

Shadowlands

Two inventive — and somewhat obsessed — physicists are reviving the art of making sundials. By Carol Twopeny. Photography by Don Brice

As physicists, Dr Margaret Folkard and John Ward are well-known to the world of solar optics, but in more recent years they have gained a worldwide reputation as gnomonists. This means they seriously study and make sundials — not gnomes as you might imagine (“gnomon” is derived from the Greek word for “pointer”).

Both self-confessed fanatics on the subject, they gave up their respective jobs as senior research scientists at the Defence Science and Technology Organisation in Salisbury, South Australia, to pursue the design and construction of sundials for their unique business, Sundials Australia.

And it all happened by accident. In 1976 Margaret, desperate to find a special gift for friends who “had everything”, approached colleague and ideas man John for inspiration. Idly gazing at a shadow through his office window, he replied: “How about making them a sundial?”

As physicists trained to solve problems, they found the challenge irresistible despite having absolutely no idea of how it could be done. Scouring the library they found one “quite awful” book on sundials. Nevertheless, by employing considerable ingenuity, application and persistence, Margaret presented her friends with a brass horizontal sundial within a few months.

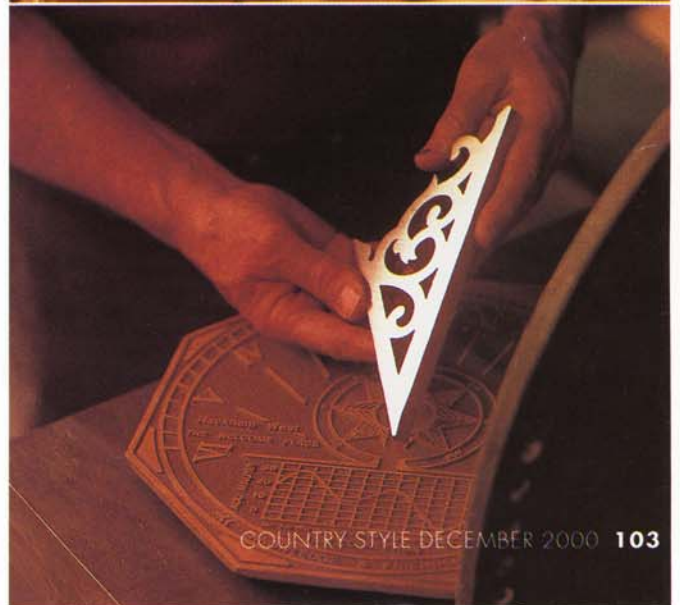
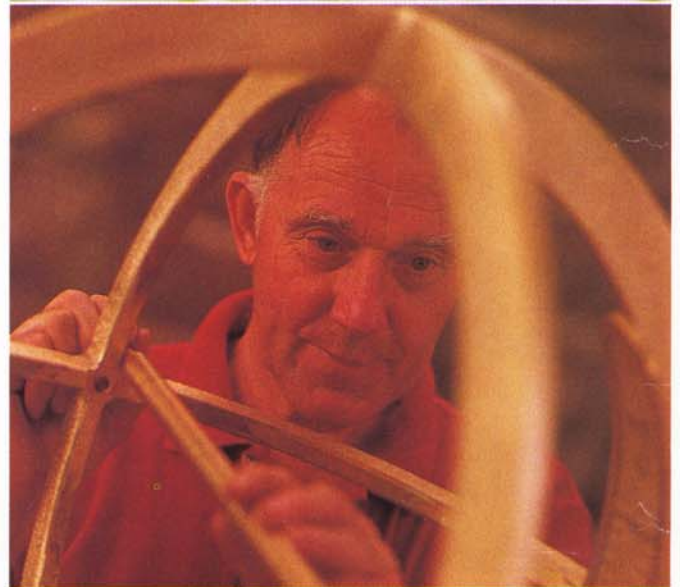
That was the first step in what became an incredible journey. Because of a long-felt passion backed by years of study, Margaret and John are reviving the lost art of gnomonic craftsmanship with the use of modern materials and technology. They have now made in excess of a thousand variations of sundials for sites around Australia and in other parts of the world.

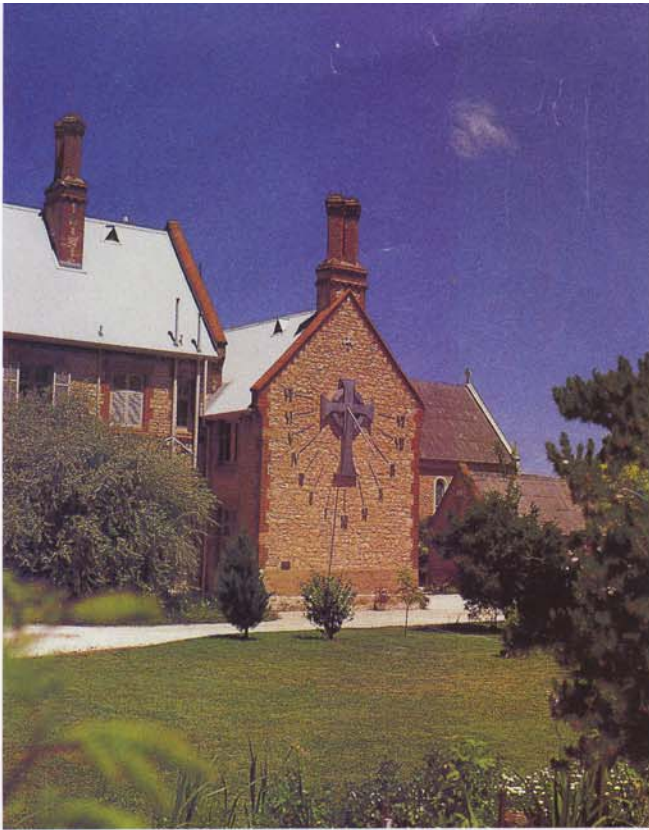
John, who was born in England and came to live in Australia in 1963, is a man with extraordinary talent and energy. Exuding vitality and enthusiasm, he first sweeps the visitor into his spellbinding though daunting world of gnomonic physics, the amazing history of ancient sundials, and the workings of very early navigational instruments. He follows this proudly with a detailed description of how each machine in their fully equipped workshop produces the finished article.

“The history of sundials is a bit contentious, but it is known that the Sumarians used shadow-casting devices to tell the time and date 5,000 years ago. They were also the first people to divide the day into 24 hours, the week into seven days and the year into 12 months, having first divided the sky into the 12 signs of the zodiac,” John explains. “Subsequently, the Greeks, Romans, Egyptians, Chinese, Indians and Europeans created variations in all shapes and sizes, and then along came clocks which kept accurate time in the 17th Century. So, it’s truly amazing, because through research we delve into all sorts of wide-ranging subjects including architecture, art, history, gardens and archaeology.”

John applied for a Churchill Scholarship in 1984 and he and Margaret travelled widely for six months. “Really, this was the catalyst, because we saw thousands of different sundials and were also very privileged indeed to be invited to very special

This page, top The armillary sphere sundial in Sydney’s Royal Botanic Gardens. Centre In a world of his own — John Ward at work on one of his unique creations. Bottom An attractive “gnomon”, or pointer, and a sundial face.





Left John and Margaret in their private museum. Above An example of a smaller sundial. Top One of their finest achievements, the vertical sundial on the wall of Bishop's Court in Adelaide.

places, such as the Queen's gardens, the Oxford Colleges — which are a treasure-trove of sundials — and the Secret Archives of the Vatican where the Gregorian calendar was devised in the 16th Century.

"We came back determined to produce the best we could possibly do, so took courses in fitting and turning, foundry work, bronze-casting, screen-printing, pattern-making, process photography and computing. You see, apart from the casting, we do absolutely everything ourselves from woe to go."

Margaret, born and educated in New South Wales, also has boundless energy and in her spare time is an intrepid canoeist, mountaineer and hiker and has travelled in many remote areas. In 1975 she hiked the "hippie trail" with her adventurous mother and was completely captivated by the spectacular and huge 18th Century sundial complexes built by the Maharajah Ja Singh II.

Perhaps it was all predestined, because it was soon after Margaret arrived home that the topic of the sundial gift arose.

"When we began I did all the initial designs by hand, which was incredibly tedious, but later I taught myself to computerise everything and, although it was time-consuming, I now just press a button and it will spit out any design I want," Margaret says.

"Theoretically it's not too difficult to calculate using the basic principles of spherical trigonometry, and then making appropriate corrections for solar time, latitude and date; however, physically it is rather a sweat putting it all together."

There are nine basic types of sundials but infinite varieties on the theme. "Custom-designed, they are usually the focal point in botanical gardens, public parks and private gardens," says John, "and they are great as a form of family commemoration, when the unveiling becomes an occasion of great importance.

"We love what we do so we take great pride in producing a sundial not only with individual character but one which has beauty, quality and longevity, so for centuries to come it will be accurate to within a minute or two."

Their jewel in the crown is the "armillary sphere" sundial, charmingly marked with herbs, commissioned by the Royal Botanic Gardens, Sydney, in 1993. (An armillary sphere is an arrangement of rings making the shape of a sphere.) Margaret and John are also delighted with their unusual "Analemmatic Sundial of Human Involvement" at Mount Annan in New South Wales; the vertical sundial on the wall of Bishop's Court, Adelaide; and the Buddhist sundial at the palace of the Dalai Lama in Tibet. ("Analemmatic" is a mathematical term which refers to how one thing relates to another. Visitors to Mount Annan can stand inside the sundial there and the shadow cast by their bodies will tell what time it is.)

"Although not many people think about them, I'm a shadow fanatic," John says with a laugh. "Wherever I go I'm on a sundial trail — it adds a completely new dimension to travel. I'm addicted. And, by the way, the most interesting sundial in Australia is at Bothwell in Tasmania — it's a beauty."

In great demand as lecturers spreading the gnomonic word, Margaret and John also realised there was a dearth of comprehensive, readable books on sundials so they produced their own in 1994. They have also compiled an intriguing private library and museum on the subject.

To contact Sundials Australia, telephone (08) 8285 4099. 🌿