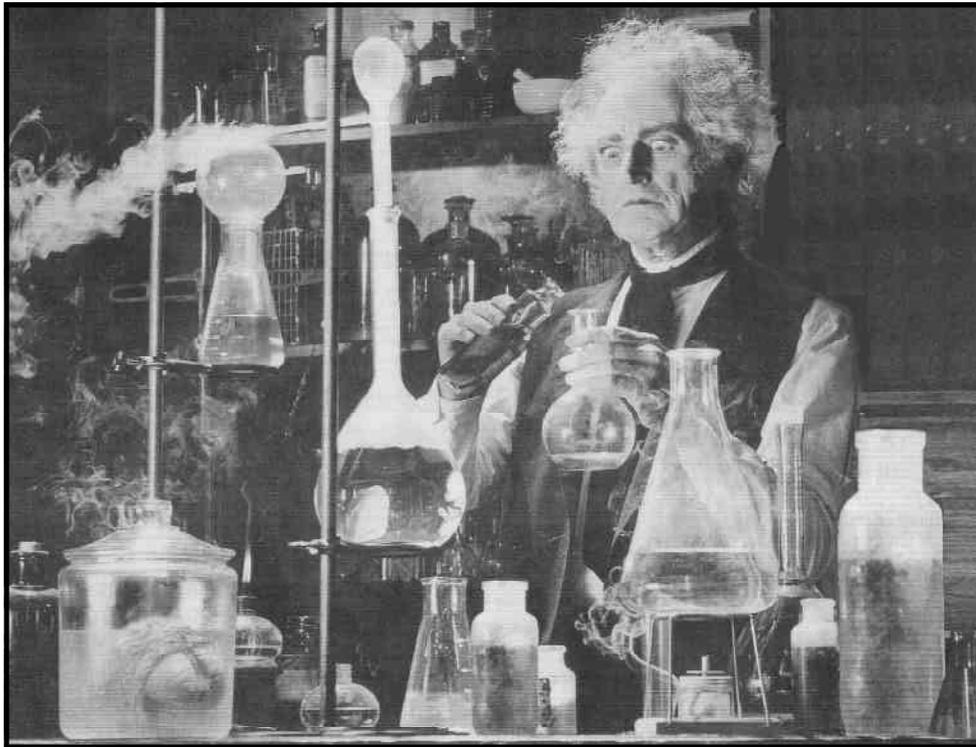


## Profile Of A Member



### **Steve Smith, Inventor of The Modern Technology that Restores Deteriorated Wood.**

“I had an instant affinity for people with old wood boats,” he recalls. “They were trying to repair something worn out, to keep it from going away, and there’s really nothing so gone as a piece of wood rotted away. We were all dedicated to fixing and repairing things worn out or ravaged by time, so this was a natural combination.”

Steve Smith, owner of Smith & Co. in Richmond, CA, and master chemist behind the most trustworthy wood restoration products on the market says, “I was born with fascination with chemistry, and the wonder of discovery.” Perhaps he underestimates his tendencies by calling them a ‘fascination,’ however it was these inclinations that would later serve him well in formulating products for the antique and classic boat community.

From a very early age, Steve Smith could fix it. He could make it better. He claims, “If Hollywood had known about me, that movie might have been called, ‘The Six Million Dollar Boat,’ and history would

have been different.”

His parents had always stressed the importance of education, and recognized his interest in science by buying him a chemistry set. “But it was *safe!*” he regretfully remembers. Well, it was only a matter of time before the young Steve Smith looked up in the encyclopedia how to make gunpowder or how to make fireworks, and he’d go to the pharmacy for some ingredients, scrounge some other materials, and soon enough he’d put together a rocket that would end up a mile away.

Pyrotechnics became somewhat of an adolescent specialty for Steve. He found a cardboard tube one-and-a-half feet tall and four inches inside diameter. He started by putting 3 barrel bombs in the bottom of the tube. “I didn’t have epoxy, but somehow I plugged the bottom of this thing. I filled it with thermite, which I made myself.” Thermite is a mixture of iron oxide and aluminum and is used industrially to weld broken steel castings, since when the thermite mixture is

ignited, it makes white-hot liquid iron, a reaction which Steve calls, “...quite spectacular with lots of light and sparks flying about.” He filed scrap aluminum to make fine-ground aluminum powder, and gathered up the flaking rust from the neighbors’ back-yard 55-gallon drums that everyone used fifty years ago for burning trash. He manufactured enough homemade thermite to fill that tube. “I drove up to Berkeley hills at about 10 p.m. at night. I set it out on the pavement, lit the fuse, and got back in my car (my parents car—they really had no idea what I was up to). I drove back down a couple curves, parked and watched. A beautiful yellow fountain of sparks! It went about 20 feet up in the air, then it died down... A few seconds later—FOOSH!—a shot of fire went up. It went much higher as the barrel bombs exploded and blew easily five pounds of white-hot boiling iron up in the air. It was spectacular.”

Steve graduated from San Francisco State with a Masters Degree in physics and the equivalent experience in chemistry. After college, he went to Pacific Instrument (a manufacturer of aerospace-grade magnetic components, generally called transformers and inductors), where he’d had summer jobs since highschool. He became their chief engineer. After a few years one of their customers, an aerospace systems supplier, hired him for his expertise in fabricating magnetic components. He worked for them for another 4 years and then became a freelance consultant working in the aerospace-electronics industry. He also wrote a book on transformer design, *Magnetic Components Design and Application* (Van Nostrand & Reinhold, 1984), about which he says, “If anyone would like me to autograph their copy, I’d be glad to,” he says.

During the late 80s, the Cold War wound down, and there wasn’t as much of a need for the work Steve was doing. “We won (the war) of course, and I was an engineer out of work. We had all the high-tech radar systems we needed and there weren’t any serious

enemies anymore. Now I had to pay attention to what was putting bread on the table.”

“I could fix things pretty well and design things that worked. I was perfectly willing to work for a living, but I had a missing piece somewhere in the concept of having a job. I sort of waited for one to happen. I hadn’t developed the art of finding work and I really didn’t have any expenses. I was sleeping in the back of my 1952 Dodge panel truck. I was getting by with a little help from a few friends. An occasional warm shower was a welcome change from the cold stand-up bath.”

One day, a friend who didn’t drive asked Steve to give him a ride down to a local government surplus store. Steve recalls, “I walked in and I saw all these expired shelf-life aerospace adhesives, sealants and coatings, from Lockheed. I recognized a lot of this stuff, and being inherently a pack rat, I wanted some so I could have it. It was good stuff.”

The owner of the store didn’t know anything about the materials. He had bought it for almost nothing but had not sold much, so he was only too happy to have someone buy it. They haggled for three days, after which point Steve bought *all of it* for 200 dollars.

For a man who only had 800 dollars, 200 dollars was a serious investment. He bought the chemicals, and recalls, “I bought it, not that I knew what to do with it, but I was a pack rat. I liked stuff. To the extent that you have stuff, you can do things. It’s power. I believe in using everything until it falls apart and then fixing or repairing it in any way possible. I’m an inveterate pack-rat anyway, and accumulate not only fixable stuff but stuff useful for fixing something. I might get stuff if I only had the stuff with which to fix it.”

You can see where this is going.

Now he had a marvelous pile of aerospace paint and glue. With really good glue, one can fix almost anything. He hauled it all back to Richmond, and then had to figure out what to do with it because now he needed money. He sold some of it to artists through the Oakland Classified Flea Markets, and soon became the king of silicone rubber

distribution for the arts and crafts community. He also sold some of the epoxy paint to boat folks, and at 4 dollars a gallon, people started coming out of the woodwork.

Steve didn’t know much about the marine industry, but he’d listen politely to his customers’ explanations of stems and garboard seams, and then got them to sketch the problems they were trying to solve or the things they were trying to repair. “I had to have my customers teach me what I needed to know so I could engineer a solution to their problems with the material I had to hand.”

The people with boats not only were happy with the epoxy paint he had, but it turned out they liked the polyurethane paints and the glues even more. Steve recalls, “They told me what they really wanted. The stuff I had wouldn’t do it. Their biggest problem was damp, rotting wood on their boats. Well, as someone explained the problem on his wood boat, I realized that I might be able to do something about it.”

What made him “sort of famous,” as Steve would say, was just plain good engineering. Wood, he knew, is made of cellulose and a variety of resins. He also knew that deteriorated wood has porosity and excess water. So logically, he thought that if he could make something that would dissolve the excess water in the wood, soak into the open porosity of the wood, carry into the wood some resins that were like those natural resins of wood, and then glue it all back together—he thought that logically, one ought to be able to restore the wood.

Since wood needs to breathe, he knew that whatever restorative was used, it should contain some volatile solvents so that once the restorative resin was in the wood, the solvents, by evaporating, would leave some empty space in the wood for the wood to breathe. He says, “I did not realize this would help wood resist fungus by being able to evaporate moisture. Drying out the wood naturally to below the high-moisture content condition that fungi find hospitable was key, but I just wanted to allow the wood its normal behavior. It would be 20 years

before I actually realized the significance of what I had created.”

He gave it to some of his boating customers to try, and they came back the next week with some of their friends, all asking for more. “Somewhere about there I had to think of a name for this stuff. Not really knowing much about boats, knowing entirely too much about science, and knowing nothing of marketing, I thought I should name it for what it seemed to do: Clear Penetrating Epoxy Sealer™. It’s a ridiculously long name, so my customers immediately began to abbreviate it (CPES™) and they still do.”

But after 20 years, Steve found he had thousands of customers that would testify that the CPES worked. Paint on houses still stuck ten or twenty years later, even on the weather-side, or on “problem wood.” Local painting contractors as well as homeowners would actually walk into his store from time to time just to tell him that. “I actually had a product that did something remarkable. I knew I had something that worked far far better than anything out there because so many people had stabilized and restored their boats and homes.”

They told each other, and those involved with boat restoration also had houses, so they used the products on their houses. Some of the people were contractors or architects. Architects specify what products contractors use on jobs, and so of course it caught on and the business grew. He had actually invented The Modern Technology That Restores Deteriorated Wood™.

In the mid-70s, a San Francisco boat builder named Don Philbrick asked Steve to make a really flexible epoxy glue for his boat construction. That was Philbrick’s Blend, eventually to be named Tropical Hardwood Epoxy, which is part of the Smith & Co. product line to this day.

Around that time, there were a lot of problems with gel coat blisters on fiberglass boats, where the laminate was decomposing. Some people at the

Richmond Boat Yard had heard about “this scientist that made stuff in this old building down the road,” and went to tell Steve about their problems. He investigated and discovered that the polyester resin was decomposing in water. Then he invented the moisture diffusion barrier coat that everyone now uses to stop and prevent such problems. Further, many people were rebuilding ferrocement boats at the time, and found that his products, used appropriately, could produce a reliable coating system for these boats. At that time, there was no coating system made by anyone that would stick to a ferrocement hull. Steve Smith figured out why. “Within less than ten years I was legendary.”

The discovery of *why* CPES worked so well would take until 1998, when Steve was preparing samples of CPES, soaking it into deteriorated wood for time lapse-photography. He arbitrarily decided to do a preliminary series with wood and water, “...just to do a dummy run before (they) got the camera set up.” He discovered quite by accident that CPES selectively wets and penetrates the *deteriorated* part of wood while water selectively penetrates the *sound* part of wood.

Unlike other business men, though, there’s no “secret to success” for Steve Smith. He’ll tell you, it’s no secret at all. “It’s just straightforward engineering. An engineer is someone who designs things that work.” He adds, “I’m a very good engineer.”

This selective wetting action is the key factor in showing how and why CPES works so well, and why the other resin products on the market don’t work all that well. “They just don’t do what CPES does,” he explains. “You can see it all at [www.woodrestoration.com](http://www.woodrestoration.com). I published an open standard for this kind of product and completely explained the underlying technology. Now anyone can see what it does and how.”

Steve now owns a U 22 Sedan (“It’s a restoration project,” he says, “but the hull is sound and the wood is in very good condition. There are some broken screws and all those brass screws need to be replaced with silicon bronze.”). He is currently working on a “maybe Chris Craft” 12-foot kit-boat, perhaps 40 years old. “The nameplate says TTX/DRACO 1999, and even Wilson doesn’t know what it means. If anybody does, I’d sure like to hear from them.” The small boat is undergoing a bottom restoration with CPES and hopefully will be back in the water this summer. “All it really needs is a 15 hp outboard motor with an electric starter. If you have one, we might be able to work out a deal.”—Always the business man.

