

The Role of Science in International Understanding

(Address delivered by John Tuzo Wilson, Professor of Geophysics, Toronto University, at the 36th Fall Meeting, October 1, 1962, Toronto, Ont., Canada.)

IN SPITE of the attention given to Sir Charles Snow's comments on the split existing between "The Two Cultures," I think that in the long run Sir Eric Ashby's view that technology provides the link between them will be found more true.

My own view is that the complex history of civilization may be broken into three vital steps each leading to a higher level of culture.

The first and greatest step was that which raised mankind from the level of animals to that of the primitive savage. This was not a social achievement for the manner of life and organization of primitive savages, living by hunting and gathering is not essentially different from that on many herds or tribes of higher animals. The achievement was an evolutionary one extending over a period of a million years which led to the discovery of the individual, the realization by each man of his abilities, and his skills, the development of patience to talk and to listen instead of gibbering, the discipline of using tools instead of brute force. This development of the individual entitled this age to be called that of the Arts. Great as this step was which created humans, it still left all men poor and illiterate. The next step was by comparison quickly and easily made. It was not due to evolution or a change in mankind, but due to technological discovery of agriculture. This enabled men to congregate into larger fixed communities and this led to the need to discover society, entailing as it does law, great religions, armies, government, building, irrigation, arithmetic, reading, writing and the learning of the humanities. The skills of the individual were not shed; on the contrary the Arts flourished. This was the age of the Arts plus the Humanities. Great as was this advance, and richer as men became, there was not enough wealth to go round and this was the age of equality. Only some men were rich, only some were literate. Slavery, class inequality and ignorance continued to flourish amid the burgeoning of new ideas and hopes.

The third step was the discovery that besides disciplining himself and organizing society man could harness nature. Of course, nature could not be tamed by science without patience in humans and orderliness in society so this third step includes the Arts (of the individual), the Humanities (of society) and the Science (of nature). Those fortunate nations which have reached that third stage have wealth, learning and equality for all.

Few people today remain in the first and primitive state, only a few fortunate countries in North America, Europe, the Commonwealth, Japan and Israel have reached the final stage. They are "have" nations. Most countries are still in the second stage—"have-not" nations without enough science, wealth or education.

I would suggest that it is not Arts or the Humanities that countries like India or China lack, but rather Science; Science to make them rich and enable them to be better educated, more tolerant, healthier and we hope happier.

The passage from the second to the third stage, often called an industrial revolution, has not been an easy passage for any country. The problem which the world faces regarding science is how to spread its use and knowledge in countries which do not have it, how to make its beneficent powers better understood and appreciated in those countries already influenced by it.

The view that science has not produced the millenium and has, therefore, failed is nonsense. The million years during which man evolved and the Arts were developed was a time when warfare, misery, famine and disease were constant companions of man.

The ten thousand year long rise of the humanities and of the agricultural civilizations, great as were their contributions to learning, to society and to human thought, were years of constant warfare, disease, recurrent famine and dark misery amid moments of glory.

To suggest that science is not a success because it has not removed these evils in the two hundred years that it has had any influence is asking too much. So far from failing, it has had a vast influence for good.

You know of and many of you have experienced like myself the opportunity to visit or to read in journals of the work of fellow scientists in any other country of the world. Due to science, communications and transport have so reduced the world that we all know what is going on even if we don't approve. In contrast, no European ever saw, or at least none left any record of seeing, the great civilization of China during its two thousand year rise to greatness. Marco Polo only arrived in the capital a few years after it had fallen to the Mongol invaders and the stories he brought back of it we did not believe.

We may have terrible weapons, but there is at least some fear about using them, some attempt to settle differences peaceably. In spite of them the world has never held so many people, nor have they ever been so healthy. We do not expect to starve, we can cure many diseases. Technically we know how to spread our knowledge. The barriers to that spread are economic and political.

The problem scientists face is how to take their place with the experts in the Arts and Humanities in the control of society. How to convince the others and train ourselves that the full man and the sound policy must depend upon realizing the limitations of the individual, the needs of society and the potentialities of science.

Rather than being pessimistic of today's news or someone's heinous errors, I think we ought to realize how fortunate we are to live in countries where science has been combined with older wisdom, to live in an age of growing enlightenment, to see the vast good science has done in only two centuries, and we should seek in humility and patience, not as scientists, but as citizens (although particularly well-educated ones in science) to spread that beneficent addition to human tolerance, understanding and welfare.



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