AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE
150 YEARS • 1848-1998

OPPORTUNITY KNOCKS!

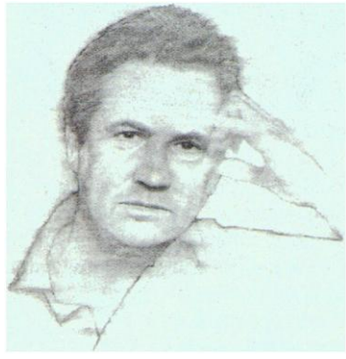

ILLUSTRATION: ALLAN M. BURCH

MELVYN BRAGG *read History at Wadham College, Oxford, and is the author of several novels and two works of nonfiction. He has edited the* South Bank Show *arts program on British television for more than 20 years and presented* Start-the-Week *in British Broadcasting Corporation Radio 4 for 10 years. He was recently made a Life Peer.*

In the mid-1980s I was writing and presenting a BBC Radio 4 program called *Start-the-Week*, a general discussion program aired on Monday mornings. After a year or two the producer and I decided to change the casting—which was often cheerfully thespian, celebrity, and quirky—and introduce academics to the morning airwaves. It worked quite well—the audience did not desert us—so we decided to aim for scientists.

They were very reluctant to appear. We tried hard, but over a span of 2 years we managed to persuade less than a half-dozen (out of 352, that is, four guests per program, 44 weeks a year in a 2-year period). The excuses varied but I discovered a deep-seated suspicion among British scientists about how they would be received by a nonscientific audience. They felt that they were seriously undervalued. They felt that in the dominating culture of Great Britain they were treated as largely irrelevant. They felt that they were "trade"—to use the country house metaphor (still sadly a useful one for our national life)—good enough to keep the place running and amaze us with a kind of magic every now and then, but not really invited to be in for the full weekend house party. They also felt that, while they as individuals read novels, listened to music, went to the theater, and took part in the world "out there," their own world, which they saw as the defining and the most exciting of all, was patronized, ignored, or ill-understood. They resented all that very much indeed.

I exaggerate, but not much, I suspect. Of course most of them shrugged their shoulders and got on with what absorbed them, and to heck with public opinion. There was, nevertheless, an unmistakable feeling of defensiveness, which stimulated a kind of arrogance and a view that most of the general public's indifference was based on an ignorance that was itself rooted in an inability in adolescence to grapple with the harder subjects of physics, maths, chemistry, and to a lesser extent, biology.

Gradually, however, over a 5-year period, the percentage of guest scientists on *Start-the-Week* rose to over 30. Two points are worth making. When scientists appeared on the program there was more response from the public—requests for details on a book or on forthcoming lectures—than for anyone else who had ever appeared, by far. And the audience size, far from shriveling away when faced with this brain voltage at 9 a.m.—and on a Monday morning to boot—significantly increased. Indeed, it nearly doubled. Meanwhile, I was getting an education.

I was born in 1939 in a far northern English town. Thanks to the 1944 Butler Act, which instituted compulsory education to age 15, and the support of my parents, I was allowed to take up a scholarship at the local grammar school. Teaching and teachers were not well organized in British schools after World War II and I had, if I remember rightly, 11 maths teachers in the first 3 years. Nevertheless, I enjoyed maths, and although I had been allowed to drop physics and chemistry at the age of 14, I trundled along with maths and biology until the sixth form, when the timetable in that small school would no longer allow it. So at age 15, I left science.

Cut to 30 years on. While it is true that during those 30 years I was aware of science, it was a very low level of awareness. DNA was as much a national triumph as a perceived gateway to an explosion in the study of genetics. The moon landing was more Stanley Kubrick than physics. Isaac Asimov was a fine writer but not among those I cherished. Indeed the whole genre of science fiction passed me by despite the respect it received from writers that I admired—Kingsley and Martin Amis, for a start. The work of Douglas Adams delighted me, but I felt it had more to do with "Adams the English Comic Novelist" than "Adams the Besotted and Highly Informed Science Buff." I like to think that my indifference is typical of the times and of my generation and background. But this is to dignify it. More likely it is camouflage.

I read history at university and kept up a steady consumption of English and other literature. It was important for me to attend the theater, the arts cinema, the opera, exhibitions, and to enjoy newspapers and magazines. Then there was life. In short, I seemed to fill up the time just fine without science with no apparent harm to myself, and without feeling too terribly deprived.

Sometime in the mid- to late 1980s, after everyone else had already tuned in, I felt in myself a sensation much like the fluttering of a butterfly. It is impossible for me to pin the moment. I think that it was rather an accretion of intriguing reviews of science books, news flashes about deepest space, stirrings in the biomolecular world, and above all, the growing number of books written for people like me. It was dawning on us that out there in the forgotten, even alien, planet of science was where the ideas and excitement of our time were

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*M. Bragg, *On Giants' Shoulders* (Sceptre, London, 1998).

to be found, and that we had an opportunity to be drawn in. Why should we miss out just because we had dropped science at age 15? It was in science that the Origin Story to cap all Origin Stories was being constructed. It was there that the human being was quite possibly being reconstructed. It was there that the dizzying questions of time and space and the processes of life were being debated. The mind itself, consciousness, the apparent emptiness of 95% of space, the age and definition of the universe, the aging and definition of the human being and the human brain—these and many other important matters were being pursued and the bounty for laymen was that enough scientists and historians of science were taking the trouble to write about this in a language that everyone could understand. It was this Zeitgeist that *Start-the-Week* tapped into.

When the BBC recently asked me to do a series on science, as a trained historian it was inevitable (I realize retrospectively) that my slant would be historical. This became a 12-part radio series and then a book called *On Giants' Shoulders*.* The idea of the program spliced two notions. The first was an urge I had to find a track through the development of science—a pathway if you like, a route for amateurs like myself. The route that I chose was to select, with some help, 12 key contributors to science from the last 2500 years, beginning with Archimedes. It could have been 24 or 34 figures but there were 12 slots to fill, and I thought that one person per slot would be most effective. My final list can be debated, of course. The second notion was to continue the methods of interview that I had developed in *Start-the-Week*, which was to ask the questions from the viewpoint of an interested amateur.

Around each of the 12 "great figures" I gathered several contemporary scientists. For the program on Charles Darwin I interviewed Richard Dawkins, Daniel Dennett, Stephen Jay Gould, and John Maynard Smith. I also interviewed Janet Browne and Richard Darwin Keynes. For Einstein, I spoke with Jocelyn Bell Burnell, Paul Davies, Sir Roger Penrose, Roger Schulman, and John Gribben. The intention was to provide a brief life history of the scientist, to contextualize him or her, to quote from the works, to explore the key ideas, and to test their theories against subsequent developments in order to bring them into the last decade of the 20th century.

Taking the Great Figures approach was risky because it is neither fashionable nor acceptable to many scientists, who favor the "Broad Tide" view. But approaching the history of science through individual contributors seemed to provide a thread through the labyrinth, my labyrinth, and at the very least these individuals could serve as points of crystallization. I was much encouraged in this approach when in a review Fred Pierce wrote, "modern trends, from the humbling of Marxism to the rise in Chaos Theory have all cast doubt on the "Broad Tide" as a metaphor for historical development. And if that fails, then so does the idea that individuals have a necessary small place in the scheme of things. If a butterfly can change the climate, then surely a genius can change our understanding of the universe." And, as Roger Penrose put it, "Einstein's theory on general relativity might not have been arrived at by anyone else."

Many men and women in science seem uncomfortable with the notion of individual genius. Perhaps this is one reason that the world of science suffers in the youthful imagination compared to the world of art, which is stuffed full of individuals and even some geniuses. I have insufficient knowledge to develop this argument, but someone should take it up.

The public, which includes myself, is ravenous for news from the front lines of science. Let me provide an example. This spring, at the spectacularly successful Hay-on-Wye Book Festival where over a thousand people packed the tent, I shared the platform with Richard Dawkins and Sir John Maddox. The audience questions were excellent and extremely coherent, a noticeable contrast with my experience at similar events when I shared the platform with fellow novelists, where the questions were, for the most part, scattered and unfocused. The public wants to know about science and wastes little time when the opportunity presents itself. However, it requires friendly and easily understood scientific presentations. There have of course for years been programs on the radio, on television, and articles in newspapers and magazines, of great distinction and wide reach. The more serious newspapers in the United Kingdom do present science stories as regular features. Yet science still does not receive as much coverage as literature. It commands only minimal attention in comparison to the cinema, theater, or pop music concert, and does not even compete with other marginalized categories such as opera and classical music. In radio and television news bulletins, those precious peak-time minutes that presumably most reflect us as we really are, sport and soap scandal dominate, while science and the arts are more or less excluded altogether.

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It seems ridiculous and disgraceful that in a country as intelligent and cultured as ours the result of a football match, even in Division Two, is more important than news from science or the arts. It appears that the news standards of the key media in Britain are lower than those of its audience. The BBC really ought to reexamine its position here. As a public service broadcaster that trumpets high ideals, it seems to do very little in this regard.

It has been suggested to me—at an Oxford High Table—that one way to raise public perception of science in the United Kingdom (a public still thought to be less keen on science than that of the United States, Japan, Germany, or France, despite the above remarks) is to persuade the BBC to put on a science soap opera. It has come to that. It seems at first a desperate measure. On reflection, though, given the surge to law studies that resulted from the American television series *L. A. Law* and a host of similar examples, this idea, mad as it seems, could be useful and generative. The problem is to find a writer or writers who know enough and are enthusiastic enough about science and dramatic serialization, to do the job. Opportunity knocks!

ILLUSTRATION: TERESE WINSLOW