The joy of sextants

Gilbert Park has fun delving through boat jumbles, books, websites and apps in a quest to learn this traditional form of navigation

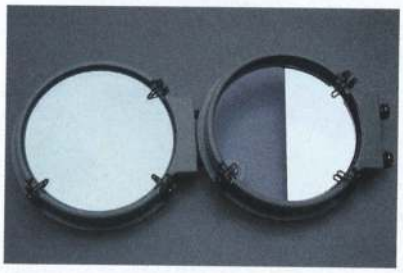
For many years I have wanted to learn how to use a sextant to find my position. It seemed romantic to take a noon sight and know where I was. At least that was the idea, but it wasn't quite like that in practice.

The first thing I thought I should do was buy an inexpensive sextant, and a book: Bruce Bayer's *The Sextant Handbook*, which I read from cover to cover. It was a good place to start, but that was the easy bit – the rest of it is not so straightforward.

A sextant is a very simple instrument with a telescope that looks straight ahead at the horizon. There is a moveable arm onto which a mirror is fixed that reflects the celestial body (let's say the sun) so that it can be placed on another mirror alongside of which is a clear area where you put the horizon. The arm has a scale so that you can measure the angle the arm makes with the body and thus the altitude of the sun from the horizon. There are also some shades so you don't damage your eyes when looking through the telescope at the sun. Simple in design, but beautifully made and a delight to use.

Two types of sextant

It transpired there are two main types of sextant, those that split the view from the telescope so that the horizon and the sun are seen separately in a split screen and those that show all the horizon in one view. For both, the sun is brought down until the bottom just kisses the horizon. It's



ABOVE The two main types of sextant mirror – either whole screen (left) or split screen (right) – display the view in different ways, and each has their advantages and disadvantages

BELOW The author taking a sight

Interfoto/Alamy

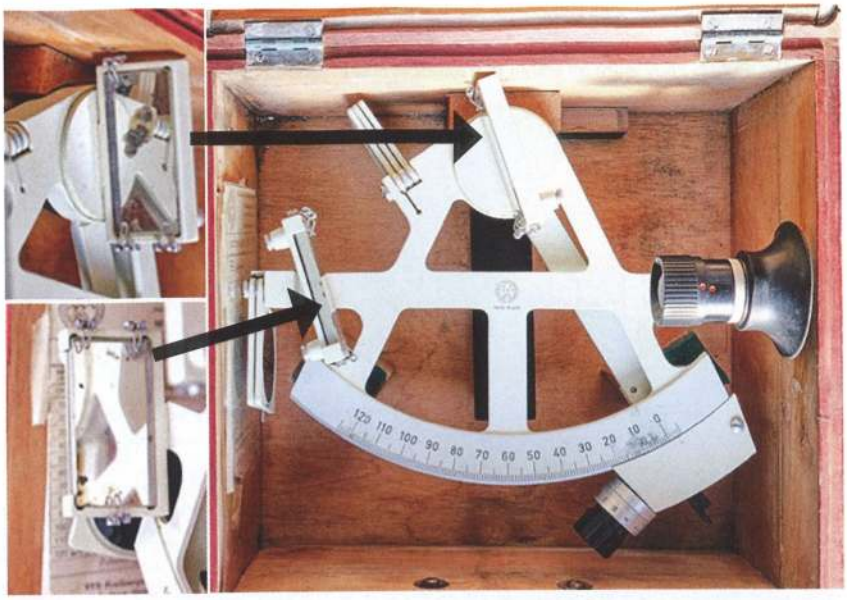
BELOW The repaired sextant now works perfectly. Gilbert spliced on the safety rope and stuck the watch on with Velcro so he can remove it to reset it when necessary. The watch shows time in GMT and the date at Greenwich where all calculations are based.

easier to use a full horizon than a split horizon sextant for objects that are easier to see. However, the optics of a full horizon sextant mean that a dim object may not be as easy to see, making it more difficult to use.

The next thing to consider was whether to buy a sextant with a plastic or metal body? The plastic ones are inexpensive, but may be less accurate and need a lot of adjusting. After some research, I decided on a metal-bodied German sextant. A few days later I came across a Freiberger Yacht Sextant at a boat jumble. Designed for use on yachts, this model is small and easy to store. I bought it after some haggling for £110.

I thought I had a bargain but it did need some work. Saltwater tends to ruin the mirrors, but you can get them re-silvered (I was told for about £50). I tried various places around the South of England, but all said that nowadays they don't offer this service. B Cooke in Hull was able to do it and I asked them to re-silver the mirrors and refurbish mine. The estimate arrived and it was £200! So the sextant wasn't the bargain I'd originally thought, but it was at least beautifully restored and works perfectly now.

Now it was time to learn how to use it…



ABOVE The sextant from the boat jumble needed the mirrors professionally re-silvering, while Gilbert repaired the damaged box himself

and buy another book, *Celestial Navigation – A Complete Home Study Course* by David Burch. I thought with this and the video courses online (such as *Getting Started in Celestial Navigation* by Practical Navigator) I'd be able to learn the techniques.

Noon site

I was right and I was wrong. I got as far as being able to take a noon sight from my boat at anchor off Sandown, which was accurate to within one mile. The reason it had to be from my boat is so I could look out to an unobstructed horizon to the south (from where I live, the Isle of Wight gets in the way).

ABOVE Gilbert went to a ship reclamation yard in Exeter to buy his second sextant, which in its case with all the attachments cost only slightly more than his refurbished Freiberger

A noon day sight is when the sun is at its highest point in the sky above where you are. By noting the maximum altitude of the sun you can calculate latitude. However, I wanted to know more. I read the books and looked at the videos, but my learning curve got flatter and flatter. It was time to try something new.

I booked onto the RYA Yachtmaster Ocean Shorebased course, run by First Class Sailing, an RYA Recognised Training Centre. Instead of the normal five days, it ran for three weekends. I was glad of the extra day and the week long gap between sessions. The Celestial Navigation part was (for me) pretty intense and time to revise between sessions was invaluable.

The course was mostly theory, except

Noon sight

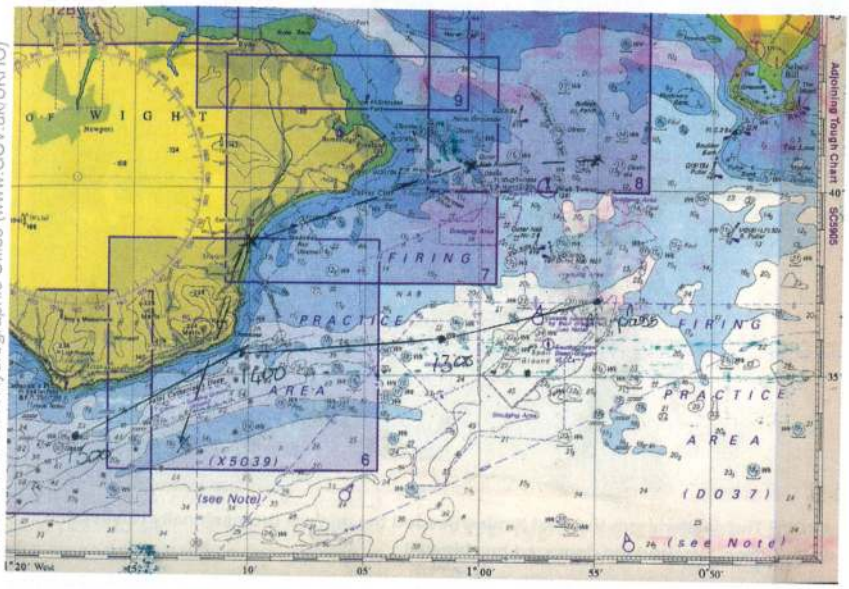
The noon sight, the highest point of the sun during the day, has been used to calculate latitude for centuries. If you were in a sailing ship crossing an ocean you'd sail to the latitude of your destination and then at every local noon measure the altitude of the sun and again calculate your latitude. From this you could determine the course over the next day.

The sight is simplified by the local time being GMT. For the other sights I took they were done on the hour using the time signal from Radio 4 to simplify them.

19th Century nav

Interfoto/Alamy

BELOW Gilbert's course from noon on the day he finally got to try out the theory. The GPS points where the sights were made from is shown to compare them to the ones calculated from the sights. They were all within five nautical miles, which is pretty good.



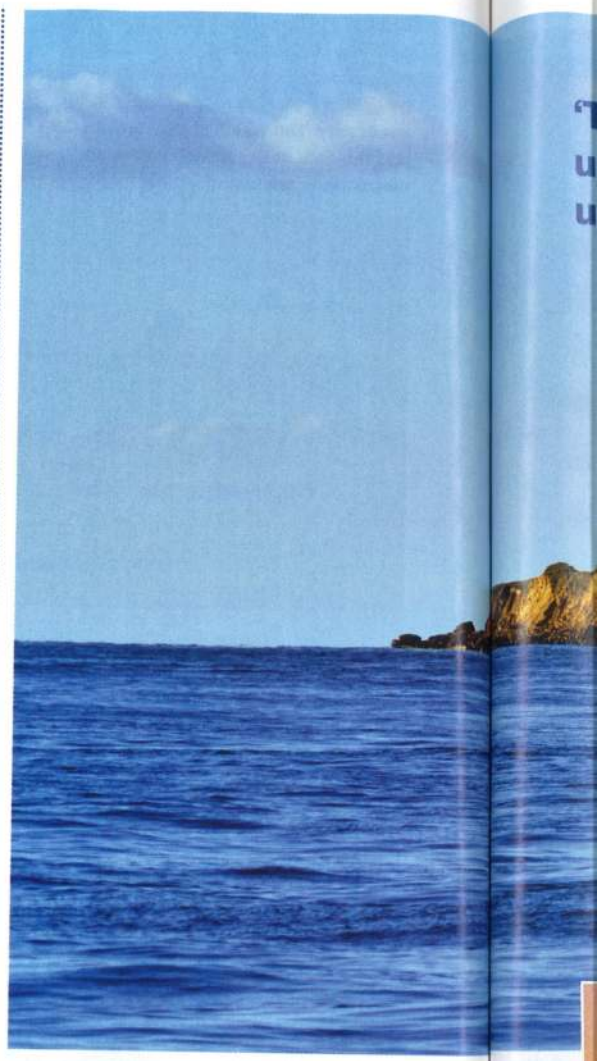
RIGHT Nigel Rennie, the instructor on the author's RYA Yachtmaster Ocean Shorebased Course

for how to adjust your sextant and take a sight. Over five days we explored the sun, planets and stars, where to find them and how to use them for position finding. The handouts were great and I still use the flow charts provided on the course. The remaining day was used to find out about weather, currents, management of crew, victualling and other important tasks for an ocean crossing.

It was a good course to go on in January and the instructor, Nigel Rennie, couldn't have been better. Indeed, he inspired me to do the practical part of the course; many people, having completed the Shorebased course and subsequent 600-mile qualifying passage, go on to do the oral examination for the RYA Yachtmaster Ocean Certificate of Competence. To be eligible for this they must already hold an RYA Yachtmaster Offshore Certificate of Competence. Since this qualification can be for motorboats as well as sailing boats I started planning.

I decided to buy a larger sextant so I went to Trinity Marine, a ship reclamation yard near Exeter – an experience I want to repeat one day. Browsing all the artifacts from old liners was amazing. Plus, they had a huge selection of sextants. I bought a fully restored ex-Royal Navy one for the same cost as my boat jumble one!

Then came COVID-19 and all stopped for a lot of 2020. Although I did get out in a boat over the summer I either didn't have a sextant with me or the sun wasn't shining! However, on the first day of the second lockdown (5 November 2020) I



ABOVE St Catherine's Point – the turning around point for Gilbert's day in the sun

RYA courses for 2021

Richard Falk, RYA Director of Training and Qualifications, explains how students can train safely on and off the water

In terms of RYA Training this year, I'm pleased to say that the team has worked hard to ensure that virtually all RYA courses have been adjusted to allow them to be delivered in all but a full lockdown. In other words, whether you wish to undertake a dinghy, windsurfing, powerboating, sail cruising or shorebased navigation course, in almost all cases you'll be able to do so. We have taken significant steps such as suspending the requirement to liveaboard for sail cruising courses, running dinghy courses in single-handers and ensuring schools reduce numbers in the classroom to facilitate social distancing. All RYA Recognised Training Centres that are operating have undertaken their own risk assessments and have set their centres up to run in line with the necessary government guidance. Many shorebased centres are also offering the option of classroom courses via video conferencing. We'll continue to allow such adjustments as long as it is necessary to support the global effort to control the spread of coronavirus.

So, in most cases – and on the assumption there's no lockdown in place – members of the public wishing to undertake various RYA courses will be able to do so both in the UK and abroad. They should contact individual RYA Recognised Training Centres to enquire about what is available and what measures that centre has in place for the protection of its customers and staff.

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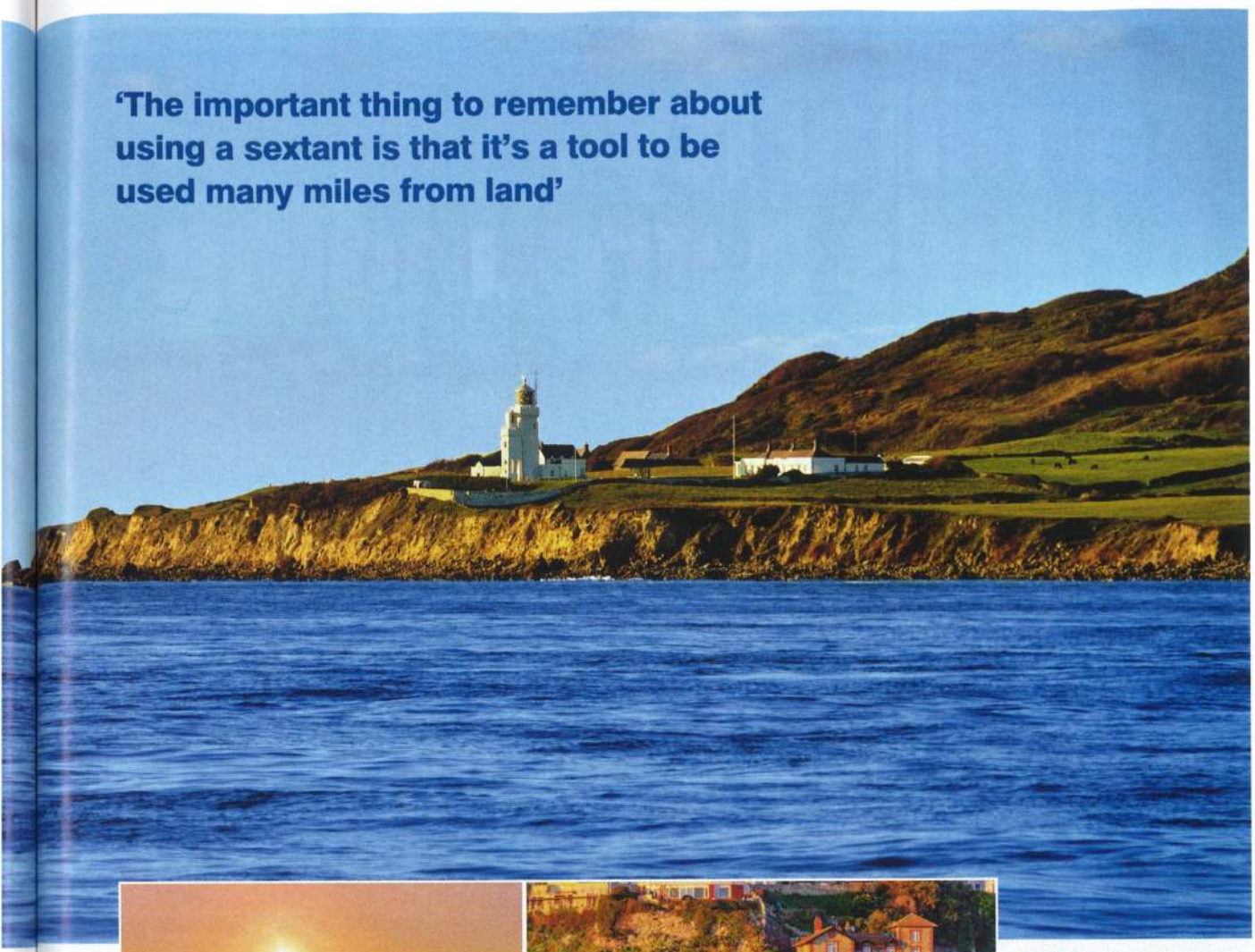

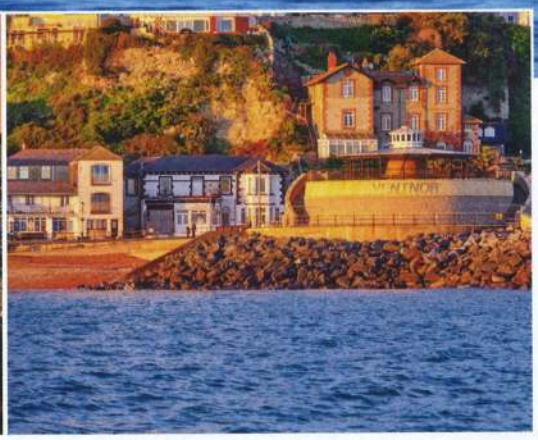

FAR LEFT Returning to port as the sun was setting gave Gilbert the perfect opportunity to check the compass
LEFT Ventnor wasn't far from Gilbert's course. As the sextant is meant to be used offshore you wouldn't be able to rely on its readings to bring you safely into port. Pilotage would be used for that

did get everything right and spent a day in the sun with my sextant.

Sextant in use

The important thing to remember about using a sextant is that it's a tool to be used many miles from land. An experienced user can get very close to their exact position. A beginner, like me, being within 10 to 15 miles of their position is pretty good going. So when you look at my plot for the day, being within five miles of each GPS position is pleasing – even if I did appear to bump into the IOW!

The problem with November is the days are short and at 1500 the changing weather, tide and fuel situation meant I had to make my way back. As the sun set I remembered I could do a compass check as well. Being Bonfire Night, fireworks caused me some confusion with port hand markers, but I got back safely in the end. Next time, I'll do the moon, stars and planets.

Since doing this I've discovered a great app to help learners. Anti Spoof GPS is available in the Google Playstore. It's designed so you check your GPS position (sourced from within your Android device) with a sextant. It gives the sextant angle for the sun (or other body) for the GPS position where you are. Assuming the GPS position is right then you can check you have done the sight correctly.

Where next? Once COVID is sorted it'll be a 600-mile continuous trip with the opportunity to do dusk and dawn sights as well!

ABOUT THE AUTHOR

Gilbert Park has been sailing in various craft for much of his life. For the past few years it has been motorboats. Having done the RYA Yachtmaster Ocean course and gone straight into the first lockdown he decided it was time to slow down and travel at 6 knots most of the time. This allowed him to take sights and also make tea and bake bread underway instead of having to sit in the helm seat and hang on. Much more relaxing!