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SciTech Developments to Watch

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DEFENSE

SONAR CAN SEARCH UNDERGROUND, TOO

SEARCHING FOR terrorist hideouts and arms caches may soon get a sonic boost. U.S. Army researchers at Fort Huachuca, Ariz., are working with Silicon Graphics Inc. on sonar for use on land. Like the naval variety, it could be active—sending sound waves pinging through the ground, which could also reveal land mines (photo)—or passive, sensing unnatural sounds.

The original aim was to listen passively with a king-size stethoscope for anomalous sounds, which an SGI computer in a Humvee would analyze to identify, say, a hidden factory or command bunker. In tests, the system easily hears a pump being

used to pull down fresh air for people to breathe. And from the way the pump's sound changes as it passes through a bunker's walls, "we can tell how big the bunker might be and what it's made from," says SGI exec Bill Bartling.

In mountainous terrain, cave hideouts could be detected with dart-like sensor-transmitters that penetrate the earth when dropped from a plane or shot from a cannon. If no telltale sound is heard, the Army could switch to active mode—shelling the mountain, then searching the seismic echoes for signs of a drastic change in density, indicating a cave.