## Cordless Instruments

In the photo above, the surgeon is using a completely self-contained powered instrument that needs no connection to a power source. It thus offers advantages over customarily-used surgical instruments powered by compressed gas. Such instruments, which require tanks with connecting lines or hoses, present problems: the tanks must be refilled, the lines and hoses must be sterilized, and the lines can burst or tangle. The cordless unit pictured is one of a new line of lightweight, battery-powered precision instruments designed to give the surgeon optimum freedom and versatility in the operating room. Manufactured by Black & Decker Medical Products, Towson, Maryland, the instruments evolved from the company's participation in the Apollo lunar landing program.

The Black & Decker orthopedic instrument line includes a drill for boring through bone (right), a driver/reamer used for heavy-duty bone shaping, and a sagittal saw for cutting bone without damaging
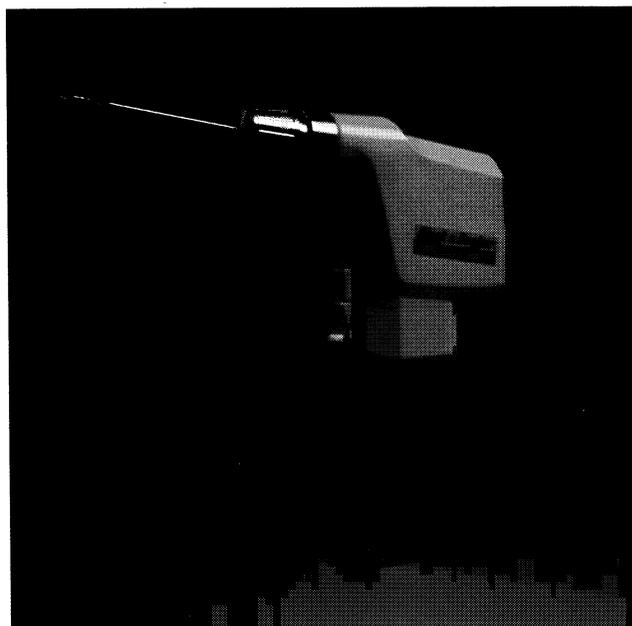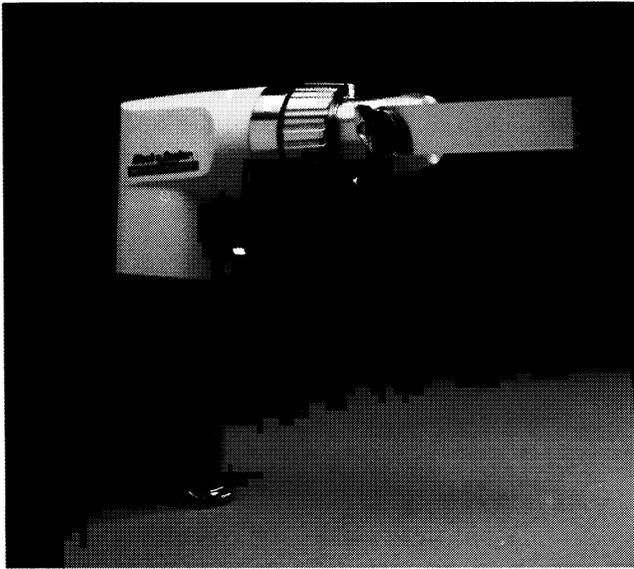
tissue (left). All provide up to 20 minutes of powered operation—more than enough for most orthopedic procedures—on a single charge. The power pack is the instrument's handle, which can be removed for recharging. A companion microprocessor-controlled recharging unit (bottom) can recharge two power packs simultaneously in 30 minutes. The instruments can be gas-sterilized, steam-sterilized in an autoclave, or immersed for easy cleaning.

The surgical instruments are the latest Black & Decker cordless products rooted in technology acquired by the company in the course of developing a self-contained lunar drill (see page 74). The drill, successfully employed in extracting core samples from beneath the moon's surface, had to be lightweight, compact and independently powered. The motor and battery expertise thus gained, along with a specially-developed computer program used to design the drill's motor, provided a technology base for further Black & Decker development of battery-powered implements.