



SOCIETY OF ACTUARIES

Article from:

The Actuary

May 1971 – volume 5 - Issue 5

HURT NOT THE EARTH!

by Arthur Pedoe

Actuaries are much interested in human mortality; what about the survival of the human race?

"Put bacteria in a test tube, with food and oxygen, and they will grow explosively, doubling in number every 20 minutes or so, until they form a solid, visible mass. But finally multiplication will cease as they become poisoned by their own waste products."

This is the first sentence of a recently published book by Gordon Rattray Taylor, the author of a world best-seller, *The Biological Time Bomb*, (reviewed in *The Actuary*, October 1969). This dealt with the biological achievements which predicted an addition of 50 years to man's life expectancy by the year 2000.

The new work, *The Doomsday Book*, has the theme that mankind is heading for a catastrophic population crash, possibly within the next 30 years. It is not science-fiction. The introduction gives some 70 acknowledgments for assistance to authorities throughout the world (a majority in the United States). The selected references cover 20 pages.

When the book appeared some months ago, much publicity was given to the reference to the environmental (ecological) disaster arising from the Aswan Dam in Egypt, a project which was abandoned by the United States and later taken over by the Russians. Lake Nasser, some 200 miles long, was created. The rich organic silt which used to flow through the Nile and which created Egypt, was held back by the dam and artificial fertilizer has now to be used. The loss of water by evaporation in a semi-tropical area may result in less water being available for irrigation than before. The slow-moving warm water in the irrigation ditches has proved an ideal breeding ground for *bilharzia*, the disease from which it is said 70% of Egyptians in Lower Egypt suffer. Among other ecological disturbances is the destruction of the fishing grounds in the Nile Delta, which was the main industry of a population of 19,000 people.

This detail illustrates what has been going on in various parts of the world. In 25 years, the use of nitrogen fertilizer in the United States has increased 14-fold and much of this is washed into the rivers and lakes where it fertilizes the algae. In decay they extract oxygen from

Actuarial Meetings

- June 10, Baltimore Actuaries Club
- June 10-11, Canadian Institute of Actuaries, Niagara Falls
- June 10-11, Southeastern Actuaries Club, Point Clear, Ala.
- June 16, Chicago Actuarial Club
- June 16, Seattle Actuarial Club
- July 8, Baltimore Actuaries Club

the water, with the result that fish, bacteria, and other forms of life die.

Lake Erie has received much publicity regarding pollution, as some 80,000 tons of nitrogen pass into it each year from farmlands and municipal sewage (untreated). It is stated that Lake Michigan is in a worse condition. The ever growing need for power poses a problem. Power plants require huge volumes of water for cooling, and nuclear power stations need about a hundred times that of others. Around Lake Michigan, apart from 24 fossil fueled power plants, are two nuclear power plants and seven others under construction. In a hot summer, with ever increasing power plants this thermal pollution can become serious.

Rattray Taylor has been accused of sensationalizing the situation, but he feels that the public does not realize the dangers of the coming ecological disaster. There is scarcely a page in the book from which a point supporting this could not be quoted. Jet aircraft contrails stimulate the formation of clouds so that with increasing air travel and increasing size of airplanes we could have permanent cloud cover, seeing blue skies only on rare occasions.

Much publicity has been given to the dangers of mercury poisoning and the increasing use of mercury in industry. Years ago when beaver hats were the fashion for men and the fur played an important part in Canada's infant economy, the hat makers dressed the furs with a mercury compound, the fumes from which gave them mercury poisoning which caused a curious mental disturbance. This is why hatters are proverbially mad and explains The Mad Hatter at Alice's Tea Party.

The book deals with many other pollutants: lead (gasoline), asbestos (brake lining), oil spills from ships, D.D.T., carbon dioxide and carbon monoxide;

also man-made earthquakes. Reference is made to the problem of radio-active wastes which affect living tissue, transmitting mutations from offspring to offspring for an indefinite period. Taylor is very critical of what some public authorities call "acceptable doses."

The problem is dual: the increase in population and the destructive potential of modern technology. According to current forecasts the world's population is doubling every 35 years and will be at or near 7 billion by the year 2000 and may double again by the year 2030 if the world has found out how to feed 14 billion people.

Even now starvation is rampant in many parts of the world. The book refers to the shanty towns thrown together from discarded gasoline cans and what-have-you which adjoin many cities in South America, Turkey, and India.

With so much opposition to any moves for population control, it is surprising to note how little such moves as contraceptive practices will reduce the overall growth rate of population—as at present, perhaps 5%. Formerly the high death rates in infancy and childhood solved the problem of large families. Can we convince couples that the number of children per family should not exceed two? Governments and industry favour large populations and many encourage such in their systems of social welfare.

Rattray Taylor believes that before inadequate food pressure becomes critical there will be a population collapse in certain parts of the world due to stress which has been observed among animals after a population explosion.

There has been a dramatic increase recently in public interest in the matters dealt with in this book. How can we increase this? With the increasing and serious nature of the problem one can well be shocked at the lack of knowledge of some of its important aspects, the poverty of research on them, and the trivial amounts spent on investigation.

The preface to the book gives a description of a Population Crash taken from The Revelation of St. John the Divine from which the title of this article is also taken; the angel of mercy pleads: "Hurt not the earth, neither the sea, nor the trees . . ."

(*The Doomsday Book* (335 pp.) is published by Thames and Hudson, London; World Publishing Co., New York; Oxford University Press, Toronto).