

The History of Science and Technology Should Have a Global Perspective and Global Concern

——Interview with Professor David Edgerton with Ruijie Li

Abstract

David Edgerton is the Hans Rausing Professor of the History of Science and Technology and Professor of Modern British History at King's College London. He is the founding director of the Centre for the History of Science, Technology and Medicine (CHoSTM) and a Fellow of the British Academy. Professor Edgerton is known for challenging the welfarism and declinism of much of the older historiography of twentieth-century United Kingdom. He is also known for a new approach to the histories of science and technology, including its global history. During the author's visit to the UK, Professor Edgerton, who acted as her second supervisor, graciously accepted the interview. This interview covers topics such as the British declinism, perspectives and approaches in the history of science and technology, research traditions in British institutions, and the teaching and prospects of the history of science and technology.

Introduction

Professor David Edgerton is the Hans Rausing Professor of the History of Science and Technology and Professor of Modern British History at King's College London. He is a Fellow of the British Academy. Professor David Edgerton graduated from St John's Oxford, where he is now an Honorary Fellow, in Chemistry, and from Imperial College London in History. After teaching at the University of Manchester, he became the founding director of the Centre for the History of Science, Technology and Medicine at Imperial College London (1993-2003) where he was also Hans Rausing Professor. He joined the King's History department with the Centre on its transfer to King's College London in August 2013. He was a Leverhulme Trust Major Research Fellow from 2006 - 2009, and gave the 2009 Wilkins-Bernal-Medawar Prize Lecture at the Royal Society. In 2024-25 he was a Fellow at the Wissenschaftskolleg zu Berlin.

Professor Edgerton specializes in the global history of science and technology, as well as twentieth-century British history. He is known for challenging conventional narratives of welfarism and declinism in twentieth-century UK historiography and for

developing the concepts of the British Warfare State and Liberal Militarism. He is also known for a new approach to the histories of science and technology which emphasizes asking historical questions and avoiding innovation and academic-centric accounts.

Professor Edgerton has authored several influential works, including 'The Shock of the Old: Technology and Global History since 1900', 'The Rise and Fall of the British Nation', 'England and the Aeroplane: Militarism, Modernity and Machines', 'Britain's War Machine: Weapons, Resources, and Experts in the Second World War', 'Warfare State: Britain, 1920-1970', 'Science, technology and the British industrial 'decline' 1870-1970'. 'The Shock of the Old' has been translated into French, Spanish, Korean, and Chinese, making a significant impact in the field of global history of science and technology. 'The Rise and Fall of the British Nation' is being translated into Chinese (Zhejiang People's Publishing House)

Interviewer: Ruijie Li

Interview Date: May 8, 2024

Interview Location: Department of History, 8th floor, Strand Campus, King's College London

The interview transcript was organized by Ruijie Li and reviewed and approved by Professor David Edgerton. The Chinese translation was done by the interviewer.

I The person who has had the greatest influence on me

Q1

Ruijie Li (hereinafter "Li"): It is a great honor to have this interview with you. My first question is, you studied chemistry at Oxford University and then did your PhD at Imperial College London, working on the history of British industrial policy. Could you talk about how you turned to the history of science and technology and who had the greatest influence on your academic career?

Professor David Edgerton (hereinafter "David"): I was always interested in history. Oxford chemistry had the option of doing a term of history of science, a term of philosophy of science, and then a fourth-year dissertation in the history of science. A very small number of us took these options. I was taught by Margaret Gowing who was a historian of the British Atomic Energy Project and a pioneering contemporary historian of 20th century Britain. Allan Chapman was my tutor. He was a very energetic figure who inspired many people to study history of science. In the case of philosophy of science, I went to lectures by Rom Harré and had tutorials with Peter Lipton. But the really formative experience was writing on the history of industrial research, in the photographic industry in fact, in my fourth year. Effectively, I did a master's by research with Allan Chapman, who wasn't a specialist on my topic at all, but was full of enthusiasm. So that was my introduction to the history of science.

I went on, in my PhD, not to work on the history of science, but as you say, I worked on the history of industrial policy, effectively British political-economic history. I was doing it in a context, not of a history department, but of Sociology and Economics Department, a small one. But my supervisor was crucial. He was the most important historian of 20th century British science, I should say, Gary Werskey, who had come from the United States to study British radical scientists, notably J.D. Bernal, Hyman Levy, J.B.S. Haldane, Lancelot Hogben and not least Joseph Needham.

Lots of people have influenced me, people who taught me, people mentioned above, people I've worked with, in particular John Pickstone in Manchester and my colleagues in CHoSTM. Of course, a lot of things that I've read have influenced me. But I think it's important to note that in an academic career one is also influenced by the things one doesn't like, by positions one doesn't want to accept. I mention this because some of my greatest influences have been, in fact, people who I've criticized.

II The History of Science and Technology Should Be Global

Q2

Li: As a Hans Rausing Professor of the History of Science and Technology as well as the Professor of Modern British History, you not only challenge the notion of “declinism” in understanding modern British history and develop the concepts of the British Warfare State and Liberal Militarism but also introduce a new history of science and technology into British history. How did you connect the study of these two areas?

David: I have always thought of myself as contributing to at least two general areas of inquiry. One is British history and the other is the history of science and technology. Declinism was a very influential form of understanding recent British history. Declinism was also a central feature of writing about British science and technology from the late 19 and early 20 centuries till today. I've always seen declinism—I can claim to have been one of the very early coiners of the term in the very early 1990s—not as a serious historical or historiographical position, but rather evidence of a profound misunderstanding that was very revealing of how people thought about British history and British science and technology. Declinism is not something to be taken seriously as an intellectual position, but it is something to be taken very seriously as something which has prevented the emergence of a proper British history or a proper history of British science and technology. What do I mean by this? Well, a lot of declinism took the form of what I called anti-histories, of arguments that the military or science or technology or business were very weak in Britain because of some opposing force, whose history had to be written. Thus, declinist accounts are explanations, usually utterly misguided ones, of why science was weak, or why the military was weak, or why the business was weak.

My response was that it was not the case that British business was weak, or British

science was weak, or the British military was weak. Indeed, British business and British militarism was strong precisely because of the strong commitment to science and technology in both sectors. . For me, understanding the nature of declinism was a crucial move in preparing the ground for a proper history of 20 century Britain, and a proper history of British science and technology, and of business and the military and so on. One had to rewrite the history of science and technology, starting from different premises, starting with evidence rather than anti-histories, and put that new history of science and technology into a British history which would necessarily then be changed by that account. A lot of my work has been about changing our understanding of British history by changing our understanding of the history of science, technology, military and business, culminating in my *The Rise and Fall of the British Nation* a new general history of the twentieth-century United Kingdom.

Q3

Li: In 1998, you published a paper that has a very high citation, titled in the English version of 1999, "From Innovation to Use: Ten Eclectic Theses on the Historiography of Technology," which emphasized the distinction between innovation/ invention and use, and highlighted the importance of "technology-in-use". What motivated you to write that article? Could you explain the difference between a use-centered account and an innovation-centric history? What unique perspectives does this change in focus bring to the study of the history of science and technology?

David: Well, the origins this paper are unusual. I was asked to contribute to a special issue of the famous French historical journal the *Annales*, by the editors of a special issue on the history of techniques. This was to be the first special issue on that topic since 1935, to which the then editors of the *Annales*, Lucien Febvre and Marc Bloch themselves contributed.¹ The editors of the new special issue were Dominique Pestre and Yves Cohen. Their aim was in part to get Anglo-American historians of technology to contribute to a French journal. In most cases people contributed essentially research papers or recapitulations of their research. I didn't at that moment have anything to offer and that sort so I said to Dominique that I could develop some lectures that I've been giving to Engineering undergraduate students at University of Manchester, and a single lecture that I gave to master students in the history of science, technology and medicine at Imperial College. And I'm very grateful to Dominique and Yves for taking up what must have seemed a risky proposal.

What was the argument of this paper? It was essentially a critique of our understanding of this weird thing called technology (though I was very conscious that most of the arguments applied to science also) I argued essentially that what we had was not a history of the technologies that were in use, but instead essentially a bad account of innovation and of the early stages of the use of some, and not all, technologies. I argued that if we were to start thinking about techniques in use, we would radically change

¹ In November 1935, the *Annales* published the first special issue dedicated to the history of technology, titled "Les techniques, l'histoire et la vie".

what our histories of technology looked like. They could be global. They'd involve everybody, not just inventors and so on.

The paper appeared in French in the *Annales*. It was very widely read and commented on in France. It also appeared in English, a year later, in 1999, but in a journal that was not as famous as the *Annales*. It was indeed very largely ignored in the Anglo-American history of technology world until 'The Shock of the Old' appeared some years later. The paper also came to be misunderstood in some respects. For example, my argument for the study of 'techniques in use' or 'technology in use' was understood not as that, but as an argument for involving for studying 'users of technology'. It was argued that my paper, and indeed 'The Shock of the Old', just an example of an established tradition of studying users. But actually, those studies were all studies essentially of the impact of users on innovation. In other words, the very criticisms that were being made reinforced the critique that I was making. Now, I wasn't making the claim that nobody had ever studied 'technique in use'. Obviously, that is not the case. But most of those studies were not, in fact, by historians of technology but by other sorts of historians. The paper in fact set out a whole new agenda for studying material history, and it is very pleasing to see that taken up.

Li: This paper has also been translated into Chinese.²

David: Yes this paper was translated into Chinese quite early on and also indeed into Spanish. The reception outside the Anglophone world was quite different from that within it. And I should say that I was deeply gratified by this, because I realized that I was making an argument that everywhere had technology that needed to be studied, whereas the position I was attacking, being only interested in invention and innovation, confined the history of technology to Western Europe and North American for recent history. Scholars from Latin America, from Spain, from China, from Greece, understood immediately the import of this new approach.

Q4

Li: Your book "The Shock of the Old: Technology and Global History since 1900", first published in 2006 and has been translated into multiple languages including French, Spanish, Korean, and Chinese.³ It seems to be a development of your idea of "technology-in-use". What motivated you to write this book? How did you target your readers? What are the main arguments, and what kind of reflection do you want to bring to your readers?

² This article was translated into Chinese by Shang-jen Li(李尚仁) and Fang Junyu(方俊育). See: 李尚仁、方俊育合译, 大卫·艾杰顿著:《从创新到使用: 十道兼容并蓄的科技史学史提纲》, 吴嘉苓、傅大为、雷祥麟主编:《STS 读本 II: 科技渴望性别》, 台北: 群学出版社, 2004 年, 第 131-170 页。

³ This book has been translated into Chinese by Shang-jen Li(李尚仁) and has two editions. See: 大卫·艾杰顿著, 李尚仁译:《老科技的全球史: 二十世纪科技的全球史》(左岸文化出版社, 2016) 及《老科技的全球史》(九州出版社, 2019)。

David: Well this book was commissioned by a very brilliant publisher. I was asked to think about a book on the history of technology, and I soon realized that of course, my the *Annales* paper was a programme for a book. So I decided to write that book—A Global History of Technology, with the working title of ‘The Uses of Things’. It is sometimes understood primarily as a book about techniques in use. And that's right. But it also has a chapter on invention. It was certainly not meant to replace history of invention with the history of use. It was intended to rewrite the histories of both. Now, the central argument of the book was, I suppose, that we don't have a proper history of twentieth century techniques in use or invention and innovation. So I aimed to put lots of technologies we don't regard as important into the history of the 20th century into the book. But I also wanted to think about the ways in which a new look at history of technology would reshape our understanding of the history of 20th century. I wrote thematically. I had chapters on production, on wars, nations, on invention and maintenance. It was an attempt to write globally about techniques and think about the ways in which a fresh history of techniques could, and invention indeed, could change our global historical understanding.

Now, this is a book written for the general public. It was a trade book, not an academic book. It was reviewed by, generally speaking, people interested in technology, not in history as such. It had, to my astonishment, an extraordinarily positive and deep reception. It succeeded in reaching a very wide public, and I think it's also succeeded in reaching a wide academic public as well. It was a very unexpected success.

Li: What do you think about this book being included in the methodology and theory category?

David: Is it a theoretical book? No, not overtly. But it does take some very distinct theoretical positions without advertising them. For example, it divides the world into the rich world and the poor world, not into centre and periphery, not into empire and colony. As a global history, it doesn't just talk about transport technologies, which is the default position of many older ones. And more generally I suppose it takes at least in part a political economic approach rather than a kind of social-cultural approach, which is actually extremely unusual in Anglo American history of technology. It also made, implicitly, a very strong empirical and theoretical claim, and that was that we did not have anything like an adequate account of the material history of the twentieth century. It was an attack, a pretty comprehensive one, on stage theories of history, which are amazingly dominant in all fields related to material history. There was also a claim that we could learn a very great deal about the West from the study of the Rest, a very different position, or rather a radicalization of the claim that we should ‘provincialise Europe’. s I also wanted to reorient the history of technology away from a source of illustrations of the nature of technology, to a proper study of technology in history, one which could suggest ways in which we could understand history in new ways. My greatest disappointment actually was that this book was not, at least at first, understood as a contribution to history and as making particular historical claims about wars or the

world wars or whatever it might be. But one can't complain.

I noticed that you also introduced the concept of "Creole Technologies" in the book and in a subsequent paper. Could you explain what "Creole Technologies" is and how it helps us understand the complexity of technology circulation and the global technology landscape?

A few US-based historians have used the term 'creole science' to indicate a science that was a hybrid with something local and indigenous. In the US the term creole tends to have this meaning, as in creole cooking. In coining the term creole technologies, I primarily had an older sense of creole in mind, that found in the Spanish empire, where a criollo (or creole in French) was someone of Spanish (or African or whatever) heritage born in the New World. Criollo also carried the sense of authentic, rugged, in contrast to the fancier and more sophisticated Spaniard born in Spain. One might think of the so called criollo horses, animals brought from Spain who then developed into a local, very hardy type, or in the historiography of Latin American and Philippine nationalism, the importance of 'creole elites' in the work of Benedict Anderson. I thus used the term to indicate the spread in new places of techniques originating elsewhere which might for example be more widespread in the new world than in the originating place, and might be simpler and more rugged, and might also involve being used in new ways, perhaps with an element of hybridization. A favourite example was corrugated iron, much more used in the countries it went to than where it came from. I wanted to use the term for some technologies to avoid the rather naïve concept of circulation, and the equally naïve assumption that because some techniques move from rich countries they are used in the same way or to the same extent in poor countries. I should add that I find the constant refrain that we must challenge 'diffusionist' accounts of global technology rather risible. No serious scholar has ever suggested a diffusionist account these historians attack. It is just another invented straw man like most versions of technological determinism and also of linear models of innovation. We need a much richer understanding of what good scholars have actually said, avoiding inventing straw men which only generate ignorance, and develop new categories only when they genuinely add to what we know – I hope creole technologies does that. I fear though that it is often a misunderstood concept.

Q5

Li: In your article "Time, Money and History," you emphasize the importance of taking the economy seriously, or "following the money," when studying the history of science, especially in the twentieth century. Could you discuss how the introduction of an economic perspective helps us to understand the history of science, and the relation between Science, Technology and Society (STS)?

David: I've been interested in putting in the ideas of economists into thinking about science and technology in history, but more importantly, thinking about the economy and how it relates to the history of science and technology. Indeed, one could argue that a lot of my work represented a kind of political economy of science and technology. But never just that and that is why I'm reluctant to say that that's what it is, because people always want to identify historians with one position or one methodology. Certainly, I think in my case that would be mistaken. There's a particular problem that if one mentions economics as one is prone to be identified as a neoclassical economist, or a technocrat, or somebody being uninterested in other sorts of arguments, or limiting one's understanding to the quantitative. Anglophone history of science of technology has had nothing to do really with economic history. Now that's not to say that those histories don't make claims for the economic importance of science and technology. Of course they do. Indeed, they too often reproduced the naïve and/or self-serving claims of scientists and engineers for the importance of this or that technique. What I wanted to do is actually to ask economic questions about the significance of a particular technology. So how do we understand the significance of technology X? I think economics have been very helpful in getting us to think about that question by getting us to think about what is the alternative to technology X. There is usually an alternative, usually more than one alternative. And we forget that in much of our writing on technology. Alas, economists also forget.

In the case of history of science, it's too often assumed that there is a positive correlation between national investment in research and development and national rates of economic growth. I and others showed that this is not the case, and that we should not expect it to be the case. And if you start from this assumption, that it should not be expected to be the case, you will end up thinking very differently about national science and its relation to the science of the rest of the world. So, putting an economic perspective into thinking about the history of science and technology really does change the standard story.

I'll give you another example. If you literally just follow the money, do something as clichéd and simple as that, you begin to understand where people are employed in science or in research and development and technology, and you find very quickly that the attention of historians has been focused on very particular parts of the system, not the whole, though they take it to be the whole. Most history of science in the 20th century is focused on university science, usually, on a tiny fraction of university science, which is taken to be most important. The whole question of the relations of science and the military, or science and the economy, is reduced to the relationship between, say, academic physicists and the military, or university molecular biologists and the economy, which is absurd. But I'm afraid such a narrow focus pretending it is the whole story is central to most writing on 20 century history of science. So, if you follow the money, you would, as J. D. Bernal did to some extent at least, begin to look to government, to industrial companies, as the main sites of science. But historians have been very reluctant to do that to this day. So political economy, taking it seriously, has

the potential to be transformational in our understanding of the history of science and technology. Now, that's not a new observation. That's central to the work of J.D. Bernal and others, but it's become a minority position and a misunderstood position. None of this would surprise a Marxist, of course.

Li: What do you think of the impact of J. D. Bernal's work at that time and today?

David: J. D. Bernal's book in 1939 is extremely interesting and rightly recognized as a pioneering book. I think it needs to be understood as a Marxist book, not a technocratic book. He wanted to make an argument for socialism. Much of it is about Britain, of course. I think he was hugely important in pointing to the significance of military funding of research in Britain, something which was to be forgotten. But he was also a declinist and he underestimated the importance of research in British business for example, and overestimated the power of the anti-science traditions in British culture which in fact were very weak. So where does it stand today? I don't think it today can be a model for research but I think it is important that people read it to understand that people were thinking about the relations of science and society in interesting ways in the 1930s, doing so it not a recent phenomenon, and to understand, and to understand that discussions around science, technology and society are always deeply political.

Q6

Li: The concept of "Two Cultures," proposed by British chemist and novelist C.P. Snow in 1959, remains widely discussed. However, many of your studies suggest that Snow's views are misleading. Could you share your understanding of C.P. Snow's "two cultures" and its impact on contemporary science culture?

David: C.P.Snow's "Two Cultures" was a lecture and became a short book. It's a history of science, and history of British science to be precise. It's an argument for more investment in science, a crude, naïve, and arrogant book. But it is a work which has become extraordinarily famous, not just in the United Kingdom but amazingly around the world. I've seen it as a typical product of the British scientific community's view of the place of science in Britain. It's declinist, it's anti-historical, and it's empirically wrong at many, many levels. It's an intellectual disaster. What's interesting for me is that an intellectual disaster of that magnitude could be taken seriously, both by scientists and non-scientists. I've come to the view that unless you understand what is wrong with the 'Two Cultures' essay, you will never be able to write a proper history of 20 century science, both in the British case and indeed more globally. It needs to be understood as a typical intervention in a claim for more funding for British science, and for more hegemonic role for British science. It is only as this that it should be taken seriously, but doing so requires a serious understanding of the cultural and ideological history of British science and scientists. I have explored this in some areas, notably how they thought over time about the relations of science and war. I used a method I call historiography from below to connect the long history of scientific comment on this matter, mostly deeply mendacious, with the profound limitations of academic history of science studying the issue.

Li: In your view, How should researchers consider the views of scientists or engineers when discussing the history of science and technology?

David: I think this is an important question. A lot of history of science and technology has not only studied scientists and engineers, but adopted their way of thinking. That is not to say they agree – indeed a lot of history of science and history of technology is anti-technocratic or anti-scientistic, but, it too often just inverts a moral evaluation of a claim by scientists and engineers rather than challenging the claim itself. Such analyses often make another mistake which is to assume that scientists and engineers have a distinct worldview of their own. I think that's an unhelpful position. Most of the views expressed by British scientists and engineers about the relations of science, technology and society are versions of already existing general arguments about the nature of society. I mentioned a moment ago that we need to think of J. D. Bernal as a Marxist rather than as a scientistic or technocratic. Indeed, quite a lot of the work that we've done here in CHoSTM on scientific intellectuals has developed this point. Scientific intellectuals, while claiming they speak with the authority of science, or of nature, are in fact reproducing standard liberal, Marxist, nationalist or whatever views. This has been a crucial breakthrough in thinking about the relation of science, technology and society by scientists. We should not remain trapped within the discourse of the communities we study. As I say, if we think with (or against) C.P. Snow we're never going to get anywhere.

III Contributing to the Wider Historical Arguments

Q7

Li: In 1993, the Center for the History of Science, Technology, and Medicine (CHoSTM) was established at Imperial College London, and in 2013 it was relocated to the Department of History at King's College London. As the founding director, could you please discuss the background of the Centre's establishment and the following development?

David: The History of Science and Technology were taught at Imperial College from 1963 onwards by a small Department of the History of Science and Technology, headed by Professor Rupert Hall, who was appointed to a new University of London Chair, one of the oldest in the subject, in that year. I am honoured to be his successor in that renamed chair (as of 2002), after a hiatus of some years. The Department disappeared in the early 1980s, and the chair remained unfilled, and there were various institutional arrangements replacing it. In 1993, Andrew Warwick and I were appointed to replace the historians of science and technology that had been teaching there. For complicated reasons, what emerged in 1993 was a centre for the history of science, technology and medicine and not a department of Science and Technology Studies. That was very important, in fact, because we would not be distracted by science communication issues

or broader issues in science and technology studies. We could also focus developing a serious disciplinary and research-oriented culture. That paid off handsomely. We expanded rather quickly in the 1990s, and soon had six permanent staff. In 2008, we were judged the top rated history department in the United Kingdom in the research assessment exercise a remarkable achievement for a centre 15 years old.

Regrettably it became increasingly clear to us that the Imperial College did not want to maintain us at the size that we needed to be to be properly productive. So in 2013, we arranged to move to King's College London and we are able to make new appointments. We got a new lease of life and recently celebrated our thirtieth anniversary here at King's College London.

Q8

Li: Could you please introduce the teaching and research situation at the Centre for the History of Science, Technology and Medicine (CHoSTM), like the staff, models for talent cultivation, curriculum design, teaching style, scholarship, student employment, and so on.

David: We've been in existence for 30 years and things change over that time. Our staff has changed. I'm the only original staff member left. Others have gone on to extremely successful careers elsewhere or retired. But I think there are some distinctive traditions which have continued over that time. I think the fact that we were focused on history (and not science and technology studies or science communication) and history of science *and* technology *and* medicine was important. Other places have done that before us. But I think we can claim that we were rather special in that nearly each one of us was interested in, and published on, at least two of those three topics. We also taught courses at master's level that incorporated science, technology and medicine and we taught those courses either together or we taught outside our research interest. So all of us learnt about the historiography and history of science, technology and medicine, to our mutual and individual benefit.

Another way in which we were and remain distinctive is that many of us saw ourselves as contributing to a wider kind of historical argument. But even if we weren't doing that, we were very serious about applying or maintaining the intellectual standards of history, as opposed to sociology or some other discipline. Another point to make is that from the first we were very focused on doing work of high quality and on the development of staff, and PhD students. We ran and run a PhD programme that was much more American in spirit than most British programmes. That's to say we were very concerned to train people through master's degree and then to continue training and collective work right through the PhD. And all this is reflected, I think, in the quality of the work that's come out from CHoSTM's staff. If you are interested in CHoSTM, I think you should look first at its products!

Q9

Li: You have talk about some distinctive style about CHoSTM, so could you first at about the broader academic, like the research traditions in the history of science across different universities or institutions in the UK?

David: There are different traditions. There are different institutional arrangements. The Centre in Manchester was the British pioneer in combining the history of science, technology and medicine and I've been and been much influenced by the creator of that department, John Pickstone. But there were certainly other traditions. The history of philosophy of science was the most important, the pioneering tradition in Leeds, Cambridge, UCL. A broader kind of science policy tradition was important in Sussex and in Manchester. What came to be known as science and technology studies became a thing as well. And in the 1980s we saw the emergence of science communication. Now, in some places, those things are combined to different degrees, so we now need to recognise that as in our case, there is much history of science, and in particular history of medicine within History departments. Lancaster was perhaps the pioneer here. So, it's a complicated institutional picture. In fact, I think we don't have enough reflection on the varieties of institutional structure and its implications, nor on the range of traditions in play. Of course, if one looks globally, the variety is obviously much greater.

IV We Should Write the History of All Sciences

Q10

Li: What unique qualities and abilities do you believe are necessary for someone to become a historian of science, technology and medicine?

David: I'm tempted to say that one has to have all the good qualities of a historian and all the good qualities of a scientist or a technologist or a doctor. What I mean by that is that scientists, engineers and medics are very respectful of empirics but also theory and of the power of the combination of the two. As historians, we understand variety and difference across time and space which I don't think engineers, scientists and medics are particularly good at. We need to be able to understand that science, technology and medicine themselves change, the relation between empirics and theory change, the nature of theory changes over time.

Q11

Li: Could you discuss your expectations regarding future trends and important topics in research on the history of science and technology?

David: Well, one thing that we historians know perhaps better than anybody else is that the future won't be as we expect it to be. So I can't answer that question, except to say that I don't know what will become important. Of course, we can extrapolate from

current interests and say that fields not that big, compared to the field as a whole, might expand. For example, we might say environmental history will become more important. It might, but it might not. Things change. So I'm not going to make predictions. I think we have too much of that sort of argumentation, saying that this is the way the field ought to go, usually in effect saying follow me. I've always taken the view that we should encourage a thousand flowers to bloom, different arguments, different perspectives. We don't know what the future is; we don't know what's going to be productive. I think there is also far too much Whiggish History of our discipline, focused on very particular accounts of where we are now and self-serving accounts of the past. We tell each other we once did this, and we now do this. Well, actually once upon a time we did all sorts of things, and today we do all sorts of things. We need to understand and respect that.

Q12

Li: Currently, many Chinese universities are establishing departments of the history of science and are actively promoting the integration of science with humanities. Could you share some experiences about this?

David: I think it is important to have specialist departments of history of science, technology and medicine, separate from science communication and STS. But I think it's also very important to have such departments connected to history departments in some way. I don't mean institutionally necessarily, but that people in them should see themselves as historians as well as historian of science, technology and medicine. And that the academic standards should be those of history. I think it's very important that the agenda for the research in such departments, be not set by science policy or by the scientific community. I think there's been a tendency to say when the government was interested in say nuclear power, historians of science should be writing the history of nuclear power, or of particle Physics. Or when genetic engineering became important, people should write histories of molecular biology. I think we should write the history of all the sciences, not just the prehistory of those that are in fashion. The history of science and technology and medicine needs to have its own agenda. Alas, it rarely has.

There is something else relevant to this point I didn't mention when talking about CHoSTM. We have been and remain a very multilingual department. That's to say that people were working in many languages not just English. And people were writing about lots of different places other than the UK. CHoSTM's students coming from outside Britain have often not worked on their country of origin, but on other countries, for example a student from Colombia working on a Pakistani physicist, or a Greek student working on the British military industrial complex. So I am very pleased to see so many students from China are not just studying China.

Acknowledgment The author gratefully acknowledges financial support from China Scholarship Council (CSC) for her visit to the UK.

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