was going to depend on how much political muscle the Alaska senators and lobbyists for the mining and the oil and gas industries exert in Congress.

After the stop at Selby Lake, the Andrus party's tour moved on to the existing National Arctic Wildlife Refuge, an area where the conflict is between wilderness and potential oil and gas development. If H.R. 39 should become law as now written, the refuge would be enlarged to take in an area in northeast Alaska substantially larger than the entire state of West Virginia, and most of it would be classified as wilderness, with no oil and gas development permitted. Yet nearly everyone agrees that there is a significant potential for discoveries of oil and gas in that part of the existing refuge which is in the Arctic coastal plain.

Last year, when the Administration was putting together its Alaska lands proposal, Secretary Andrus bested the Department of Energy in an interagency battle by persuading President Carter that oil and gas development should be kept out of the refuge. The refuge is unique, partly because it serves as the calving grounds for the Porcupine caribou herd, which, with its some 120,000 animals, is now the largest herd in North America.

Andrus has been well aware that the question of whether the nation should place wilderness and caribou ahead of oil and gas could, in the final analysis, depend on the estimates as to how much oil and gas the refuge contains. Accordingly, last May he eagerly seized upon a new U.S. Geological Survey report which speculates that, while the refuge offers good potential for discovery of oil and gas deposits of medium to large size, discovery of another "supergiant" field comparable to the one at Prudhoe Bay is unlikely.

The secretary has taken the attitude that the value of the refuge and its caribou far outweigh the value of speculative and possibly unexceptional oil and gas resources which, even when developed, would be "finite and rapidly expended."

Enroute to the refuge, Andrus and members of his party stopped briefly at Prudhoe Bay where Angus Gavin, the Atlantic Richfield Company's ecologist in residence, told them, in effect, that oil fields and caribou are quite compatible. The study, conducted by Gavin in the Prudhoe Bay field and in a larger undisturbed area adjacent to it, had shown, he said, that the presence of the big pipeline, the gathering lines, and other facilities had not bothered the caribou.

"Actually, we have the only stable herd in the Brooks Range," said Gavin, referring to the small central arctic herd variously estimated to have from 5000 to 7000 animals. Gavin observed that the caribou even seemed to prefer to crawl under the elevated pipeline rather than use the grade level crossings provided for them.

But Andrus and the U.S. Fish and Wildlife staff people with him took Gavin's assertions with a grain of salt. A study of the behavior of the central arctic herd sponsored by the Department of the Interior, the state of Alaska, and the Alyeska Pipeline Company had indicated that caribou, and especially cows and calves, were tending to avoid the pipeline and its associated haul road. According to the study, the herd seemed to be separating "into eastern and western components, each with largely independent north-south movements."

Briefing

The Canceled Computer: Were Carter's Facts Right?

A curious difference on facts has emerged between the White House and Sperry-Rand Corporation, makers of the computer that was to be sold to the Soviet news agency Tass until the proposed sale was vetoed by President Carter on 16 July.

At a news conference held 5 days later, Carter said that the computer was "very advanced" and "would have provided a quantum jump in computer capability, multiplying the speed of the computer, I think, 20-fold." The machine was also "far in excess" of Tass's requirements, the President stated.

Sperry-Rand officials do not dispute the President's right to block the sale but do disagree with the statements he made at the 20 July news conference. The computer, a Sperry-Univac 1100/10, is at the lower end of the 1100 series. Its speed of operation, far from being 20 times greater than any other machine the Russians have access to, is comparable to that of the 1106/2 model already installed in the offices of Aeroflot, the Soviet airline.

Sperry-Rand officials say that the parameters of the machine proposed for Tass fell within the guidelines set by the interagency committee which monitors strategically sensitive trade with the Soviet Union. They also deny that that machine was more capable than necessary. "We had studied Tass's requirements for 2 years before proposing this system," a spokesman says.

The Export Control Administration, whose officials chair the interagency committee, declines to comment on the differences between the White House's facts and Sperry-Rand's, saying it cannot discuss the details of any export application. One official says that decisions are made on a case-by-case basis, and that "we would certainly try to see if the computer proposed was reasonable for the end use."

The interagency committee is supposed to review applications within 90 days. The Sperry-Rand proposal has been with the committee since last fall, suggesting that there may have been problems of some kind. Asked if he knew the reason for the delay, a Sperry-Rand official said that "We had no negative vibes whatsoever from the interagency committee. The first indication we had of a problem was at the President's announcement."

In vitro Infant Raises Tempest in Test Tube

The birth in Oldham, England, on 25 July of the first child to be conceived in vitro marks the development of an obstetric technique which may well prove useful for some infertile couples until it is superseded by methods for unblocking the Fallopian tubes.

The ethical problems raised by the technique do not differ from those of artificial insemination except in that the fertilized eggs not selected for implantation are destroyed, and the selected embryo could in theory be implanted in another woman's womb, making possible the reliance on "surrogate mothers" for those unable or unwilling to carry a child to term.

For longer renditions of these facts, see any newspaper or magazine.

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As luck would have it, the Andrus party found and flew over a sizable part of the Porcupine herd, which was assembling prior to making its annual trek from its summer habitat on the North Slope across the Brooks Range and into Canada, where it winters in the boreal forests of the upper basin of the Porcupine River. It was early afternoon, the sun high in a cloudless sky, and the caribou, some 20,000 to 30,000 of them, were moving slowly through the foothills above the arctic plain. The tundra, a subtle beige and light green, offered not the slightest sign of ever having been visited by humans—there was not a road, not a seismic line, not a mark or blemish of any kind as far as one could see, from the Arctic Ocean to the Brooks Range.

"The Eskimos say, 'No one knows the way of the wind and the caribou,' " Andrus has said. "[But] we do know that if the herd is dispersed or broken up by [oil and gas] exploration activity, it may never regroup again. This is a chance we decided not to take."

Throughout his Alaska tour, the secretary found the friendliest political terrain in the native villages, such as Kaktovik, a village of 132 people on Barter Island, on the edge of the Arctic Wildlife Refuge and the Beaufort Sea. At Kaktovik, the villagers depend on caribou meat to help carry them through the winter, and last year they took about 100 of these animals.

Their mayor, Marx Sims, the postmaster (and a white nonnative), told Andrus that the villagers were totally opposed to oil and gas development in the refuge. Such development, they believed, would interfere with calving and bring about a disastrous decline in the herd. The Eskimos of villages to the south of the Brooks Range had adopted resolutions expressing the same apprehensions.

On this as on previous trips to Alaska, Secretary Andrus heard many nonnatives voice the protest, implicitly or explicitly, that H.R. 39 represents a callous attempt to put many of Alaska's most choice areas off limits, not just to development, but also to sports hunting and even to convenient access for fishing or other outdoor pursuits. Yet, as Andrus sees it, his philosophy of achieving "balance" in use of resources applies as much to the classification of land for various kinds of recreational activity as it does to classifying land for development or wilderness preservation.

For example, in the Andrus view, the Gates of the Arctic Park and the Arctic Wildlife Refuge are best regarded as special places which one perhaps will visit rarely, if at all, but which will always be there, pristine and inviolate. Yet, at the same time, a number of other parks and refuges will serve large numbers of visitors, as in the case of those along the coast of Alaska and in parts of the interior which are easily accessible by excursion boat, railroad, or highway.

The first and last days of the Andrus tour featured visits to such places. One was by excursion boat from the town of Seward to the sea lion rookery on Chiswell Island, near the proposed Kenai Fjord National Park on the south central coast of Alaska, about 100 air miles below Anchorage. The other was by tour bus through part of McKinley National Park (see box), now accessible by the main highway that connects Anchorage and Fairbanks as well as by the Alaskan Railroad.

Briefing

Tank Can Run, Shoot, and Vanish in a Puff of Smoke

Aberdeen Proving Ground, Maryland. The Army last month unveiled its new main battle tank, a weapon that it hopes will dominate the battlefields of the 1980's. In an impressive display of martial joie de vivre, the 59-ton behemoth cavorted across the Maryland countryside at speeds averaging 30 miles an hour, at times briefly airborne as it soared with elephantine grace over the hillocky terrain. Firing on the run, with the aid of a laser range finder and ballistic computer, the new tank shot at targets three-quarters of a mile distant, a bright flash of metal against metal signaling a hit every time.

For its final trick, the XM-1 launched a bevy of smoke grenades which, after a brief fireworks display high above the tank, swathed it within seconds in a swirling gray cloud. When the smoke dispersed, several minutes later, the tank had vanished behind cover.

With finely calculated showmanship, the Army put the XM-1 through its paces side by side with an M60, the present main battle tank. Either the M60 wasn't trying its hardest, or the XM-1 has considerably better acceleration and speed and shoots more accurately, even though both tanks use the same 105-mm cannon.

The chief new feature of the XM-1 is its method of protection, a material of classified composition known as Chobham armor after the location of the British research unit where it was invented (*Science*, 14 July 1978). The 105-mm cannon and the smoke grenades are also of British design.

An important feature of the tank is its 1500-horsepower turbine engine, which is nearly a ton lighter than the comparable diesel engine. Tank designers have been trying for years to build a good turbine engine but have generally found that the large size required more armor, thus negating the weight advantage. The engine, built by the Avco Lycoming Division of Stratford, Connecticut, can operate up to 12,000 miles between overhauls, some two and half times longer than other production tank engines. The entire power pack can be removed and reinstalled in less than an hour, compared with four hours for current tanks.

Ammunition fires are a common cause of destruction of battle tanks. Designers of the XM-1 have placed the crew and main ammunition in separate compartments with armor bulkheads and sliding armor doors in between. The tank has a fire extinguisher system designed to react to fires in 3 milliseconds and quench them in 200.

The XM-1 has a four-man crew of gunner, loader, driver, and commander. The main contractor, Chrysler Corporation, will start turning out production models in February 1980. Chrysler is to build 3,325 XM-1's under a $4.7 billion contract.

—Nicholas Wade