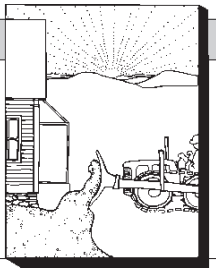


Tools of the Deep

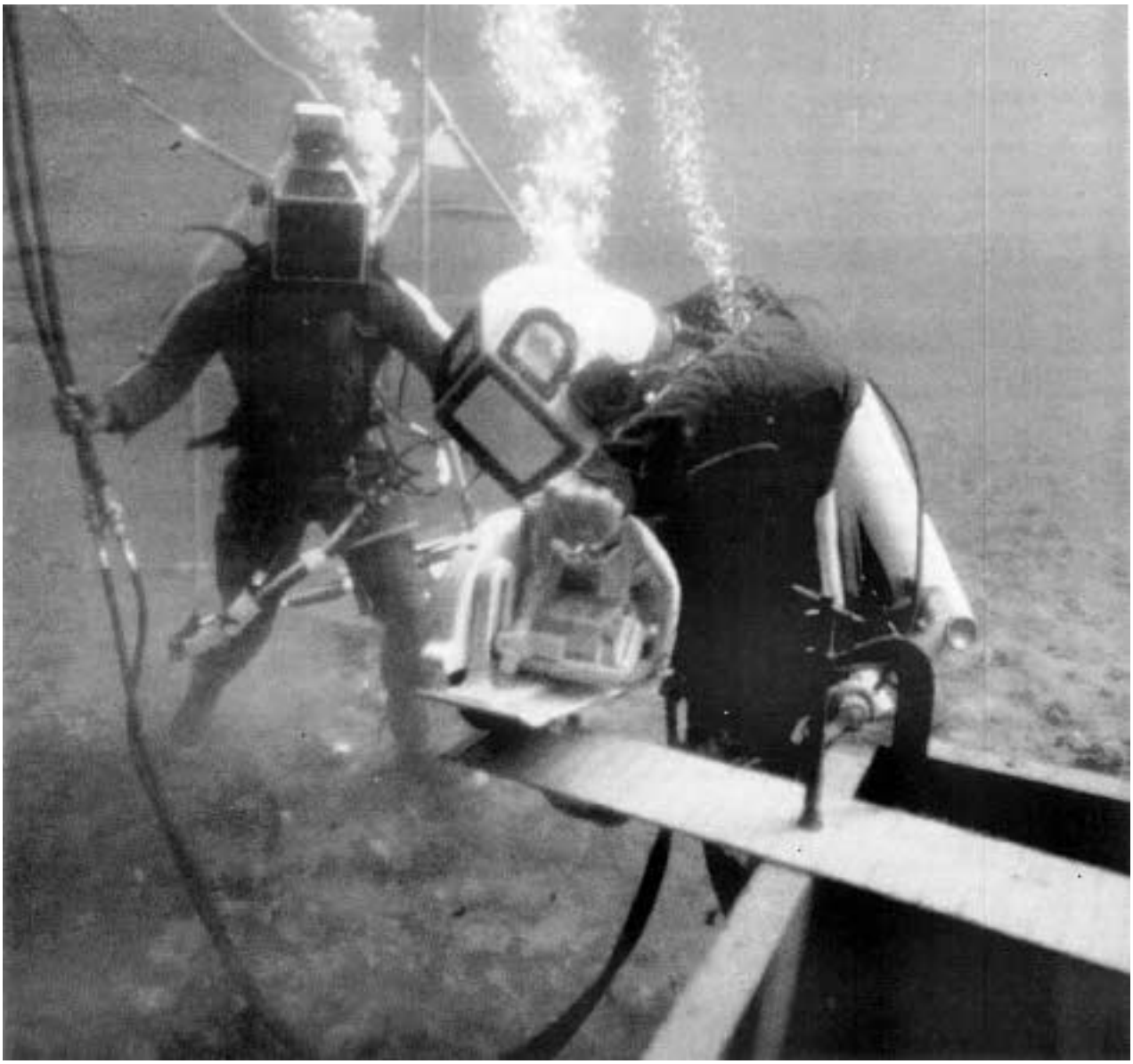
You may have worked outside in the rain but you've probably never taken your circular saw underwater. These U.S. Navy Mark XII divers did, however, when they became undersea "carpenters" in a marine project they undertook.

You might expect that tools used underwater would be very different than the ones you use at your site. But according to Ray Klackel of Sub-Sea International, Inc. (an underwater contractor located in New Orleans), "you usually use the same tools you'd use above water. You just have to do a regular cleaning to maintain the tool." After use underwater, tools are rinsed up on deck with fresh water, and then kept in a bucket of solvent (diesel fuel is best), until the job is complete. Upon completion, the entire tool is taken apart, cleaned and oiled, the bearings are repacked, and the tool is reassembled for the next job. Two companies (Stanley and Fairmont) have come out with hydraulic models of the tools most often used underwater, such as grinders, chain saws, and chippers, and they are being marketed to commercial divers. For other tools, working divers usually use the standard equipment and make modifications where necessary.

Up until recently, most underwater tools have been powered by air or hydraulics. Air has its limits though. It's not really practical at great depths, because to be effective, the air pressure powering the tool has to overcome the pressure of water at depth, over and above the tool's requirements. And, if the tool isn't modified with a special plate over the exhaust, the underwater contractor has to deal with the machine's exhaust creating bubbles and poor visibility. Hydraulic tools can be used at any depth without sacrificing effectiveness, but they are bulkier, and require two hoses that can get in the way.

The latest innovation in underwater tools is the use of water to power the tool. Sugino U.S., Inc. has come out with a whole line of tools that eliminate both the depth limitations of air power, and the bulkiness of hydraulic tools. It's also a boon for environmentalists, and for commercial divers contracted to make repairs to drinking water systems, and food processing plants. Pressurized water circulates through the tool, and is simply dumped into the surrounding water.

Undersea carpentry is just one potential task for commercial divers. When they're not cutting, they might be inspecting bridge foundations or underwater pipelines, or helping to raise sunken ships. It's not easy work, and a great deal of the time it's more dangerous than your average job on terra firma. ■



Navy divers. Credit Navy Coastal Systems Center, U.S. Navy. And special thanks to Wayne Tucker, co-author of *Tricks of the Trade for Divers* copyright © 1986 by Cornell Maritime Press, who provided the photograph for our use.