apparatus) ranging from Rene Descartes' explanation of natural phenomena, Poliniere's 'fountain in vacuum', Haukshee's electric machine, etc. to the apparatus describing parabolic nature of trajectories and Nollet's several electric experiments.

The author also points out in his book about the relation between the Church and Science. The great conflict so frequently portrayed between Church and Science, between stultified authority and ingenious reasoning simply did not show itself during Louis XIII. The French catholism never felt particularly challenged or threatened because of development of new science. According to the author, the conflict between ancient and modern learnings occurred not in the field of science but in the field of literature which is rather not so common.

This is an excellent and informative book for those who want to study the history of Science, and get a 'feel' for how it was developed in a polite society like that of France during Louis XIII, XIV and XV era. The only flaw that I could find in the book was that it is 'heavy' reading for those who are not students of the history of science.

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Quantification and the Quest for Medical Certainty. J. Rosser Mathews. Princeton University Press, 41 Williams Street, Princeton, New Jersey 08540, USA. 1995. 195 pp.

The least one can say is that this is a fine book. It tells us the story of people who passionately involved themselves in doing the right thing for their times as well as for the future. Introduction of statistical reasoning in medicine, as an obligatory need to know if we are really helping the patient by our remedies, has been no small exercise. I have no doubt in recommending this book to any one who is reasonably interested in biomedical research/profession and biometry in any form. I will paraphrase the ideas that the book spurred in my own thinking to illustrate how current such an account can be. Moreover, a review should not be a potted book. I would say, there is much to learn for the contemporary medical man in this. There is even more to learn for the statistician, who often is ignorant of the travail that goes into the treatment of a disease or the research associated with it. What impressed me in this book is the ability to evoke many parallel thoughts without forcing them on to the reader in an otherwise historical account of quite a technical nature.

The concluding chapter highlights the professional concerns of the author. There is the parallel between the Kuhnian revolution in the dominant paradigm of the feel for the nature of objectivity... amidst the disciplinary, the procedural, the dialectical and the absolutionist notions. Relevance to contemporary problems like AIDS has also been touched upon. But there is more.

First there is this question of the primacy of the individual in medical profession as opposed to the patient merely representing a number. Does representation of individual suffering and anguish as a part of statistics dehumanize the essence of medical practice? The debate starts there with the French school. If Hippocrates forbade the use of knife on a man with stone, what misery, what anguish has gone in to record this to posterity as a solemn oath that all of us have taken? Balance this against the imperative of public health, the desperation of an epidemic or the illness and death associated with squalor and deprivation. A few have identified themselves with the need to bridge the gap between mathematical sciences and medicine which were otherwise quite separate in those days, and even today. It takes a commitment of a different kind to fight for a method and a principle, ignoring immediate job satisfaction that the physician/surgeon has. The Halsteads were apparently no exception to succumbing to the particular and forget the general and the statistical.

Much has been stated about this Calvinist enthusiasm in the birth of science in the old continent. Again the revolution, an year after beheading Marie Antoinette, gave the primacy to physical examination, autopsy and statistics in the management of medical matters. The fight has been right. If Louis, the protagonist of the number game is to be believed, the mean value between competing therapies would tell us the merits of each. But then mean value did not tell us something about the uncertainty associated with it. Then came the Poisson ratio of 212:1 or 0.9953 as a standard of certainty (tending to unity). The odds became too high. There is nothing more pleasurable than to attack your opponent with his own figures. And medical history, as with science, has been full of such instances.

The drama is not restricted to only fights about numbers. Attitudes and personalities have all been touched upon. If Karl Pearson would rather sack Pearl from the editorship of *Biometrika* than allow him to commit heresy against his own pet theme of Eugenics, it sounds all too familiar. These lows are also accompanied by highs. If Greenwood would rather spend time in the newly instituted Medical Research Council (started as MR Committee at Hampshire) educating the ignorant bureaucracy in medical epidemiology and statistics, Pearson would rather have one attend to important research than attend to educating the minions; the conflict of perceptions becomes obvious. The stoicism involved in spurning a cushy research position to a more prosaic posting in public health becomes all the more appreciable when we realize that the efforts at helping build MRC did not go in vain either. This reminds one of what Effraim Racker once said: even if the government forces you to do applied work, if you proceed logically enough, you will soon be doing very basic work. Ultimately the movement across the old and new continents culminated in the pathbreaking work of Hill in the design of a randomized clinical trial, borrowing and building upon Fisher's random block design which was so successful in agriculture. This led to safety for the public that an untested drug shall not be bestowed upon us, thalidomide notwithstanding.

It is beyond the scope of the book and, perhaps, the author's expertise that he did not touch upon the relevance of the study on contemporary issues. I will mention just a couple of instances wherein this book would give much for thought. The increasing frustrations in pharmacoeconomics require that the cost of drug testing be brought down. The obvious area would be in the clinical trials. The testing is so expensive that the drug throughput is largely minimized by the prohibitive costs and time in drug testing. Also, as gentler drugs that improve quality of life are being thought of than cure in many instances, what does the investigator do in

the face of insufficient level of significance? Lowering the requirements would allow more placebos to enter the market, while elevating it would mean better throughput of drugs at the loss of some gentler drugs since elimination is more stringent. Then there is the question of competing risks for which no good method exists. There are hardly any serious medical situations that are not characterized by competing risks. Mean, variance, limits, levels of significance, all these have been continuously revised and we now find that we have not addressed ourselves to the basic question that the risks are not in isolation and often compete. The second question relates to whether medical care has become more blurred incidental to introduction of decision by numbers. Anyone who is familiar with the Western medical care, is only too familiar with the impersonal handling without involvement all too well. A patient is a number in Blue Cross or Blue Shield, part of the managed care etc... a dot in the economic horizon for the entrepreneur. This state of affairs has definitely come with some academic backing! How much has the preoccupation with objectivity led to a changed psyche that dehumanized the patient care? Does the largest good to the largest number of people have an idealogical overtone?

How much has the same lack of objectivity sustained the East, locked up in its own medical systems at a substandard level of patient care, unquestioned by the tradition-bound uncritical public merely due to anecdotal successes? The book definitely raises many parallels to the contemporary scene. I guess that is what makes history fascinating. It holds a mirror to the present.

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