

**David, you have more than 70,000 miles of ocean experience. That's pretty amazing.**

**Do you ever spend some time onshore?**

Well, actually it's been eight years since my last ocean sailing. But, I remain actively involved in real navigation and route planning with our daily interaction with racers and adventurers underway around the world. We work with sailors and rowers that are on the water and we are doing their navigation and weather routing for them via email over sat phones. In short, we are daily very active in practical hands-on navigation.

**Why are you so fascinated by the sea?**

My original interest developed after serving on a NOAA ship to arctic around 1977 as an electronic technician with the goal of seeing if I wanted to switch from physics to oceanography. I didn't, but the sea life was interesting, so I proposed to a local school that I would teach celestial navigation courses for them in exchange for lessons in sailing.

**We all know the weather on the sea can be pretty rough.**

**What was the most extreme or dangerous situation in which you've ever been?**

Actually there have been a couple situations in which I felt that that was the last of it. One of them was sailing in a race from Canada to Hawaii. I was driving the boat when suddenly a huge wave turned over the boat. It was lying on its side with the main sail straight down in the water. It was absolutely pinned so that the boat couldn't come back up. We threw off the main sheet, but, it jammed, so then it really locked. Someone cut the sheet and the boat slowly came up and crash jibed to the other side. Now the main was totally free, the spinnaker filled and we took off again as if nothing had happened.

**Wow, that must have been scary! But there is something else I wanted to ask you:**

**Your name is closely connected to "Starpath School of Navigation". What does Starpath do exactly?**

We teach marine navigation. First in the classroom but since 2003 everything is online. So actually we were one of the first who started online training. We make our own software for training and we developed the first PC simulation of marine radar. Also we required copy protected ebooks which led us to develop one of the first ever DRM ebook systems.

**Why did you choose the name Starpath?**

At the time the school was founded I was working on a book on navigation without instruments. That's how the name Starpath came into my mind. Unlike the sun, whose bearing when rising and setting varies throughout the year, stars rise at fixed bearings, and that bearing depends on the star and the observer's latitude. The rise angle of the star depends on the latitude. In regions with low latitude, for example in Polynesia, stars rise nearly straight up. Meaning its bearing does not change after rising. In Alaska stars rise at a very gentle angle, so bearing changes quickly with time. A starpath is a sequence of stars that mark a given bearing which acts as a stellar compass.

**Speaking of books ... You have written more than 20 books on marine navigation.**

**What was your impetus to start writing books in the first place?**

When I started teaching celestial navigation there were no books that met our needs, although there were hundreds of books on the subject. So I started writing my first book in 1977. And when it became known, others followed. Now my book on celestial navigation is a top selling one on Amazon. And the same applies to some of our other books—always refer to our books as "ours" because i have such good help on producing them.

### **Are you planning on writing another book?**

In 2018 we had three new books – in print and also as ebooks for Kindle, Apple Books, and Adobe ADE. In 2019 we hope to complete the second edition of *The Barometer Book*, and publish a comprehensive new book that surveys all types of USCG navigation problems used on exams.

### **Why is it so important to measure the atmospheric pressure accurately?**

It is not enough to know if the pressure is high or low or if it is rising or falling. You need to know the accurate pressure and know accurate rates. It is the most important measurement. We have developed the “4-5-6 Rule” which means when the pressure drops more than 4 to 5 millibars in 6 hours you have to pay attention. In the Tropics, we have other rules, i.e., if your measured *average* pressure is 2 or 3 mb below the seasonal average this is an early warning for a tropical storm.

### **You’ve told us that you really appreciate our Precision Aneroid Barometer.**

#### **What makes it so special in your eyes?**

I’ve been calibrating lots of barometers for several agencies over many years. And the Fischer Precision Aneroid Barometer stands out because it holds its accuracy not only over mid-range but over the complete range. This is important because we are interested in the extreme ends of the pressure range. It is also special because of its longevity. There are few marine instruments that have been providing quality service for so many years. An investment in a Precision Aneroid Barometer is like an investment in a good sextant. It will provide generations of excellent service that provides independence from electronics and battery power.

### **If you had the choice between a mechanical and an electronic barometer – which one would you choose and why?**

It’s best to have both. Mariners already have a barometer in their phones – and our own free Marine Barometer app provides an intelligent interface to it. So all we need is the FISCHER Precision Aneroid Barometer. If you are outfitting a boat for a world cruise, it is the best bet. It will serve you well no matter where you go or how long you go. It is a known unit with a guarantee. It is rare to get any accuracy specs on an electronic unit that is under \$1,000. On the other hand, one trip across the ocean with four cellphone barometers amongst the crew, likely they will do the job, providing you do not run out of battery power. A barometer in a cellphone takes a lot of power because it must turn on location services to access the barometer.

### **Do you think that mechanical instruments are more dependable?**

It depends on the brands. There are laboratory grade electronic barometers that have been 100% dependable for decades, but these are expensive units, intended to be operated in a controlled environment. They are produced by long-standing companies that specialize in measurement technology. In the past 15 years, there have been numerous modest-cost electronic electronics units designed for use at sea from various smaller companies. Many of them only lasted a few years. Some that started out dependable, ended up not being dependable. We still see several on the market with high hopes for success. We shall see.

As noted earlier, the alternative to a dedicated electronic barometer is to use the barometer included in most modern phones. This then puts this crucial instrument into the same category as the phone itself, namely consumable. Chances are very good that we will replace our phones before the pressure sensor circuit begins to drift.

All barometers, electronic or aneroid, will drift with time. A good unit has low drift; a poor unit has large or erratic drift. The electronic barometer market spans the range from laboratory-quality instruments to

decorative units from discount outlets that are not at all dependable.

National weather services from several nations that do use some electronic barometers still purchase the Fischer Precision Aneroids, as do the navies of many nations. The call for mechanical aneroids comes mostly from the mariners using them. They like the convenience of the electronic read out, but mariners are conservative and traditional. They do not want to experiment with crucial instruments when they have options that are long tested at sea.

**Do you think that someday mechanical instruments will cease to exist?**

Let me give you an example. In the past you had mechanical slide rules, then there were electronic calculators, and nowadays you have cellphones. But slide rules are still available. A maritime example is the walker log. The first ones were made around 1861 and they lasted till around 1970. That is 30 years beyond the time when they were starting to be put out of business by electronic devices. Another example: When the LORAN (Long Range Navigation) came out everybody said that this is the end of celestial navigation using mechanical sextants. And when the Navy started using the Transit system NAVSAT, they said that mechanical sextants are gone. Then there was GPS, and they said the same. But the number of sextant sales has not gone down, and we still teach celestial navigation, and it is still required training for professional ocean maritime licenses. Maritime industry is going modern, but it remains traditional. Aneroid barometers should last well past this generation, which still realizes the great value of this tradition.