prominently in both the threatened demise (SN: 10/7/78, p. 247) and later revision of endangered-species law. But this newest chapter introduces a specter that environmental lobbyists had hoped to elude — a complete and uncompromising exemption from all federal laws so that a "pork barrel" project might survive unabated.

The Tellico Dam has been the subject of intense and heated controversy since its inception around 1963. Supporters of the project have claimed that the recreational value of the dam reservoir, new construction jobs and the economic growth that would follow development of its reservoir's scenic shoreline would aid economically depressed East Tennessee. And TVA, for whom the dam is being built, expects to save \$2.7 million annually in electrical generating costs by diverting base-load capacity from coal and nuclear power plants to Tellico's somewhat less costly hydropower.

Opponents have countered, focusing on the natural, historical and cultural value of the river and its valley. For example, the dam reservoir will inundate some 5,600 acres of agricultural land and most of 280 archaeological sites — chronicling a his-

tory of human habitation dating back 10,000 years — that had been nominated to the national Register of Historic Places, in addition to seven sites already in the register. It will also partially flood a national landmark.

What's more, certain fish- and wildlife-habitat losses which will occur with the dam-reservoir development "are not fully accounted for in the TVA's comparisons of measured recreational benefits," according to a January 1979 cost-benefit analysis of the dam project by the staff of the new Endangered Species Committee.

In fact, when the Cabinet-level Endangered Species Committee held its first meeting, last January, its seven members voted unanimously against the dam on the grounds that finishing the already 90-percent-completed project was economically unjustifiable, irrespective of the snail-darter issue. At best there was a \$4 million annual net benefit for the dam over the originally free-flowing river, the new Endangered Species Committee's staff found. And Cecil Andrus, who chaired the committee, said his calculations showed a possible \$6 million annual net benefit for the river over the dam. Both calculations were arrived at before consideration of the acknowledged but largely unmeasurable value (in dollars) of the archaeological sites and wildlife regions that would be lost due to the project.

But no sooner had the committee decision been tendered than Tennessee Senator Howard Baker vowed he would abolish the panel. Ironically, it was his bill that only months earlier had established this panel and empowered it to waive endangered-species law. In the end, Baker and other disgruntled members of Congress just wrote a blanket exemption for the Tellico Dam from all federal regulations — including Occupational Safety and Health Administration laws and