

## How Deep Is His Love?

### **Phil Nuytten dreams of building an undersea colony. And he's got a plan that could work.**

By Ken MacQueen

Hand Phil Nuytten a vintage copy of *Tom Swift and His Submarine Boat*, circa 1910, and his eyes light up as if it's Christmas morning. "Boy, I read a lot of this stuff," he says, thumbing through the yellowed pages of an undersea adventure as imagined almost a century ago. "A lot of gobbledygook," he says fondly, pointing out the scientific flaws in the imaginary sub's electrical propulsion system, "but still wonderful stuff."

What separates the North Vancouver inventor and adventurer from the authors who stoked his boyhood imagination is that Nuytten, 64, has been making his dreams a reality since he began designing his won diving gear as a teen. At the risk of damning him with faint praise, the shop floor of his Nuytco Research Ltd. hold more deepwater dive capability than the Canadian navy. There, in various stages of construction, are pressure chambers, mini-submarines and armoured atmospheric diving suits – commercial products that have helped open the ocean's depths to exploration and industry. As cutting-edge as these products are, he sees them as a means to his most grandiose idea yet: cast in adventure terms, the working title would Phil Nuytten and his Amazing Undersea Mining Colony.

The concept of Vent Base Alpha, as he calls it, is admirably simple. In much the way the invention of the automobile helped create suburbia, Nuytten's subs and armoured diving suits – allowing submariners to travel and work in the safety and comfort of the same one-atmosphere environment of dry land – have opened the ocean floor to habitation. Building an environment armoured against the crushing pressure hundreds of metres subsurface is no great technological feat, he says. All it needs is a reason to exist. "It's not enough to say I want to go down and build a colony at the bottom of the sea," he says. "It has to have some economically viable basis to it."

The answer rests in the surreal world of underwater volcanoes, like the Endeavour hydrothermal field off the Juan de Fuca Ridge, some 2,200m below the ocean's surface and just inside the 200-nautical-mile economic zone off Canada's West Coast. Giant rock chimneys called black smokers spew superheated water, dark with dissolved metals and minerals, into the frigid ocean. The vents support bizarre life forms: beds of giant clams, crabs, crawfish and swaying tubeworms stretching more than two metres high. In Nuytten's view they could also support a human colony. It would be powered by the vents' heat and dedicated to mining the dissolved metals that rain down when the subterranean vent water hits the cold ocean. You get laboratory-quality purity,

without the pollution concerns of a smelter, he says. “The stuff drops out, you put it into a hopper barge of, let’s say, cobalt,” he says. “You push a button. Gas enters the barge and, just like Tom Swift, you blow it to the surface, and tow it into port.”

As fantastic as the idea sounds, he says he’s already had some preliminary interest from some unnamed mining companies, though not yet the \$10 million or so he’d need to test a prototype. “I think it’s feasible,” says marine archaeologist James Delgado, Nuytten’s friend and a fellow adventure diver. Delgado is executive director of the Vancouver Maritime Museum and has explored shipwrecks around the globe as the co-host of the Sea Hunters television series. “If anyone could figure it out, it would be Phil,” he says.

Less enthusiastic is Richard Thomson, a researcher with the federal Institute of Ocean Sciences in Sidney, B.C. “It’s not far-fetched,” he concedes. Vent water is rich in minerals and the heat energy they generate is equivalent to a nuclear reactor. But, Thomson asks, a bit plaintively, “Do people have to go everywhere – can’t they leave anything alone?” The Canadian vent field has been declared a marine protected area, making a colony there unlikely, he says. Besides, he asks, who’d want to live there?

Well, Nuytten for one. “There’s no reason why you can’t live down there for generations,” he says. “It wouldn’t be very many generations before some little kid would be sitting on his mother or father’s knee and saying, ‘Is it really true there are people up there?’” He breaks into a grin, knowing the notion is outrageous – the way submarines were, until science fiction became fact.