The renowned telescope maker prepares for another night under the stars

CORBIS

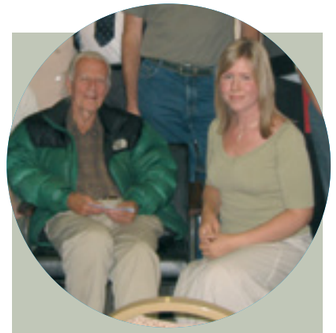
John Dobson: a living legend

John Dobson, creator of the Dobsonian telescope, tells **Sarah Reed** about his lifelong passion for stargazing

Serious deep-sky observing was once only for professional astronomers. But in 1956 a monk called John Dobson revolutionised amateur astronomy when he hand-built a powerful telescope out of nothing more than scrap materials – the Dobsonian was born.

Then in 1968, John founded The Sidewalk Astronomers. His idea was to bring astronomy to the streets so that interested passers-by could look through a telescope. Along the way, he passed on his knowledge and passion, and can now be credited with inspiring a future generation of telescope builders and sky-watchers.

It's an honour to meet John during his brief, rare visit to the UK. We're at Birmingham Astronomical Society's club room, in the basement of Aston University, where he's hosting an open evening. John is surprisingly spry for a 91-year-old and his long white hair, tied back in a ponytail, completes his relatively youthful appearance. I start by quizzing him on his reputation for making scopes from the simplest of materials. ►



[10 questions]

Sarah Reed gets John to reveal his firsts and favourites

Where were you born?
In Peking, China.

Where do you live now?
I pay rent for a place in San Francisco, but I live all over the world.

What is your educational background?
I went to the University of California in 1934, where we paid $54 a year. My major was in chemistry and mathematics.

Who inspired you to become an astronomer?
I don't think I can answer that; I just wanted to see what was going on out there in the wider Universe.

What was the first thing you ever observed through a telescope?
The third quarter Moon. When I saw it I was shocked, and I thought 'everyone has got to see this'.

What is your favourite object in the night sky?
In the Universe? In particular, I like to look at galaxies.

What telescopes do you own?
I own a lot of telescopes, which are scattered all over the place. All of them are Dobsonians, of course.

What is your all-time favourite astronomy book?
I don't read a lot of books, but a long time ago it was Fred Hoyle's *The Nature Of The Universe*.

Who do you think is the greatest astronomer of all time?
When it comes to telescopes, it has got to be William Herschel.

Who do you think was the greatest cosmologist of all time?
I think Fred Hoyle was.

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► Why are you sometimes called the 'MacGyver of astronomy'?
MacGyver [from the American TV series] always finds himself in a pickle and he finds a way out of it with what's available to him. So people call me the 'MacGyver of astronomy' because I make telescopes out of what's available. I use cardboard tubes made for pouring cement columns as telescope tubes, and I make mirrors from porthole glass – I've got 4.5 tonnes of ship windows. This is junk! So MacGyver means to make-do – I'm a make-do astronomer.

What originally motivated you to build your own telescope?
I wanted to see what the Universe looked like and I had only used a little refractor before I built my own. So I built a 12-inch Dobsonian, which was about 7.5ft long – now that's a good size for a telescope and you can see just about everything with it.

Is it true you built it in a monastery?
Yes, when I was a monk [in the Vedanta Monastery in San Francisco] a friend told me you could grind your own glass. I said "you're nuts", I didn't believe him, but he showed me you really could. A friend of ours had a sheet of glass on his kitchen table and we decided to make a mirror with it. We needed another piece of glass to grind it against, which we got from a marine salvage shop down the street for $5.

How did you come up with the design for the Dobsonian telescope?
The telescopes that people were using were tiny ones set up for photography.

▼ John shows an expectant crowd a traditional method of grinding mirrors

When you're doing photography you need to track objects across the sky, and so you need a motor. I wasn't interested in photography; I've never had a camera in my life. So I just made a telescope that moved up and down, and left and right. I just wanted to be able to see the sky and aim it anywhere above the horizon. You can run a bigger telescope without all of the machinery needed for photography; if you had all that machinery on a 12-incher it would be an observatory.

Why do you think no-one thought of the Dobsonian design before you?
They were too busy taking pictures. Their telescopes were so tiny that they weren't very good for seeing galaxies with their own eyes, so they took pictures and looked at them in the daytime. In the daytime they can see them with their cone cells [cells in the eye that function best in bright light]. Now that's cheating – nobody ever saw a galaxy with his cone cells, you see them with your rod cells [responsible for night vision]. If I want a picture I buy it from an observatory.

Was your telescope-making encouraged within the monastery?
No, because it wasn't part of our curriculum. When I was in Sacramento building a retreat, I even came up with a code to talk to my friends at the main monastery in San Francisco about it. A telescope was called a geranium, and if it was a 12-inch telescope you would say you had a 12-inch geranium. If you said it had been potted, it meant the telescope had been put in the tube and in the rocker. If it had been aluminised or silvered, it was said to be in bloom. So if I said I've got a 12-inch, potted geranium in bloom, they knew I had a finished telescope.

▲ The Sidewalk Astronomers give the public the chance to touch, look through and talk about scopes

Why did you leave the monastery in 1967 after 23 years of being a monk?
I was asked to leave the monastery, and that whole thing was an accident. I was weeding plants next to the monastery wall and a man was asked to look for me. He couldn't find me and so he reported that I was missing, but I wasn't. So I was asked to leave.

How did the Dobsonian become commercially successful?
Jim Braginton, who ran Coulter Optics, looked through a 24-incher on the top of a mountain in California, and thought 'if he can do it, I can do it'. He started selling Dobsonian telescopes, and modelled them on my 24-incher. I don't get royalties or anything like that, but he always treated me very well.

How did The Sidewalk Astronomers come about?
There was a nine-year-old boy who made a telescope with me. It was a big telescope, 7.5ft long with a 10.5-inch diameter mirror. His mother called me and said he needed someone to talk to about astronomy and telescope making, as the San Francisco astronomy club wouldn't let him join until he was 14. He was five years too young to join the club, even though he had a bigger telescope than they did. So we talked it over and decided that we should start a club, and that's how The Sidewalk Astronomers was started. To begin with there were only three members, and we got two telescopes out on the sidewalk every clear night. It was known all over the San Francisco Bay area that if you wanted to look through a telescope, you went to Jackson and Broderick streets on a clear night. The Sidewalk Astronomers has grown a lot bigger since then.

Why did you bring astronomy to the streets?
The public needs to know where they were born. People think they were born in the city, but they were actually born in the Universe. Most people have never even seen the Moon through a telescope and they are shocked when they see it so close up.

What do you think about theories of how the Universe was created?
I'm allergic to the Big Bang theory. They get the whole Universe from nothing – how likely is that? The Big Bang people have all kinds of trouble with their model, and so they change the physics to clean it up – 'oh there's dark matter'. And then they see the expansion of the Universe seems to be speeding up and so they invent dark energy to explain that. These are just inventions to patch the model. ✪

What is a **Dobsonian?**

Dobsonians are the 'big friendly giants' of the telescope world – rugged, easy-to-use and often large in size. These scopes are intuitive to use as they're mounted on sturdy altazimuth mounts, which move about the vertical (altitude) and horizontal (azimuth) axes. Equatorial mounts, in contrast, have an axis aligned with the Earth's axis of rotation.

The optical tube assembly is the same as a Newtonian telescope. A primary mirror collects the light and reflects it onto a secondary mirror, which then reflects the light out of the side of the telescope for a convenient viewing angle.

Dobsonians are generally cheaper and lighter per inch of aperture than other designs, bringing big scopes within reach of amateur astronomers. Their large size makes them particularly well suited for observing distant galaxies and nebulae.

▲ John Dobson's original designs have been taken up by telescope makers the world over

[FIND OUT MORE]

John Dobson: the official website
www.johndobson.org

Sidewalk Astronomers
www.sidewalkastronomers.com