REVIEW AND ANNOUNCEMENTS

Science and Ethical Responsibility. Ed. by Sanford A. Lakoff. (Addison-Wesley Publishing Company, Massachussets, USA), 1980. Pp. xii + 331. Price $ 17.50.

One of the enduring myths of modern life is that what the older people can do, the younger can do better. The myth has been exploded time and again; yet it persists. That creativity, insight and erudition are by no means the prerogatives of the young; that maturity and experience are valuble assets in life, have been repeatedly demonstrated. And it is a tribute to the young that they keep deluding themselves that they alone are the deliverers of humanity from the predicaments in which it currently finds itself.

The latest and perhaps the most extravagant effort to induct the young to the responsibility of resurrecting the world is the so-called U.S. Student Pugwash Conference held in the University of California, San Diego, June 19–26, 1979. The book under review is the proceedings of this conference.

It will be recalled that after the last world war, an indignant Bertrand Russell and a deeply concerned Albert Einstein joined hands to try and stop the destruction which, they were convinced, nuclear weaponry would create on this earth. Thus was the Pugwash movement born. The first meeting, under its auspices, was held in 1957, in Pugwash, the small Canadian home town of Cyrus Eaton, who financed the meeting. Neither Einstein nor Russell could attend. The former was dead and the latter was sick. But that hardly mattered. Everyone of the twenty gathered there bemoaned and wrung his hands at the state of the world.

With almost unfailing regularity, the conferences, now called Pugwash Conferences, are held in different parts of the world, and great men of science (and some not so great) have ventilated their spleen at the state of the world.

That the central problem of the first Pugwash of 1957—"Threat of Nuclear Wars"—continued to prevail even today was indeed a tribute to the effectiveness of these conferences. However, this was too much for the young people in the U.S., particularly to the highly dynamic and restive undergraduates of the San Diego Campus of the University of California, who thought it was time they took a hand in this affair to which the geriatrics of the successive Pugwashes had not found a solution.

Thus was born the Student Pugwash. Lest any one think that this was a junior edition of the original, it was made abundantly clear to all that while the elder Pugwash was meant to solve the problems of Man in the present-day world, by 'consensus', the role of the new Pugwash was to 'understand' these problems. That the older people had met together more than 20 times and had tried to solve Man's problems without trying to understand them was not implied by this declaration. It was explicit. It was not only a measure of the boldness of the young; it was also an invitation to brashness.

So, they all met in San Diego, on the beautiful California coast, —mostly students of U. of C. A few came from far off places—like Texas, Princeton, and of course Harvard (for how can you hold a conference in the U.S. without someone from Harvard ?), and a few from other places in the Mid-West and the East. One came from Ghana in Africa; but poor fellow, he didn't say a word,—nor did the one from Italy. It was refreshing that the organizers later regretted that no minorities and no third-world representatives were present.

It was clear from the start that the conference couldn't quite get along without the elderly. So, Roger Revelle was there, expressing himself on his pet theme of his concern for Asia; Herbert York was there too; —two stalwarts of the original Pugwash, along with an assortment of casuals,—Bernard Feld, Clifford Grobstein, George Kistiakowsy; and administrators of science like Alex Morin, Herb Scoville and Jeremy Stone. And of course Jonas Salk,—was not San Diego his home ? And what if he cannot prepare a paper for this group of callow youths ? A chapter from his book 'Survival of the Wisest' should do for the present.

The result was not only clear, it was foregone. Almost everyone condemned the world as it was going. Some condemned it more than the others. Scientists were made aware of their ethical responsibilities; that 'ought' problems were different from 'is' problems, that 'value systems' should somehow enter into the calculations of technological research.

The arms race, the Salt II treaty and the role of the scientist in these were powerfully stressed, with the revealing conclusion that scientists, however eminent, can do very little in the present situation without the involvement of the politician and the policy maker. That all these had been covered by the real Pugwashes earlier, and at their annual junkets these themes appeared at their discussions with unfailing, almost meticulous, regularity, was no problem. The students, the younger generation, the makers of the

world, had to be educated in the ways, as well as the wiles, of the world.

How can one talk of Ethical Responsibility of Scientists without reference to recombinant DNA research ? That we have dealt too long with nuclear weaponry became clear by the boredom of not only scientists but also politicians with this subject. They had talked too long and too loudly about it. That Man was on the verge of total extermination consequent on the employment of the superpowers' nuclear arsenals was largely melodrama. That he would have the ingenuity, the resources and the scientific means to survive even the worst of nuclear holocausts was also clear. What if some of his artefacts disappear ? New, and perhaps better ones, can always be built.

But not so with recombinant DNA research. The spectre of new organisms created by man was too startling to contemplate with equanimity. This was not extermination, but creation, directing evolution along lines different from those which Nature meant. Man was playing God here. Several old hands,—Jonas Salk, Clifford Grobstein, Craig Shapiro spoke, largely what they had spoken elsewhere. Some younger ones too did, borrowing ideas which the older ones had already expressed. The problem remained almost where it was. 'Do Recombinant DNA Research' said some; 'Don't', said others. How refreshing, and how new ?

There was a session on Scientists and Political Issues. Nothing new here either; scientists are scientists, politicians are politicians. Never the twain shall meet. Each goes his way. Result : hazardous substances accumulate; the green revolution is not so green any more, population growth goes on unchecked; new and more lethal arms are continually developed; the environment becomes increasingly polluted; energy problems multiply.

And so, what is new ? Almost nothing. It is silly to believe that the problems which scientific and technological research have thrown up, particularly during the past 50 years, are likely to be solved by either the young or the elderly; or even that such conferences as the student Pugwash can help solve them.

These are all exercises in futility. That scientists have not been conspicuously successful in solving the problems which scientific and technological research has created is obvious. There is no dilemma here. The duty of the scientist is clear. He has to go ahead regardless of the consequences of his research or its impact on society. No global mandate can be served on him in regard to the areas of research he should pursue. On the other hand scientists have a duty to educate the politician, the administrator and the policy maker as to the consequences of scientific research. This has not been done with either vigour or effectiveness. Also, the scientist rates rather low in the estimation of the politician. Only when the recognition comes both to the governments and the people that science has the power of changing the course of human events, only then does society begin to heed the advice of the scientist.

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ALL INDIA SYMPOSIUM ON REGULATION OF FERTILITY

Under the auspices of the Endocrine Society of India an All India Symposium on Regulation of Fertility will be held during October 3–5, 1981 at the University of Hyderabad, Hyderabad. All aspects on Regulation of Fertility in both males and females will be discussed. The Symposium will consist of invited papers, free communications, poster sessions and two round table discussions.

Last date for sending abstracts of papers is August 14, 1981. For details please contact : Dr. P. R. K. Reddy, Organising Secretary, School of Life Sciences, University of Hyderabad, Hyderabad 500 134.

EUROPHYSICS CONFERENCE ON SOLID STATE PHYSICS 1982

The Second General Conference of the Condensed Matter Division of the European Physical Society will be held at the University of Manchester, UK, from 22–25 March 1982 under the Chairmanship of Professor V. Heine, Cavendish Laboratory, Cambridge. The Conference is organized by the Institute of Physics and further information will be available in June 1981 from the Meetings Officer, The Institute of Physics, 47, Belgrave Square, London SW1X 80X.

OBITUARY

K. VENKATARAMAN

(June 7, 1901–May 12, 1981)

The demise of Dr. K. Venkataraman, on 12th May, 1981, brings to a close a long and distinguished career leaving behind a lasting influence on Indian scientific and technological development.

Krishnasami Venkataraman took his B.Sc. (Hons.) degree from the Presidency College (1922) and joined the Indian Institute of Science for his research work. His first scientific paper, published independently (1924), concerned isolation of Bixin, a pigment from *Boxa orillana* Linn. All his subsequent research interests could be traced to his early fascination for the chemistry of natural colouring matter. He went to England to take M.Sc. (Tech.) in colour chemistry, and Ph.D. degree with Sri Robert Robinson, at Manchester (1928). After returning to India, and a brief period again at the Indian Institute of Science, he took up the position of a Reader at the Foreman Christian College, Lahore. The Lahore period (1930–1934) was quite fruitful. He trained a number of students and published over ten papers. The Baker–Venkataram transformation was discovered at Lahore (Mahal and Venkataraman, *Curr. Sci.*, 1933, **2**, 214; Baker, *J. Chem. Soc.*, 1933, p. 1381; Mahal and Venkataram, *J. Chem. Soc.*, 1934, p. 1767).

He was offered the Readership of the newly formed Department of Chemical Technology at Bombay and later invited to the Modi Chair (1935–1957). At Bombay Professor Venkataraman built a vigorous school of research in natural and synthetic colouring matters, dyes, and also on some technological aspects of dyeing. He organized and gave a shape and direction to the Chemical Technology Department. Dr. Venkataraman was invited to take the Directorship of the National Chemical Laboratory. At Poona he gathered around him some of the most promising young scientists and gave them facilities and opportunities to fructify. The vigorous school of research in organic chemistry which he organized is unsurpassed in India before or since.

Professor Venkataraman has trained over 85 students and published about 250 papers. He was on the advisory and editorial boards of a number of journals including *Tetrahedron*. His eighth volume *Chemistry of Synthetic Dyes* is a definitive reference, used throughout the world. It has been translated into Russian and Chinese languages.

Prof. Venkataraman has been honoured with the award of honorary degrees of Doctor of Science by the Mendeleev Institute of Chemical Technology and fellowships and honorary fellowships from a number of foreign and national academies including USSR Academy of Sciences, Polish Academy of Sciences, Indian Academy of Sciences (Vice-President), Indian National Science Academy. He was a member of the Current Science Association and also member of the Working Committee during the years 1956–1961. He was awarded the Padma Bhushan in 1961.

For persons who had known him, K. V. was a dedicated scientist and a very friendly person with great personal charm. His sense of humour, his alert mind and genuine humility would make great impression on all persons who met him. He had a rare ability to establish rapport with the old and the young. He could be, on the endliest terms with Sir Robert Robinson, Robert Woodward, or Herbert C. Brown and also with newest graduate student who might be 50 years his junior.

Perhaps a dozen words in the English language are all that are left to tell the story of the preeminence, once enjoyed by India in the field of natural dyes and textiles for over 3000 years. Crimson, Aniline, Indigo and Catachol are a few of these words. The advances of organic chemistry, with discoveries of Perkin, Baeyer and Heuman, dealt a death-blow to the Indian industry. Dr. Venkataraman used organic chemistry to help Indian industry to get back into the game.

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