rection. If such fast clouds exist in the north, then, unless something very strange indeed is going on, they should also exist in the south. From Australia has come word that a few such clouds have been seen, but as yet, according to Prof. Frank J. Kerr of the University of Maryland, no systematic search for them has been carried out.

Prof. Kerr disagrees with Prof. Oort on what the clouds are doing. Prof. Kerr believes they are more distant and that they are satellites of our galaxy (SN: 5/11, p. 458), describing elliptical orbits around it, as the moon does around the earth, rather than driving toward it.

One reason for the wide disagreement is that although observers can tell the velocities of the clouds from direct observation they cannot tell precisely how far away they are and whether their motion is carrying them on a collision path or in an orbit.

In Prof. Oort's collision hypothesis, however, the distance the clouds ought to be at can be calculated from a model of the physical processes that should be taking place in the collision. Working out such a model might also give observers an idea of what sort of evidence they might look for to support the Oort hypothesis.

To this end Prof. R. A. Gross of Columbia University, a specialist in plasma physics, spent the last year in Leiden helping Profs. Oort and van de Hulst and graduate student Brahm van Leer work out such a model.

According to the model, described at the recent American Physical Society meeting, the galaxy itself has an atmosphere of hydrogen clouds similar to those found outside it, and it is with this atmosphere that the colliding clouds—if they are colliding—would interact.

As long as the intruding cloud was more than 3,000 light years above the central plane of the galaxy, nothing would happen. Below this level shock waves would have formed.

Because of the high ratio of collision velocity to the speed of sound in the gas—100 to one—two strong shock waves are postulated, one propagating through the galactic gas ahead of the boundary of the intruding gas, the other propagating back through the intruding gas. The forward shock wave should ionize the galactic gas it passes through, raising its temperature from about 100 degrees above absolute zero to about 1.5 million degrees.

Such a gas should radiate light and radio waves strongly, so strongly in fact that though it starts to recombine behind the wave its own radiation immediately dissociates it again and, as long as there is an input of ionized gas from the wave, ionization persists between it and the intruding gas.

This ionization is not seen in the present observations, but the Leiden astronomers are so sure of their model that they believe they are looking at a later stage. When the shock wave reaches thick enough galactic gas, it slows down and stops ionizing. The gas behind it then cools and recombines—in a 10,000-year astronomical blink of an eye. The Leiden astronomers believe they are seeing radiation from this cooled gas, which, by the calculations should be between 900 and 1,500 light years above the galactic plane. But they have yet to convince those who disagree.

HEALTH COSTS

Not one city or community . . .

A Senate subcommittee, alarmed by predictions that there will be a 140 percent increase in the cost of health care in the 1970's, is calling more hearings early this summer to seek practical plans to avoid pricing medical care out of the reach of the average patient.

At the close of its April hearings Senator Abraham A. Ribicoff (D-Conn.), chairman of the subcommittee on executive reorganization, reported that not one city or community in the entire country has a model plan for action necessary to reduce costs.

Not only the poor segment of the population, but people with incomes going into five figures—including the Senators themselves — are getting scared.

For example, it would cost more than a billion dollars to provide pacemakers to all the heart patients whose lives would be lengthened by these devices. It costs $12,000 a year to prolong the life of one person suffering from a severe kidney disease through the use of an artificial kidney; 100,000 need this help. Organ transplant costs are overwhelming.

The American Medical Association is emphasizing the need for paramedical training of health helpers, pediatric nurses, for example, as a way to reduce costs. Group practice among physicians has been suggested as another way that medical fees could be cut.

Studies of hospitals indicate that joint purchases of supplies and joint ownership of costly equipment would make significant inroads on cost.

But without corrective action, "by 1975, when the cost of living will rise 20 percent, the cost of health care will be 140 percent higher," says Senator Ribicoff. For example, "Our national hospital bill, which was $9 billion in 1965, will be $32 billion in 1975. And our national doctor bill, which also was $9 billion three years ago, will be $24 billion in 1975."

He poses questions such as: Why is it that a person can have five different types of health and medical insurance and still not be fully covered? Is any American, with the exception of the wealthy few, safe from the crushing cost of a catastrophic illness?

Two men who testified before the Senator's subcommittee, New York Gov. Nelson A. Rockefeller and Walter P. Reuther, president of the United Auto Workers, had some suggestions on systems that would guarantee that no one is priced out of necessary care. They also proposed controls over hospital costs.

Of his state administration's current Health Security Act, Governor Rockefeller said an objective should be to insure protection to virtually all of the state's population under 65 years of age. Another should be to make the hospital's "reimbursement rate conditional on its management efficiency."

Among Reuther's proposals was closing nursing homes if they cannot meet minimum accreditation standards. He also proposed "the amendment of Hill-Burton legislation and provision for other measures to foster efforts to build and operate urgently needed nonprofit facilities for convalescent and chronically ill cases."

He says UAW has long given support to both legislative and voluntary activities that would seek to place the "splendid achievements of medical science within the reach and at the service of all people."

The Department of Health, Education and Welfare, Acting Secretary Wilbur J. Cohen testified, "is establishing a National Center for Health Services Research that is expected to begin operations in May." He says the budget request for fiscal 1969 for the center is $30 million. Its ultimate goal is to aid practitioners and institutions involved in health services to improve the distribution and quality of services. Physicians, group practices, hospitals, clinics, health professional schools, governmental and voluntary health agencies and health insurance firms are involved.

The Acting Secretary endorses even stronger support of planning through state law.

Cohen's testimony concluded with a statement on the Federal Government's responsibility to "uphold the right to high quality health care for all its citizens, regardless of . . . any factor except medical need."

The exercise of this responsibility, however, is more likely to be along the lines of support for state and private programs, rather than the imposition of Federal standards and regulation.