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Why you should keep looking over your shoulder

Society is not likely to make sense of its technological future until it has some understanding of its past. Walter C Patterson argues that today's distrust could turn into tomorrow's distress.

Every scientist, every engineer, stands in Newton's words, "on the shoulders of giants." It is ironic that in the world of science and technology the public seems to have lost sight of the past. Working scientists and engineers are well acquainted with those in their particular field who have come before. But the public, including our leaders and decision makers, seem to have scarcely any overall historical perspective on the science and technology which have shaped our present surroundings and attitudes.

By historical perspective, I am not invoking Archimedes or Aristotle. I am talking about the history of the last 50 years. There is hardly a field of human endeavour which has not been radically reshaped, within two generations, by the impact of science and engineering.

The reshaping has affected not only our physical surroundings, but also our social organisation, our premises, and our values. So, why do we continue to accept the crippling delusion that science and technology always imply only "the future"? Why do we pay so little public attention to how we got this far, under the influence of past scientific and engineering discoveries and decisions?

Our scientific and technical past – the recent past – has established the momentum which now carries our society along. It has also established many of the institutions which now guide us towards the eponymous futures which so fascinate us. The momentum and the institutions created by the recent past of science and technology are crucially important influences on the many scientific and technological policy decisions society faces: decisions about food production, energy use, transport and telecommunications, education, medicine and public health, water supply, information and data processing, industrial policy, defence – the list is endless.

Yet in the face of this daunting social agenda, the general public's present attitude to science and technology appears to be almost uninvolved – blasé if not disenchanting.

Thirty years ago the public was in the main uncritically keen on futures, the gee-whiz wonders of science and technology: detergents, jet aircraft, plastics, television, antibiotics, and the like. Now the public pendulum has swung to the other extreme.

We take the physical and social benefits from science and technology pretty much for granted, but we rarely associate them with the originators. The conventional media image of the scientist is either a harmless eccentric, or a dangerous looney trying to rule the world, or a lab-coated con-man selling snake oil on television.

It is profoundly ironic that the average citizen now is most often impelled to devote personal study to some recent scientific and technological history in order to oppose its consequences: to head off a future believed undesirable. Canvey Islanders find themselves studying the technology of liquefaction of natural gas; residents of Mossmorran familiarise themselves with ethylene chemistry

and dwellers in the Vale of Belvoir learn the ins and outs of coal mining; Orcadians are genned-up on uranium mining; activists in every corner of the country struggle to acquire a grounding in basic nuclear engineering. Yet even these powerfully motivated citizens fail to realise how profoundly the future they anticipate is being conditioned by the past that has gone unnoticed: how past decisions were made, criteria laid down, institutions set up.

Politics, economics, art, literature, music, architecture, law, are all human activities explicitly based on an acknowledged past, and the past gets a lot of current attention. What gives rise to the popular feeling that science and technology have no past? - when they pre-eminently, of all human activities, are based squarely on an exciting, exhilarating past, abounding in remarkable people and striking ideas.

Lord Snow, who died earlier this month, will be remembered in the popular mind particularly for his description of the two cultures of the arts and the sciences. The split between the cultures was already a matter of concern at the time of Snow's original lecture in 1959. In the ensuing two decades, science and technology have become more pervasive in society and more generally distrusted. This distrust may arise because people fail to realise that science and technology are an inherent part of the history of human society.

There is a common public conception that science and technology are somehow dehumanising influences on society. This is a shallow and profoundly dangerous generalisation, which could be most easily dispelled by a wider acquaintance with the recent scientific and technological past: not just the published papers and disputations, but the people behind the papers.

Consider the scientific and technological decisions now on the table in Britain alone: the future of the proposed British microprocessor industry; biotechnology; advanced coal conversion technology; the fast breeder reactor; space research; high energy physics; and of course, the commitment to purchase Trident missiles to replace Polaris. Each one of these decisions will have a profound influence on our future.

But we cannot see the future except in the rear-view mirror of the past. In many respects our most reliable rear-view mirror is the one which focuses on science and technology. Professor John Ziman once called science "public knowledge." Our "public knowledge" of science should explicitly encompass not only the present, but also the past. If we continue to overlook the past, the future will continue to take us by surprise; and we shall have no one to blame but ourselves.

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