

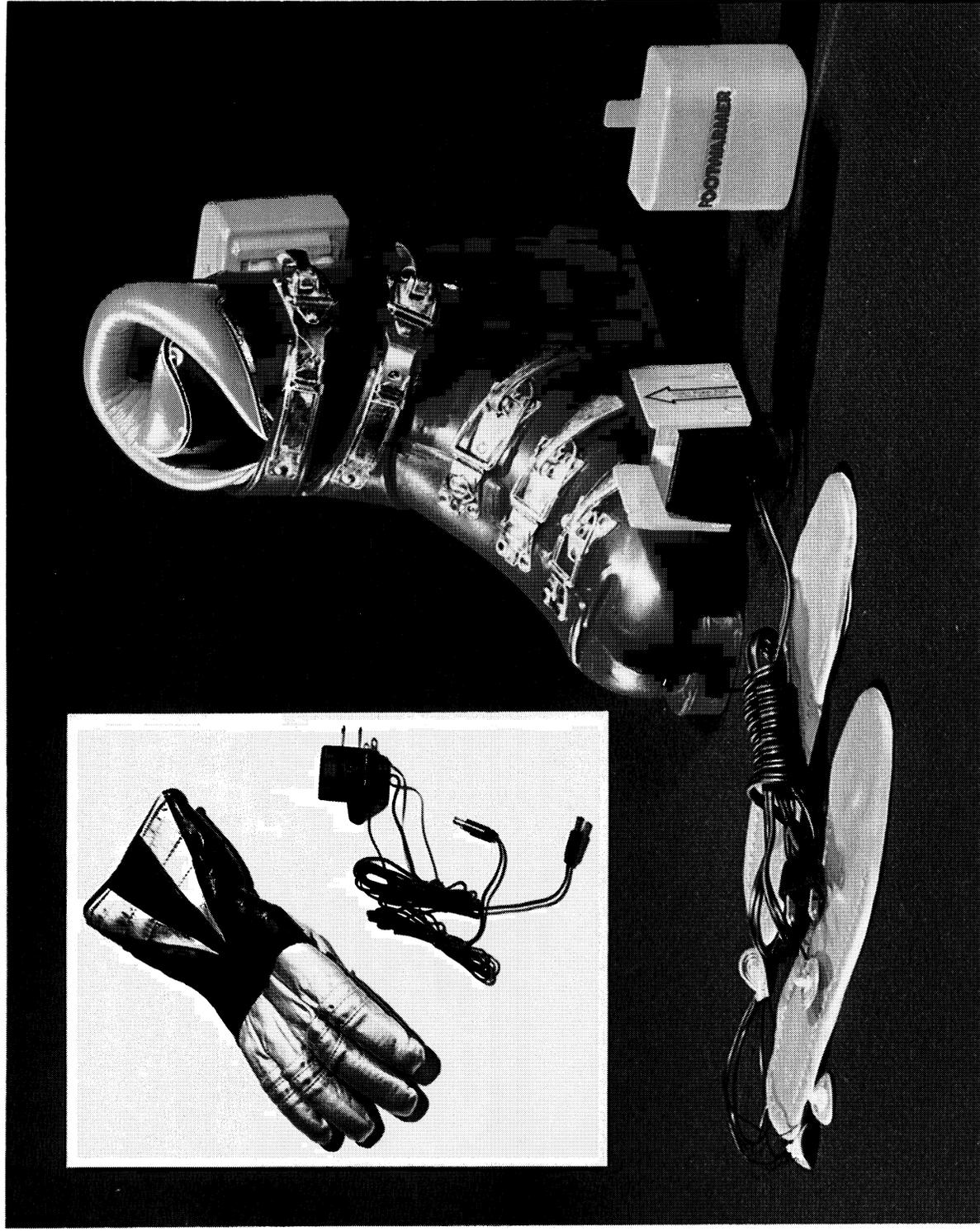
Warm hands and feet

Another space development can keep your hands and feet warm in even the coldest weather. Adapted from spacesuit designs that kept astronauts warm or cool in the temperature extremes of the moon, the gloves and boots are electrically heated.

Batteries worn inside the wrist of the glove or sealed in the sole of a skiboat are rechargeable hundreds of times. They operate a flexible resistance circuit which is turned on periodically when the wearer wants to be warmer.

The thermal gloves and boots also utilize space-insulation materials and techniques. Unheated thermal gloves would be adequate as long as the insulation stays dry. The problem is that it does not. Moisture from without or from perspiration saturates conventional insulations.

In a product developed by Comfort Products Inc., Aspen, Colo., the monofilament open-mesh



Footwarmer, small powerpack at right in photo above, fits on back of skiboat to activate heating circuit in soles. Powerpack is rechargeable with device shown in center. In photo above left, thermal gloves are heated similarly. Boot and glove warmers, which can be turned on only when needed, have been adapted from spacesuit designs that kept astronauts warm on the moon.

material used in lunar spacesuit boot liners "wicks away" the moisture. The heater circuits, the same as those used in the Apollo command module, consist of chemically etched foil circuits in a mylar-glass laminate. Even the flexible joint concepts developed for Space Shuttle gloves are incorporated.

In an example of "people transfer," Johnson Space Center personnel who designed the spacesuit gloves later joined Comfort Products and were responsible for the cold-weather glove and the thermal boots.