

And you thought you knew hot!

Servicemen with no water face rigors of desert heat

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EVEN IF YOU DO NOT HIKE in the desert you probably know what to do if you get stranded out there, having learned the rules from cautionary news stories: Carry plenty of water, walk only at night, drink before you get thirsty, and so forth.

But if you are like me you never thought about where the rules come from. It turns out everything we know about desert survival is thanks to the guys who took part in Edward F. Adolph's classic water-deprivation experiments out in the roasting desert east of Indio.

Adolph was a University of Rochester physiologist who had studied thermoregulation in bullfrogs and reptiles when he was called on to help out the U.S. military in 1942. They were sending troops to Africa and needed to know how soldiers would fare in extreme temperatures.

The physiologist set up a series of experiments with enlisted men stationed near Indio and also in a "Hot Room" at the University of Rochester. The work resulted in a book, "Physiology of Man in the Desert," that remains the standard text on human adaptation to hot climates.

"It's just classical stuff," says Jack Boulant, a professor of physiology at Ohio State University and a former student of Adolph's. "Adolph was really the founding father of this whole area of study."

If you can locate a copy you will likely appreciate - more than the groundbreaking science - the gothic horror element to the experiments themselves. As Adolph explains his mission: "The only way of discovering whether water is indispensable to man is to see how long man can go without it."

Nowadays we have commissions that protect man and beast from undue torture in the name of science. You may not be able to, say, strip a guy to his underwear and make him sit on a wooden box in the direct sun for hours at 110 degrees with no water, as Adolph did. And that's the lucky subject. The unlucky guinea pig sat directly on the broiling sand in his Calvins, or whatever passed for Calvins in 1942.

The book is full of these sorts of studies. If you turn to figure 2.3 you'll see a portrait of grim-faced warriors. The caption says: "Men who walked 14 miles in 4.5 hours without water."

Adolph is seen in some of the photos walking tank trails with the men. He stands out for his clean white T-shirt (many of the men tore off their herringbone twill fatigues in fits of heat exhaustion) and also because he is a head taller than the wilted troops. In one study, the men walked in the sun on asphalt carrying pack boards stuffed with 5-gallon cans of water - an experiment that ultimately showed if you are lost in the desert it is better to toss your pack board.

To compound the indignity of traipsing for hours in 110 degree heat, every hour a truck overtook the crew and they had to submit to being weighed and having rectal temperatures checked.

In another test performed in the dreaded Hot Room, a subject pedaled a stationery bicycle with no water for endless 30-minute intervals at temperatures of 118 degrees. The subject's reactions, as noted by Adolph: Spastic contractions, sobbing dyspnea, could not walk straight or stand, marked weariness, considerably depressed, dehydration exhaustion.

But it was nothing a good swig of saline solution could not fix. Adolph administered the antidote and noted a "return of good spirits in 20 minutes."

On July 7, 1943, Adolph pointed a group of men toward a goal 30 miles away and issued each one full canteen, K-rations and sucrose tablets. "Morale decreased progressively," Adolph reports. "By 2 pm everyone of the five refused to continue the experiment and demanded water. Complaints were frequent and bitter."

In his acknowledgements, Adolph thanks his subjects for enduring what he calls "great discomfort." Because his subjects are unnamed, we will never know if they thanked him, in turn, for the opportunity to help write the book on Desert Survival 101.

