tween basic research and applications based on it and of the need to narrow that gap.

"Basic research and academic institutions can flourish without central planning," he notes. "But with research directed to national needs, we need more centralized planning."

This is one reason Tal is looking forward to a possible reinstitution of a ministerial committee for science and technology, chaired by the prime minister. Such a committee was disbanded four years ago for internal political reasons, but now its reincarnation is being discussed. "The problems are such that we need it," he says.

Another problem the Israeli scientific community is facing is finding jobs for scientists immigrating to Israel. About 350 scientists from the Soviet Union alone immigrated to Israel last year. But there is a surplus of scientists in Israel even without immigration, and finding jobs for the newcomers is difficult. A special Center for the Absorption of Scientists (CAS) has been set up in Jerusalem to assist. Tal says he believes the center will be exempt from any budget cuts. □

Two hearts are better than one

Christiaan Barnard, performer of the first heart transplant, has done another first—implanted a second heart in the chest of a 58-year-old man to ease the strain on the patient's own diseased heart. One day after surgery, the patient was reported to be in satisfactory condition with both hearts beating at their own pace.

Barnard explained at a news conference following the five-hour operation at Groote Schuur Hospital in Cape Town, South Africa that though the right side of the patient's heart was normal, the left side had been practically destroyed by multiple heart attacks. The surgeons and his medical team bypassed the left ventricle of the patient's heart, cutting away about a third of the ventricle, and inserted a new left ventricle to relieve pressure on the older one. They then placed the new heart next to the right of the diseased heart with the atria and aortas from the two hearts stitched together. Each heart has its own pacemaker. According to Barnard, what the patient's older heart can't take care of, the new heart handles.

Barnard and his medical team are now watching for signs of rejection. "The beautiful thing," Barnard said at the conference, "is that if the new heart is rejected we can remove it, and the patient still has his own heart to keep him going." □

Hoopla, skepticism greet new engine

Can a pair of small town inventors still shake the foundations of the automobile industry—creating a simple modification for conventional engines that can make almost any car get two or three times better mileage, plus lasting longer and giving off less pollution?

Well, maybe.

The LaForce brothers, Edward and Robert, from Ambridge, Vt., caused a good deal of excitement in Washington last week by making claims like these before the Senate Commerce Committee. To back up their claims they conducted two highly publicized road tests, comparing the performance of a standard six-cylinder Hornet (which got about 19 miles per gallon in the tests) to one modified with their new technique (which got around 30 miles per gallon). Federal Energy Administrator John C. Sawhill told the committee the LaForce modification "seems to represent an important breakthrough." In private, associates of the brothers told the press that laboratory (dynamometer) tests showed the modified Hornet could get 44 miles to the gallon and that they were hoping for 100—someday.

Two modifications are involved: large, hard-to-burn fuel particles are separated through centrifugal motion in a funnel-shaped chamber, and valve timing has been modified to promote efficient burning. Recycled exhaust heat is used to break down remaining large particles.

Ralph Stahman, chief of EPA's Technology Assessment and Evaluation Branch told SCIENCE NEWS the LaForce brothers submitted an earlier version of their engine for official testing and that the results were "at best, so-so." He expressed skepticism about the currently publicized tests: on a steady 30-mile-an-hour test run, the standard Hornet should have performed much better than it did, he said, while the dynamometer test was unrealistic since it was conducted with negligible friction load. As for the valve-timing changes, a General Motors spokesman told SCIENCE NEWS that such modifications usually involve a substantial penalty in lost power.

An official EPA test of the new LaForce engine has been scheduled. □

Continent building: A theory rocked

Rocks as old as any yet found on earth have been discovered in a quiet river valley in southwestern Minnesota. Although the granitic and gneissic rocks are about the same age as similar ones found in Greenland two years ago (SN: 10/9/72, p. 374), the major investigator, Samuel S. Goldich, calls the discovery a breakthrough in geologic research.

Goldich, of Northern Illinois University in Dekalb, and Carl E. Hedge of the U.S. Geological Survey in Denver reported the finding in the Nov. 29 NATURE. Using rubidium-strontium and uranium-lead dating methods, the team calculated the rocks to be about 3.8 billion years old, plus or minus 100 million years. This makes the Minnesota and Greenland rocks 300 million years older than any other dated terrestrial rocks. Older moon rocks have been reported.

The significance of the research, Goldich says, lies in the find's location. Outcroppings of the rocks were found in a narrow band along the Minnesota River, exposed by glacial activity during the last ice age. The discovery of rocks this old in Minnesota may "cause the revision of the whole idea of how and when the continents formed," Goldich says. Until now, he says, the central core of North American continental formation was considered to be in Canada. But those rocks are a billion years younger. This implies that the central core may have been in a different, more southerly location, perhaps running from Minnesota to Wyoming. □

Giving acupuncture the needle

Incredibly enough, within a span of less than four years since American scientists brought news of acupuncture back from China, the ancient art has confounded the medical world, wooed many disbelievers into being stuck like pin cushions and, most importantly, relieved many people of pain or disability. Long considered to be a pseudoscience by Westerners, acupuncture in recent times has achieved wide public acceptance and has gained the respect of many scientists who now believe that the technique of inserting needles into various nerve centers to relieve pain has an aura of scientific validity.

Scientists at the National Institutes of Health have recently thrown a wrench into the works of acupuncture supporters by demonstrating under controlled conditions that acupuncture is ineffective in increasing tolerance to electrically induced pain. Interestingly, tolerance to the same electrical stimulus was markedly elevated under hypnosis.

"It must be emphasized," says Chohluh Li, senior author of the study,