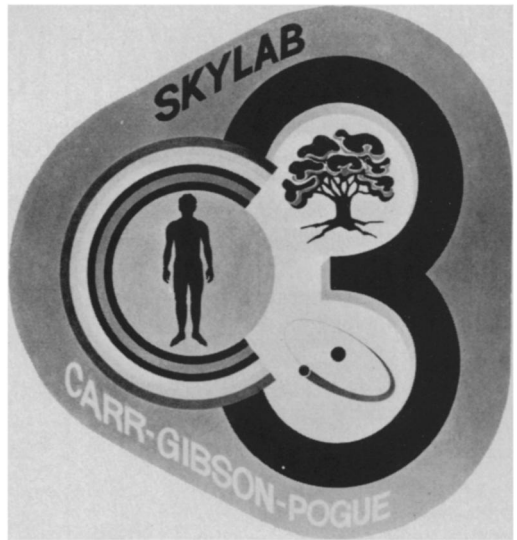


## A third crew for Skylab

The final Skylab mission could last up to 85 days.  
Comet-watching and earth studies head the agenda.



Astronauts Gerald Carr, Edward Gibson and William Pogue—Skylab's third and final crew—are "go" for a Nov. 10 launching, but thanks to a little rain, they almost weren't.

On Oct. 23, the day before NASA Administrator James Fletcher was to receive his final briefing from Skylab officials before choosing the launch date and length of the mission, it rained at Cape Kennedy. Technicians fueling the Saturn rocket's first stage put a plastic rain cover over the rocket's fuel tanks. Ordinarily, the tanks would have been slightly overfilled, then allowed to vent the excess fuel while air was bled in to make up the pressure loss. But the plastic cover blocked the air inlets so that the draining fuel created a vacuum which sucked large dents in the tops of two of the four tanks. Installing new tanks would have taken at least five days, and replacing the whole first stage could have delayed the launch more than a month.

Fortunately, Skylab's luck, which had survived mishaps on both previous missions, still held, and engineers were able to push out the dents in the soft alloy tanks by simply repressurizing them with helium. On Oct. 26, Fletcher gave the go-ahead.

He announced more than a launch date, however. The mission is scheduled to last 60 days, but if all goes well the crew may stay aloft as long as 85 days. "All" means the condition of the astronauts, the supply of "consumables"—food, water, film and so on—and, just as important, a continuingly productive work schedule. "Carr," says flight director Philip Shaffer, "doesn't want to bore holes in the sky doing nothing."

Carr shouldn't have much to worry about. Besides providing a chance for valuable earth resources studies in the dead of Northern Hemisphere winter, the extended mission would enable the astronauts to observe the nearest part of comet Kohoutek's swing by the earth. A dozen of Skylab's scientific instruments will be aimed at the brilliant visitor, including one especially designed for Kohoutek in a crash program at the Naval Research Laboratory. Built to photograph the comet by far ultraviolet light, the NRL camera contains an amplifying device said to make it 10 times as sensitive as one using film alone. There are even a pair of experiments to record Kohoutek's X-ray emissions, although some astronomers doubt that there are any.

Stocking up for the possible long flight, the astronauts will be bringing hundreds of pounds of extra gear with them in their Apollo spacecraft, ranging from 15 more pounds of flight documents to 25 pounds of additional socks and underwear. There will also be fluid to augment the supply in the cooling system that malfunctioned on the last mission, replacement parts for a disabled television recorder, and film, film, film. □

### Primordial material from outside the solar system?

One of the most valuable techniques in unraveling the origins of the universe is the measurement of the relative abundances of the elements in it. In what could be a major step along the backward road of history, three researchers at the University of Chicago have discovered a tiny imbalance in the makeup of certain meteorite fragments that could represent material predating the formation of the solar system itself. It also may offer new understanding of the way that the solar system came to be.

Most theorists feel that the solar system condensed from a primordial cloud that was essentially homogeneous—it contained a relatively even mixture of elemental isotopes throughout its structure. Among the evidence for this is the fact that where an unstable isotope is found with its more stable decay products, their ratio is largely predictable. In a nonhomogeneous situation, extra quantities of the stable isotope might be present in some places and not in others, so that the ratios—a major key to historical dating techniques—would vary.

The imbalance was discovered in what are known as class C2 and C3 carbonaceous chondrites, meteorites that are



Astronauts Pogue, Gibson and Carr: Prepare to bore another hole in the sky.