

for negative prohibition rather than for positive criminalization.

Imaginatively used, law has a significant role in promoting the desirable conduct by intelligent arrangements of incentives and disincentives in a broad spectrum of activities. There are many examples of such use of law in society and the scope of similar use in the control of HIV/AIDS needs to be examined. The proactive role of law is one which requires a variety of informational input, policy coordination, monitoring, research and development. It envisages a sophisticated legal system with established institutions and standards. A law reform process should be built into the system. Interaction among different professionals, continuing education for actors in the system and adequate research and media support are necessary for law to influence social change in complex issues of human behaviour. Every society does use law in this role with varying degrees of success. Here law can well reinforce other forces of change in society. According to Julie Hamblin, the instrumental role of law to buttress other HIV/AIDS strategies is critical in the 1990s.

The papers raising these issues make interesting reading, particularly for those from outside the countries of their reference. A case study on labour legislations and labour relations from the Phillipines seeks more specific standards and guidelines from the law to compel employers to adopt more enlightened and human-rights-friendly approaches. Another case study from the same country examines the law on privacy and information in the context in HIV/AIDS and projects its potential for influencing positive behavioural change.

Family law buttressed by religious beliefs and the unequal and discriminatory status of women, particularly in family relationships, are the issues examined by participants from Malaysia and India, respectively. They bring out a variety of inadequacies in the existing law which inhibit proper awareness and positive responses to the AIDS syndrome.

The section on country papers includes ten contributions from as many countries in the region. They are a valuable source of information on the existing legal framework and to plan further action in the legal and ethical fronts. Comparative experiences from different countries are of great value to research-

ers and policy planners, particularly when the problem affects the entire humanity across political boundaries.

The third section, which claims to contain policy/strategy papers, is perhaps the weakest segment of the publication. Much of the ideas contained are repetitive and placement-rhetorical. The presentation of HIV epidemic as a development issue is not convincing enough. Critiquing the health care systems in the context of the demands of individual rights does not make much sense in the framework of a market-driven economy. However, a beginning is made by articulating the problem and questioning some of the established public health policies. Law has to be used, but with caution and restraint.

On the whole, UNDP Regional Project has done a great service in bringing the issues together and inviting the attention of researchers and policy makers, health administrators and human rights activists to the implications of an epidemic which may be the worst human disaster unless preventive strategies are adopted well in time. This is an issue as important as nuclear disarmament or environment protection. It deserves as much attention to world leaders and scientists as is being given to environment and nuclear arms. Perhaps the Secretary General may consider declaring the UN year for AIDS Awareness and Prevention and may take steps to convene a World Summit before the turn of the century to evolve concerted action to face the challenge.

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The Collected Papers of Albert Einstein - Volume 5 - The Swiss Years: Correspondence, 1902-1914. English Translation, Princeton University Press, Princeton, New Jersey. 1995.

Well before his passing away in 1955 at the age of seventy-six, Albert Einstein's name had become a household word

throughout the world. Aptly characterized as 'creator and rebel', through his work he profoundly altered forever our understanding of the natures of space and time; created a new theory of gravitation unparalleled for its beauty and significant for bringing geometry once more into the domain of science; and with Planck before him and Bohr after, opened the doors to the stunningly unfamiliar and rich quantum view of nature.

Already in 1950 Einstein had signed and sealed his last will and testament. His secretary since 1928, Helen Dukas, and his friend Otto Nathan were named joint trustees of his estate, with the latter being sole executor. Possibly due to their attitudes and perceptions of their responsibilities, the world has had to wait for almost four decades before Einstein's papers became available for open study and publication. Predictably, in the last couple of years and in tune with today's 'bare all' journalistic tendencies, there has appeared a rash of accounts 'exposing' Einstein's affairs, especially his relation to his first wife Mileva. On the scientific side, his collected works are yet to appear in final and definitive form; in contrast, those of Neils Bohr have been available now for a quarter century or so.

The book under review is the fifth volume of Einstein's collected papers, being published in English translation by Princeton University Press. It covers the Swiss years, 1902 to 1914, and is a collection of over five hundred letters written to or by Einstein. At about the beginning of this period, in early 1901, he had become a Swiss citizen. He came to Bern in February 1902 and a few months later, as all the world knows, he obtained employment in the Patent Office as 'Technical Expert, Third Class'. His father died later that year, and he married Mileva in January 1903. His sons Hans Albert and Eduard were born in 1904 and 1910 respectively. After seven years at the Patent Office, in 1909 he resigned to become Associate Professor at the University of Zurich. Soon there was a brief move to Prague, then a return to Zurich but this time as Professor at the ETH. This too was not to last very long, as an irresistible offer took him away to Berlin in early 1914. Also, towards the end of this period, the relationship with Mileva was breaking up, and he was getting very

close to his cousin Elsa Lowenthal, whom he was to marry in 1919.

In his physics, we see Einstein at the start of his career, with rare independence and boldness in his conceptions, slowly gaining recognition from his peers, until he matured into the acknowledged and unrivalled master. The period of this volume covers 1905—the 'annus mirabilis' when he sent his three epoch-making papers on Brownian motion, special relativity and the photon concept to the *Annalen der Physik*; the holding in 1911 of the first of many memorable Solvay Congresses in Brussels; and the initial insights and understanding of relativistic gravitation which culminated in 1916 in his general relativity theory.

Einstein's major correspondents in these five hundred and odd letters were his friends from youth, a few members of the family and some of the leading physicists of those times including his seniors. Such a volume has certain inevitable drawbacks as one cannot read the contents as one might read a novel or biography or a properly written account of some scientific topic. There are gaps, often an answer to a letter no longer available, so one is left guessing. Nonetheless one gains a general impression of the growth of Einstein's scientific ideas, the development of personal relationships, the steady increase in his confidence and depth of understanding and independence and strength. We also see how scientists interacted with each other in those times. We are reminded too that Einstein was not always a grey eminence with a saintly halo, but was once a young man on the threshold of life, with all the feelings natural to such an age.

Given the scale of his accomplishments, Einstein is often compared to Isaac Newton. What emerges from these letters is that Einstein had really a very easy-going nature, willing to joke with others in a light-hearted and playful manner, and no signs of malice towards anyone—all in all, a contrast to the somewhat dark, secretive and vindictive Newton. He seems to have had a balanced view of people and circumstances, and an ability in many ways to distance himself and stand apart in judging any situation. Also of course the strength to get to the heart of any scientific matter and to be concerned with the fundamentals.

On the family side, one is surprised to see not a single reference in any letter to the death of Einstein's father in October 1902. Indeed, even letters between Albert and his mother Pauline are quite rare, and he was very much aware of the strains between her and his wife Mileva. There is a 1903 letter of Einstein to Mileva, which refers to a daughter Lieserl born to them before marriage. In the early exchanges between them, one sees much affection and use of pet names, much warmth. But as the years go by, these wane. Towards the end of this volume there are many letters from Einstein to Elsa, though few replies, bringing out his dependence on and need for her company. A quite amusing letter to one Georg Meyer asks the latter to 'bear no grudge against your good wife, who did nothing wrong—a reference to an early attachment of Einstein's? All this goes to reinforce the contrast with Neils Bohr's family background—a stable and caring academic atmosphere, and a deep and cordial marriage that lasted many decades.

On the scientific side, we see Einstein's early concerns with the foundations of thermodynamics, attempting to develop them from the atomic-molecular point of view. These are generally not as well known as Boltzmann's and Gibbs' endeavours; they remind us sharply that there was a time when the reality of atoms was suspect, and that too not so long ago. We also see how he was simultaneously grappling with diverse foundational problems—thermodynamics, electrodynamics, nature of space-time, nature of radiation, the quantum puzzle—none of which would 'leave him alone'. It was a ceaseless struggle to penetrate the secrets of nature, on many fronts, not always only the deep and beautiful but also often the most practical. His interests in problems of chemistry, bringing out again the molecular basis of matter, were recurring. As a young man, his letters to both Lorentz and Sommerfeld show the greatest of respect. Indeed we can say he regarded the former as a kind of father-figure. Describing Lorentz's handling of the sessions at the first Solvay Congress, Einstein says 'Lorentz chaired the conference with incomparable tact and unbelievable virtuosity'; and elsewhere calls him 'a work of art'. In an early letter to Sommerfeld, in

1908, Einstein expresses the wish that he would like to 'perfect my knowledge of mathematical physics' by sitting in on Sommerfeld's lectures. The early letters to Stark and Lenard are also very respectful; but thereafter references to the latter are quite disparaging. These two were later to be in the forefront of the antisemitic attacks on Einstein.

Many of the letters are detailed exchanges of views on scientific problems in a leisurely and open manner that in today's competitive atmosphere are practically unthinkable. The struggle with the photon idea, and Lorentz's detailed analysis and criticism of Einstein's conceptions, are most revealing, though with today's understanding they may seem not very relevant. One misses however, and sadly, the three 1905 letters of submission to the *Annalen der Physik*. On the professional side, one is treated to the hilarious game of musical chairs among the German-speaking universities of the day—a new occupant of a chair at one place immediately waiting to 'receive a call' to move to a better place. During Einstein's brief tenure at Prague, he expressed himself quite frankly against the bureaucracy, stifling traditions and poor quality of students of the place. The several efforts to lure Einstein to Holland, at times involving Lorentz, are part of this drama of constant movement.

Towards the end of this volume comes the phase when Einstein was working feverishly, sided by Marcel Grossmann, to create his new theory of gravitation—the many insights, false leads, the realization that mathematical structure has a great role to play alongside physical reasoning. And on the personal side, the growing relationship with Elsa. To the reader too, hopefully, should come the realization that these letters, and especially the earlier ones which were presumably written with no inkling that they would one day achieve archival value, ought to be read with consideration and a sense of humility.

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