

THE **BODY** ISSUE

Breathless

HOW FAST CAN WE RUN? HOW HIGH CAN WE JUMP? FREE-DIVER HERBERT NITSCH IS OBSESSED WITH A DIFFERENT QUESTION: HOW DEEP CAN WE GO?

BY CHRIS JONES + PHOTOGRAPH BY FREDERICUYLE



To reach staggering depths, Nitsch straps himself to "a giant lead weight," then releases after he can go no farther.

EVEN BEFORE HE WAS A FREE-DIVER, Herbert Nitsch dreamed he could stay underwater. He wouldn't need a fish's gills or tanks filled with oxygen. In his dreams, he could live underwater as he did on land—could live a better life, maybe even a perfect one. Hidden below the ocean's surface, he could move effortlessly in three dimensions and know the freedom of birds without having to fly. All he had to do was trade liquid for air.

Today, sitting on a sailboat just off the Greek island of Crete, feet dangling in the blue water, Nitsch is as close to that dream as he has ever been. (When he is near water, he must touch it, if only with his toes.) He is 40 years old, long and lean, having shaped his body into a near-perfect submersible, efficient and technically sound. He has conducted experiments on it, unraveled its mysteries. Through trial and error, says the Austrian, he has glimpsed its truest potential and believes he has not yet reached it. Already, he has set 31 free-diving records, including the most reason-defying, for "no limit" diving, in

which a person uses any means available to dive as deeply as he can on a single breath. In 2007, Nitsch strapped himself to a sled weighted with 180 pounds of lead, filled his lungs with air and disappeared into blackness off the Greek isle of Spetses, dropping 702 feet—almost as deep as Rockefeller Center is tall—before returning to the surface alive. He believes that within a year or two, he will dive 1,000 feet—that is, from the top of the Chrysler Building to the sidewalk, then back to the tip of its antenna.

Dreams are not enough at that depth. There are limits to the power of belief. Nitsch is a man

seal, can remain submerged for more than an hour in part because of the enormous capacity of its giant, enviable spleen. Nitsch believes blood squeezed from his own spleen can sustain him through the most difficult parts of his dives. In that fist-size organ, he sees remarkable adaptability and a reason to believe humans, like seals, are purpose-built to dive. "I don't think we know what we're capable of," he says in accented English. "In free-diving, we're still in the pioneering stage. The Wright brothers were once where we are. Now look how well we fly."

When asked what's too deep, what's an impos-



WHEN THE BRAIN THINKS THE BODY IS ABOUT TO DIE, IT BECOMES COLDLY EFFICIENT.

of evidence, of science and measurements, of math. (In his spare time, he is a commercial pilot for an Austrian airline.) And through his trials, he has come to see one body part as crucial to his arithmetic: the spleen. His spleen is no different from your spleen: a mottled purple and gray organ about the size of your fist, on the left side of your abdomen between your heart and diaphragm. Its function is somewhat mysterious but includes the filtering of blood and the recycling of iron. Inside, small pockets called sinusoids collect oxygen-rich blood while it awaits processing. For every 33 feet a person descends underwater, organs are burdened by an extra 14.7 pounds of pressure per square inch. (When Nitsch reached the bottom of his record dive, the equivalent of an NFL lineman was sitting on each of his eyeballs.) Right around the time a diving Nitsch needs air, his spleen is squeezed by that pressure, forcing the oxygen-rich blood into his arteries like water from a sponge. Most of us associate liquid with drowning. But in his spleen, Nitsch sees a breath we never knew we had.

If the idea sounds crazy—our spleen as a third lung—know that Nitsch is, in fact, alarmingly rational. He is quick to point out that one of the ocean's greatest swimmers, the

sable depth to dream of reaching, Nitsch shrugs. "Something like 1,000."

Meters, he means. More than 3,000 feet.

Yesterday, Nitsch went spearfishing with some Greek friends. The Greeks, sponge collectors and fishermen, are legendary for their underwater lives. Yet they watched dumbfounded when Nitsch—tall and thin with a shaved head, black wetsuit and long fins, a torpedo come to life—easily dropped 150 feet for minutes at a time. Nitsch has spent so much time underwater he has learned the body language of fish, acting timid or jumpy to attract their curiosity.

He has always been at home there. His father was an ardent sailor, and they spent a lot of time together touring the world's oceans. Nitsch became a snorkeler, then a scuba diver. He became an accidental free-diver when, in 1998, on a diving trip to the Red Sea, the airline lost his gear. Rather than squander a vacation on dry land, he decided to hold his breath and go for it. By week's end, he had hit 106 feet. He had no idea he'd missed the standing Austrian free-diving record by just over six feet, but he was sure about what he wanted to do with the rest of his life.

Even without the advantage of a lead-packed sled, he has already dropped a record 407 feet in the free-diving discipline known as constant weight, a giant fin attached to his feet. And though he no longer holds the record for simple breath-holding, he did once, staying underwater for 9:04 in 2006. He felt not the slightest urge to inhale until well past six minutes.

The Greeks posed for pictures after their time together. They asked why he does what he does. His answer: Diving gives him pure joy, an otherwise unknowable freedom. And so down he must go. For them, watching him in the water, so effortless, he becomes something otherworldly.



Before a deep dive, Nitsch nearly hyperventilates to clear his lungs of carbon dioxide.



Nitsch has plunged 407 feet with only a fin on his feet, the world record for a "constant weight" dive.

And yet he is built like the rest of us. Only his dreams are different.

"My body is just like everybody else's," Nitsch says. "My lungs may be slightly bigger, but everything else is the same. So yes, sometimes I ask myself, *Why* can I do these things when others can't? The truth is, it's no longer physical."

NOTHING BURNS oxygen like panic. A few years ago, Nitsch went exploring with a friend deep inside a cave outside Vienna. Each carried a small emergency oxygen tank because some parts of the expedition led underwater, requiring them to hold their breath and swim. The cave's water was turbid, the light low, and in the darkness Nitsch's friend panicked. He quickly ran through his own tank and most of Nitsch's. Beneath the earth's surface, with only a few sips of air remaining, Nitsch wasn't sure they would make it out. But after they completed that terrifying exercise in stamina and will—"We just had to make it," Nitsch says matter-of-factly—he was overcome with relief. Not because he survived, but because he had learned what he needed to do to live without air.

"You must be absolutely calm," he says. The cave taught him the value of an economy of movement, of strapping a governor to emotion. It taught him he needed to dive as deeply inside himself as he dreamed of diving into the sea. He needed a new serenity.

Since the scare in the cave, he has become very good at slowing the processes of his body. Before his deepest dives, Nitsch enters a meditative state, a kind of trance. "I've trained myself to leave the situation," he says. At the surface, he inhales and exhales giant breaths several times over, approaching hyperventilation to rid his body of the carbon dioxide that triggers the body's inhalation reflex. Meanwhile, his brain begins to narrow focus. Sometimes, his tunnel vision is so intense,

Nitsch experiences an out-of-body sensation. "Hydrodynamics and aerodynamics are not that different," he says, and that morning off Spetses he felt himself floating in the sky rather than the water. His brain carried him above the scene, high enough to see himself, breathing in, breathing out, along with everyone watching him, their boats floating in the water. He felt as though he

were watching someone else about to attempt the impossible, and he went slack.

Nitsch conserves oxygen in many ways. He fasts for a day before a big dive; digestion burns oxygen. (Those gases also cause a particular danger: On steep ascents, a trapped fart can blow teeth out a diver's nose.) Rather than wear a mask, which would need to be equalized—the air inside it would painfully compress without more precious air exhaled into it—Nitsch built himself a pair of glasses. Made of fiberglass, with small, thick lenses, they allow him to check his depth gauge and spot the guide rope he follows into darkness, to see as clearly as with a mask, but with the sea flowing freely over his eyes.

Most important, Nitsch has perfected something called bloodshifting, an elaborate pre-dive preparation commonly practiced by expert free-divers to trick the body into thinking it's drowning. When the brain believes the body is going to die, Nitsch has found in caves and other dark places, it becomes coldly efficient. Nitsch promotes bloodshifting by making preliminary dives with empty lungs, up and down and back again, before his real effort. In response, the human body—his body, your body—takes blood from its extremities and packs it into its core. The same reflex occurs naturally when you are cold, which is why when temperatures dip, fingertips are the first part of you to go numb. In either instance, starving your arms and legs of blood saves oxygen. In Nitsch's case, it also prepares his body for the pressure it is about to bear. Blood is pushed into the labyrinth of vessels in his lungs, and just as it's harder to crush a full can than an empty one, that blood protects his lungs from being ruptured by the weight of deep water. He can feel it happening, can imagine transforming into an aquanaut. Sitting at the surface, waiting for the word "go," Nitsch knows his body is doing everything it can to make his dreams come true. He is at peace then, just another stone waiting to sink.

HERBERT NITSCH is lying to himself. There are some limits he cannot transcend. Because he can go so deep for so long, he risks decompression sickness each time he ascends, nitrogen bubbling out of his blood and into his brain and joints—the bends. That same nitrogen inevitably causes nitrogen narcosis on the way down, too, starting at around 100 feet. There's nothing Nitsch can do to duck it. As alcohol affects people differently, divers respond to "getting narcod" in their own way. Some feel happy, some tense. Some feel liberated, some trapped. For Nitsch,

ALL THE WAY DOWN

Every diver battles the bends—a nasty bubbling of nitrogen in the blood upon ascent—on the way up. But Nitsch's 700-foot trips offer serious hazards upon descent.

12 FEET Even at this depth, there's enough pressure to burst an eardrum. To guard against this, a diver must constantly equalize the pressure inside the Eustachian tubes—you've done this by holding your nose and blowing.

100 FEET Nitrogen narcosis sets in. Effects: disorientation, delayed response to stimuli, laughter, idea fixation and overconfidence in well-being. The farther down one goes, the greater the pressure, the bigger the release of nitrogen and the more overwhelming the effects.

700 FEET The body is under more than 300 pounds of pressure per square inch. Lungs compress to the size of a fist, vision blurs and divers can barely move their limbs, all while they continue to hallucinate from being "narcod."

THE BODY ISSUE

narcosis "is just a bitch," making him feel out of control on every dive, as though everything is about to slip from his grasp, a terrible feeling when you're riding nearly 200 pounds of lead to the bottom of the sea.

Still, the greatest threat to a submerged Nitsch has nothing to do with nitrogen. It has nothing to do with his brain or his heart or his lungs. It has to do with the ears and the reality that we are limited in the depths we can reach by their delicate architecture. What keeps Nitsch from reaching 1,000 feet is a mere fraction of an inch thick: the translucent tympanic membranes in the auditory canals otherwise known as eardrums.

It doesn't take much pressure to burst an eardrum. If you go swimming and don't equalize your ears by plugging your nose and pushing air into your Eustachian tubes, the weight of the water knocking on your door can snap that thin membrane at a dozen feet, give or take. It has never happened to Nitsch, but he knows it's an extraordinarily painful sensation. In cold water—and deep water is always cold water—it can also be deadly. When cold water rushes in, your ears'

always runs out. And always at the moment his eardrums inform him they're about to break.

He has searched for every known fix. In addition to conserving air, Nitsch takes in as much as he can. For his final breath, he practices what free-divers call packing: taking a normal breath, then 30 or so small swallows of air to fill every nook and cranny of his respiratory system with oxygen. Once below water, he stops his weighted sled at around the 75-foot mark and expels that stored air through a tube, into a plastic Coke bottle. (These are the homespun instruments of a pioneering profession.) As he continues to descend, he takes sips from the bottle whenever his ears cry out. At depth, it is easier to sip air from a bottle than to squeeze it from crushed lungs.

It's also one more mind trick Nitsch is playing, fooling his brain into thinking he's actually breathing, even if the air he's taking in has already been stripped of oxygen. It's the same as a thirsty man spitting back a glass of water without swallowing it; he would feel as if he were drinking, but his body would be drying out all the same. The charade can't go on forever, maybe

we're capable of. Maybe we drown only because our brain associates air with breathing and liquid with drowning. Aren't we made mostly of water? Weren't we born in the oceans?

And so he has experimented with a technique used by a vanguard of free-divers called wet equalization. Before a dive he fills his head with water, snorting scary amounts through his nose, driving it deep into his sinuses and Eustachian tubes. (The epiglottis, the flap of tissue at the back of our tongues, keeps the water out of his lungs.) On either side of his eardrums, water sits in a kind of static harmony. It is both inside and outside the door, a perfect balance. With it, Nitsch is able to dive as deeply as he wants. So long as there is water inside his head, he can dive forever.

Problem is, filling his head with water makes Nitsch feel as though he is dying. "It is very unpleasant," he says with typical understatement. The feeling is all that stands in his way, all that separates him from the only thing he's ever wanted. He's so close. But it's hard to evolve so quickly. Even Nitsch can't suddenly ignore the feeling he's drowning, that he is about to die.

You would feel the same way, as the water trickles out of your sinuses and down the back of your throat. You would feel it collecting in your stomach and running like a river into your intestines, first small, then large. Some might even slip past your epiglottis and rattle around in your lungs. You would taste the salt, choke on the bubbles, feel the weight dragging you down. You would feel the water making its inevitable way down every corridor of your body, into every chamber as you sink not like a stone, but like a foundering ship, picking up speed the deeper you went. You would feel your one-way valves and muscles struggling to fight the incoming tide. You would feel blood rushing into your pounding heart and convulsing lungs.

Nitsch might be wrong, but he thinks he knows what comes next. He's done the math, taken the measurements. He knows that, eventually, his body, your body, will stop fighting. Eventually, it will give in. Your brain will accept its fate and shut you down piece-by-inessential-piece, segment-by-unnecessary-segment. It will decide there is nowhere to go but down, that life on the surface is over and a new one awaits below. You will begin to adapt, feel yourself transform. Only then will you find a new serenity, euphoria even, your body no longer itself but something else, some new, mysterious vessel you never imagined you were capable of being. You will become a submersible, a torpedo, a seal with a giant, enviable spleen. And you will feel one with the water, as though you could dive forever, thousands and thousands of feet, where black becomes blue again, and where every one of your dreams comes true. ●



Long and lean, the Austrian has spent years honing his body into a perfect diving machine.

mechanics cramp and seize, affecting your sense of spatial awareness, including the sense of up and down. You don't know which way points toward permanent blackness and which way points toward light. Eventually, your body will warm the water trapped inside your head, and your ears will relax, opening up the world to you once more. By then, though, your lungs will have opened up too, and the water in your ears will be low on your list of concerns.

The only way to counter this danger is to pressurize the inside of your ears. But Nitsch's lungs—your lungs—only hold a finite amount of air. And when that air is compressed the deeper he travels, there is less and less to push into his Eustachian tubes. Eventually, he runs out. He

not even as far as 1,000 feet. The air in the Coke bottle may protect his eardrums, but packing expands the esophagus, restricting blood flow to the brain. To prevent a blackout, Nitsch's body amps up his heart rate, which burns a lot of oxygen. What air gives him, it also takes away.

Nitsch and other free-divers, then, are trying to determine if it's more effective to dive with nearly empty lungs, to sacrifice oxygen for the body's reaction to the absence of it: the slow, gradual shutting down, the gentle drift to death's door. He has begun to wonder if air is the enemy.

LIQUID IS life—Nitsch finds himself thinking that over and over again. Maybe we drown only because we haven't learned enough about what