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the authors: was this just chance, and were there even more accounts of the ineptitude of male doctors (who would presumably have been much more often encountered) or could there have been some specific sense of rivalry between midwives and medically qualified women?

The midwife's tale can be heartily recommended for its vivid but unsentimental depiction of a lost world of women, and its undermining of myths about the "handywoman": neither a grimy-finger-nailed Sairey Gamp, nor the repository of lost treasures of female wisdom.

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ANTONY TWORT, *In focus, out of step: a biography of Frederick William Twort, F.R.S. 1877–1950*, Stroud, Glos., Alan Sutton, 1993, pp. xi, 340, illus., £25.00 (0-7509-0327-9).

The present volume has been long in the making, ever since the colourful and disbarred barrister F. J. de Verteuil, a friend of the Twort family, began an attempt to write a biography of F. W. Twort in the early 1960s, encouraged by the subject's widow, who had preserved her late husband's extensive collection of personal papers and correspondence. When de Verteuil died leaving only an outline of a few early chapters, the project remained in abeyance until after the death of Mrs Twort ten years later; and only in the early 1980s did the family decide to reconsider the possibility of a biography. The task has now been completed by Twort's only son. It is, then, a labour of love as well as of filial piety; the dedication suggests that such sentiments are perhaps directed more fully towards the memory of Dorothy Nony Twort, F. W. Twort's erstwhile assistant, who became his devoted wife and staunch supporter in all the ups and downs. For Twort's professional life was not without its vicissitudes; and this is not an uncritical biography.

In writing of his father, Antony Twort has chosen to provide a complex mixture, which includes family history with a touch of psychobiography, scientific biography, and in-depth recording of the many and varied controversies with scientific rivals, Army Medical Authorities during World War I, and what F. W. Twort himself regarded, not without some reason, the unfair workings of the bureaucracy of the funding bodies of the University of London and of the MRC. On the other hand, Twort's stubborn insistence on working in isolation, even without taking account of developments elsewhere, did not facilitate good relations with the authorities on whom he depended.

Today Twort is remembered by bacteriologists and virologists for a short paper published in the *Lancet* in December 1915. Under the title of 'An investigation on the nature of ultra-microscopic viruses', it recorded for the first time an observation of the effects of what d'Hérelle a few years later was to call "bactériophage". The question of whether d'Hérelle's observation was, as he himself claimed, independent, in that he had never seen Twort's 1915 paper, has been debated by medical scientists and historians ever since the first salvo was fired by Bordet and Ciuca in 1921. The bacteriolytic reaction first described by Twort became known as the "Twort-d'Hérelle phenomenon"; today nobody doubts the priority of Twort's observation, while recognizing d'Hérelle's contributions to further study of the phenomenon. Before 1915 Twort, with the veterinary surgeon at the Brown Animal Sanatory Institution, George Ingram, had made important contributions to veterinary medicine with their study of John's bacillus of pseudotuberculosis. Those studies were to remain Twort's greatest achievements.

There were several reasons why Twort himself failed to follow up his observations of the "bacteriolytic agent" before d'Hérelle moved in on the phenomenon. First of all, there was a war on; Twort volunteered and went out as temporary Captain in charge of a Base Laboratory at Salonika. It was here that he became embroiled in the first of many controversies, in this case with the Medical Advisory Committee over the origin of prevailing epidemics of dysentery: "bacillary" or "amoebic"? Events led to his resignation in what can only be termed a "huff". From then on, his hot temper and feelings of frustration and resentment of those in authority led him ever deeper into controversy. In October 1918, Rickman Godlee, Chairman of the Brown Committee, tried to offer friendly advice when he wrote: "I wish you could get this notion of slights and grievances out of your head. I'm afraid a talk with a practical man like me would do no good, but if you like to try . . . I am willing . . .". To his cost, Twort did not.

What is not discussed here, is what can only be called the declining years of Twort and of the Brown Institution, which were also the years when virus research was at last taking an exciting turn

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and approaching its definitive links with genetic studies, especially through studies of bacteriophage. The famous "green paper" by Timoféeff-Ressovsky, Zimmer and Delbrück was published in 1933; Schlesinger pointed to the resemblance in chemical composition of phage and of chromosomes, carriers of genetic information, three years later; the Wollmans in Paris made pioneering contributions to the study of lysogeny on the eve of their obliteration in the holocaust. On home ground, Bawden and Pirie, with Bernal and Fankuchen, published their paper on the liquid-crystalline nucleoproteins of tobacco mosaic virus in 1936. Phage work itself, which was to lead to the linking of studies on viruses with work on the genetic code and the tremendous advances of molecular biology after Twort's death, was getting under way during the war, even as the bombs fell on the Brown.

Thus it seems that Twort's early and obstinate decision to work alone, not to join in "team work" of any kind, gave him an exaggeratedly blinkered outlook. He doggedly adhered to a research style which had become moribund, and refused to move beyond its turn-of-century origins with conventional microscopes and conventional culture media in Petri dishes and test tubes. Not for him electron microscopes, ultra-centrifuges, or cultures on chorio-allantoic egg membranes; and perhaps no attempts to integrate the important results of others into his own thought processes and plans for future research. Perhaps, as his son suggests, his obstinate exclusivity, his insistence on being a scientific loner, was to some extent a result of his early life and upbringing as the eldest son in a family of eleven children of a Freemason general practitioner with rigid and uncompromising views on child rearing and education. We shall never know; but the story of F. W. Twort's early promise, with notable achievements withering into a catalogue of public controversies and thwarted hopes is ultimately a sad one. His son tells it objectively, warts and all.

Among a preponderance of family photographs in the illustrations, there are glimpses of the early bacteriology laboratory at the London, with Twort and his then chief, William Bulloch; and also the laboratories at the Brown, with Twort at the microscope, and he and his assistant, later wife, busily at work at the Bunsen burner. The sad photographs of the ruined Brown in 1944, and of Twort in final retirement at home, all show him with a cigarette clamped in his mouth. The first, preliminary, report by Bradford Hill and Doll on smoking and lung cancer was published in the same year Twort died of the disease, in March 1950.

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NAOMI PFEFFER, *The stork and the syringe: a political history of reproductive medicine*, Feminist Perspectives series, Cambridge, Polity Press in association with Blackwell Publishers, 1993, pp. vii, 235, £45 (hardback 0-7456-9821-3), £12.95 (paperback 0-7456-1187-7).

Today the newspapers and the media are frequently being hit with headlines of new scientific discoveries in reproductive technology, whether it be the birth of the latest test tube baby, the manipulation of embryos, or the miracle of hormone replacement therapy in curing the ills of menopausal women. Much of this reporting is tinged with a fascination for the wonders of science and casts a vision that such discoveries, appearing out of thin air, have no history. None the less, as Naomi Pfeffer demonstrates, many of these reproductive technologies have long histories and must be seen as the culmination of particular political, economic and cultural policies, and professional interests.

Much of this book focuses on the treatment of infertility, a subject which has hitherto received very little historical attention. Indeed, the issue has been largely ignored by politicians and the medical profession as a whole. Part of this Pfeffer attributes to the wider political and economic climate throughout the century. She shows that infertility was continually accorded a minor role in state and medical policies, whether they were directed towards pronatalism, as they were in the early twentieth century, or as has been the more recent trend, towards antinatalism. Only between the mid-1930s and the end of the Second World War did infertile women receive any political and medical recognition, but this was brief and quickly extinguished when the world increasingly began to direct its attention towards the population explosion crisis and the need to curb rather than enhance fertility.