



# Twentieth Century Futures Thinking: From Amateurs to Experts

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In 1901, for the first time in human history, a new century opened with both an enthusiastic tribute to the unprecedented achievements of the past and highly optimistic expectations of the good things still in store for the major Western technological societies. Right on cue the self-appointed prophet laureate of the new age, H G Wells, looked into the future and gave the readers of the *Fortnightly Review* (April-December 1901) his account of tomorrow's world in the monthly instalments of 'Anticipations: An experiment in prophecy'. He opened the first paragraph with a show of omniscience. There had been nothing of consequence in the history of futures literature before H G Wells. He believed that 'Hitherto such forecasts have been presented almost invariably in the form of fiction.' He added a footnote to say that: 'Of quite serious forecasts and inductions of things to come, the number is very small indeed' (p. 93).

Had Wells spent a week or two in researching his chosen field, he would have found that indications of 'things to come' began in the first decade of the nineteenth century: they grew in numbers from the 1820s onwards in parallel with the steady expansion of the new middle-class journals and reviews, and they reached their first main stage of development during the last thirty years of the century. Those final decades saw a constant increase in the number of articles by professional people such as army and navy officers, social scientists, statisticians, engineers and industrialists, all earnestly engaged in setting out their thoughts on coming developments in their chosen fields. Their futures files grew under the principle of 'fast forward and set fair', for the then-favoured procedure was to use history as the highway into the future. From the *sicut erat* of past achievements they moved smoothly forward to the *sicut erit* of the next century. In the 1880s for instance, the regius professor of history in the University of Cambridge, J R Seely, was accustomed to speaking at length about the great value of historical studies. History helped the student to 'modify his views of the present and his forecast of the future ... it ought to exhibit the general tendency of English affairs in such a way as to set us thinking about the future and divining the destiny which is reserved for us.'<sup>1</sup>

Across the Atlantic there was even greater enthusiasm for tomorrow's world. In 1897 the American science journalist, William Baxter, noted that the practice of reviewing the progress of the age had become so widespread that whenever a banquet is given in commemoration of some scientific event ... the orator of the evening is sure to dwell at considerable length upon the great discoveries that are still to come.' Understand the rate of change, says Baxter, and the future is an open book:

By contrasting the extraordinary advances made during the past century with the comparatively limited progress of all previous time, and by showing that the rate of advancement has been continually increasing during the latter period, he arrives at the conclusion that in the years to come development will increase in a compound ratio and the

discoveries will become so numerous and so great as to dwarf into insignificance all that has been accomplished up to the present time.<sup>2</sup>

From 1870 onwards, directly and indirectly, an ever-increasing volume of books and pamphlets directed public attention towards the future. In 1876 a major luminary of the British Social Science Association, Benjamin Ward Richardson, set out the basic requirements (eg. sanitary, engineering, medical) for the ideal urban life in a most influential pamphlet, *Hygeia A City of Health*; and in 1898 Ebenezer Howard published the foundation document in the history of the modern town planning movement entitled, *Tomorrow: A Peaceful Path to Real Reform*. From the late 1880s onwards, a diverse array of possible futures was on offer to all readers in a growing list of new titles. In 1890 Edmond Darnaud gave the French an anarchist vision of the future in *La Société Future* and in 1891 George Ermann produced a Hohenzollern-flavoured model of an imperial Germany, ever-growing and ever-prosperous in his *Deutschland im Jahre 2000*.

Although Wells may be forgiven for his ignorance of these forerunners, it is a mystery how he failed to register the groundswell of acclaim that followed the publication of *Dans cent ans* in 1892. This was the work of Charles Richet, the eminent physiologist, discoverer of anaphylaxis and later Nobel prize winner. His book was successful in its day. Richet seemed to draw the most desirable conclusions about the future from a mass of infallible statistics: faster trains, aeroplane transportation, alternative sources of energy, and abundant food. He believed that:

The people of the twentieth century will have no fears for their food supplies. They will be better fed than we are, and they will have no more reason than us to worry about the future of their grandchildren. Even if we suppose that the human race will increase ten-fold, the land and the sea will be able to feed everyone: the prospects are completely reassuring.<sup>3</sup>

As the number of forecasts continued to increase in the journals and magazines of the last decade of the nineteenth century, every year saw the appearance of more and more books about the shape of things to come. In 1897 for instance, that dedicated socialist Edward Carpenter edited essays about the future from ten fellow socialists. The contributors (Russel Wallace, George Bernard Shaw, William Morris, Tom Mann, Grant Allen, and others) set out their expectations and hopes in *Forecasts of the Coming Century*. Another publication of 1897 attracted attention on both sides of the Atlantic. To this day it stands out as one of the most potent predictions of the 1890s in that it anticipated the First World War. The author was Ivan Bloch, a Polish banker and economist who made the first case study of contemporary warfare. He spent some twelve years in applying the latest statistical techniques to the Franco-German War of 1870. Everything went in troop numbers, ammunition supply, rates of fire, killed and wounded and out came the astonishing conclusions of his groundbreaking work, *Modern Weapons and Modern War*. Contrary to all the expectations of the general staffs of the European armies, Bloch announced that 'everybody will be entrenched in the next war. It will be a great war of entrenchments.' The expected war of movement ('over by Christmas' as they said in 1914) would not take place because conscript armies coupled with the immense firepower of modern forces would lead to 'increased slaughter on so terrible a scale as to render it impossible to get troops to push the battle to a decisive issue.' Contrast that confident forecast with the British commander-in-chief's reaction to the unexpected realities of trench warfare on the Western Front: 'No previous campaign, no conclusion I had been able to draw from the campaigns in which I had taken part, or from a close study of the new conditions in which the war of today is waged, had led me to anticipate a war of positions.'<sup>4</sup>

All the evidence shows that by about the beginning of the twentieth century, a few writers had laid the foundations of modern futures techniques. Bloch had applied statistical methods to his investigation of warfare, and a long-forgotten Australian journalist had raised trend-watching to the level of scientific method. In December 1900, George Sutherland completed work on the first large-scale survey of coming technological advances in the history of futures thinking. The two volumes and 426 pages of his *Twentieth Century Inventions* and the four volumes of Bloch's *Modern Weapons and Modern War* should be required reading for all those interested in the evolution of futures literature in the twentieth century. The authors were the precursors of those expert horizon-watchers who have written so

frequently and at such length about the expected impact of science on society over these last fifty years. The difference between then and now, between the occasional books about coming things in 1900 and the many futures-related journals now, is the measure of the rate of change in the twentieth century. In 1900 Sutherland's perception of his role as a communicator of coming things reflected the self-confidence of an age at home with the 'signs of progress':

Twenty years ago the author started a career in technological journalism by writing descriptions of what he regarded as the most promising inventions which had been displayed in international exhibitions then recently held. From that time until the present it has been his constant duty and practice to take note of the advance of inventive science as applied to industrial improvement to watch it as an organic growth, not only from a philosophical, but also from a practical point of view. The advance towards the actual adoption of any great industrial invention is generally a more or less collective movement; and, in the course of a practice such as that referred to, the habit of watching the signs of progress has been naturally acquired.<sup>5</sup>

Some twelve months later H G Wells gave the world his analysis of coming things. When his *Anticipations* appeared as a book in 1902 he began a most influential career as the 'Mr Future' of twentieth century futures thinking. For two decades, from *Anticipations* to *The Salvaging of Civilisation* in 1921, Wells produced a series of future projections that offered solutions to the many problems of war and peace. He gained a world audience for his predictions and propositions thanks to his great gifts as a writer and his positive, highly optimistic attitude to the future. He was convinced that the well-ordered society of the future would contain the self-disciplined and enlightened citizens of his *A Modern Utopia* (1905). The great appeal of his projections was their specious charm. By ignoring the past he made his version of future possibilities appear as the most desirable do-it-yourself opportunity in human experience. He mixed prophecy with preaching in a stimulating series of conclusions about transportation, urban life, social change, war, and the New Republic. On every page the unrelenting pressure of his vigorous prose carried the reader ever onward. His chapter entitled 'War' outlines his belief that in future warfare there would be 'no dramatic little general spouting his troops into the proper hysterics for charging.' War-making would be completely changed in the next great war: 'In the place of hundreds of thousands of more or less drunken and untrained young men marching into battle muddle-headed, sentimental, dangerous and futile hobble-dehoys there will be thousands of sober men braced up to their highest possibilities, intensely doing their best.'<sup>6</sup>

The rest of Wells' anticipations of future warfare were a mixture of hits and misses. With great prescience he wrote of 'the command of the air' which would be an all-important factor in future wars. He hinted at the possibility of 'a sort of land ironclad' as an answer to small arms fire. However, he failed dismally with the submarine: his imagination refused 'to see any sort of submarine doing anything but suffocate its crew and founder at sea.'<sup>7</sup> His most surprising failure was to ignore the conclusions of Ivan Bloch, although a footnote makes it clear that he must have read Bloch's *Modern Weapons and Modern War* after he had written his original articles for the *Fortnightly Review*.<sup>8</sup>

With *Anticipations*, Wells entered on his career as forecaster-in-chief to the world. On 24 January 1902, he addressed the Royal Institution in London on 'The Discovery of the Future'. He claimed that it had become possible 'to attain to a knowledge of coming things as clear, as universally convincing, and infinitely more important to mankind than the clear vision of the past that geology has opened up to us during the nineteenth century.' The core of Wellsian expectations lay in the evolutionary and progressive doctrines he had embraced in the 1890s. Everything seemed to be 'pointing to the belief that we are entering upon a progress that will go on with an ever widening and ever more confident stride for ever.'<sup>9</sup> Although the sad facts of past experience did not chime with this singular notion of an apparently fault-free system of constant improvement eternally working for the benefit of humankind, Wells found an immense audience eager to hear the revelations he had to offer. The extraordinary felicity and originality of his earlier scientific romances faded into the pedestrian narratives of his later fiction as he applied his immense energy to revealing the future to his contemporaries. In *A Modern Utopia* Wells preached a doctrine of human perfectibility. The right social arrangements would ensure universal

happiness because 'the leading principle of the Utopian religion is the repudiation of the doctrine of original sin' (p. 106).

The Wellsian outpouring of books about the future included *The Future in America* (1906), *First and Last Things* (1908), *New Worlds for Old* (1908), and in 1914 there was *The War that Will End War*. Others followed Wells' lead. Their findings echoed the message of *Anticipations*. For example, in 1906 an American writer looked into the near future of 1912 when the great powers of electricity were 'destined to greatly favour the domestic, social and industrial relations of the people in the pursuit of their daily vocations.'<sup>10</sup> Also, in 1909 German publishers produced the first illustrated survey of coming things in *Die Welt in Hundert Jahren* (318 pages and twenty-two essays from an international list of contributors including Hudson Maxim on future technology, and Bertha von Suttner on the coming world peace. The last entry came from the American science fiction writer Garret P Serviss, who set out his conjectures about the end of the world). These writers had one thing in common with most of the forecasters who were published before the First World War. With the exception of Ivan Bloch and some writers from the armed forces (Admiral Mahan, for instance), all these prophets of coming things were amateurs.<sup>11</sup> No matter how successful they were in their own fields (like Richet and Wells), their predictions owed much to the professional papers and calculations of statisticians and engineers. There was Flinders Petrie, the eminent Egyptologist, who set down his ill-considered ideas about the future of society in *Janus in Modern Life* (1907), and in 1912 there was Karl Pearson, the pioneer of biometrics, whose enthusiasm for biology ran away with him in *Social Problems: Their Treatment, Past, Present and Future*. The sociology of the future,' he announced, nay, the very science of history in the future - will be a biological science.'<sup>12</sup>

The outbreak of the First World War marked the first great divide in the development of futures thinking. Contrary to all the forecasts of 'the next great war' as they called it, the entirely unforeseen events coupled with technological change transformed the conduct of warfare on land, at sea, and in the air. 'For a year after the war had begun', Winston Churchill wrote, 'hardly anyone understood how terrific, how almost inexhaustible were the resources in force, in substance, in virtue behind every one of the combatants.'<sup>13</sup> By the end of the war a succession of unprecedented and sudden military and political changes had transformed the old steady-state system of 1914 into the almost unrecognisable world of 1919. All things were in flux. As new nations and new forms of government redrew the political map from the Black Sea to the Baltic, the future became a guessing game.

No-one on planet Earth could know or foresee what would follow from a meeting of the German Workers Party in June 1919. Fourteen men met under gaslight in a Munich square and one of them, a new arrival, joined the party that same night. Adolf Hitler later wrote in *Mein Kampf* that 'it was the most fateful decision of my life.' At that time no-one could even guess that the uncouth apprentice Politiker from Munich would tell the Reichstag on 1 September 1939: 'I desire nothing other than to be the first soldier of the German Reich.'

As the European nations moved through the turbulent and increasingly dangerous inter-war years, the examination of the future became more and more a matter for specialists. They wrote with expert knowledge on topics of general interest such as population statistics, technological warfare, the world economy and the gold standard, aviation, and education. The first classic of the new writing, and the most important of them all at that time, was J M Keynes' *The Economic Consequences of the Peace* (1920). Then, in 1921, there came a prophet honoured late in his lifetime, Colonel J F C Fuller, who started off the new thinking about armoured warfare with his *Tanks in Future Warfare*. Another successful foray into the future was the extensive, admirably illustrated account of technological developments by Anton Lubke in his *Technik und Mensch im Jahre 2000* (1927). The following year Henry Ford gave the world his views on society and industry in *Today and Tomorrow*; Sigmund Freud did the same for religion in *The Future of An Illusion* (1928); and Hugh Ferriss described the ideal America in *The Metropolis of Tomorrow* (1929). With the first postwar decade came a new stage in the growing refinement of anticipatory literature. The 1920s saw the beginning of important new approaches to futures thinking that would lead to the futures institutions and the forecasting journals of recent years.

Seventy years ago the British publisher Kegan, Paul, French & Trubner led the advance towards a new style of investigation with their *Today and Tomorrow* series. These monographs were a major innovation: first, because they were commissioned; and second, because they were written by specialists all pre-eminent in their fields. Sociologists, philosophers, engineers, economists, chemists, theologians, biologists all had their say about future developments in their field of knowledge. Between 1924 and 1931 the *Today and Tomorrow* series produced eighty-six titles on subjects that ranged from *The Future of Swearing* by Robert Graves to *The Future of Physics* by L L Whyte. Some had great effect in directing public attention to future possibilities: Captain Basil Liddell Hart's *Paris, or the Future of War* became an important text on the conduct of armoured warfare; and in *Daedalus, or Science and the Future*, the distinguished biologist J B S Haldane forecast coming applications in biology (which, incidentally, gave Aldous Huxley some ideas for the test-tube babies of *Brave New World*). The success of the series can be measured by the number of citations referring to it appearing in other works, especially in *The World in 2030 A.D.* by the Earl of Birkenhead, one-time Lord Chancellor of the United Kingdom. The next century would see the introduction of ectogenic birth 'the development of a child from a fertilised cell outside its mother's body.' There would be food for all.

Synthetic foods and production of animal tissues in vitro will finally set at rest those timid minds which prophesy a day when the earth's resources will not feed her children. Though all the inhabitable surface of the globe were inconveniently crowded, the millions of mankind could still be fed to repletion by such means.<sup>14</sup>

The book went on recording the ideas of other writers: cheap atomic energy, vertical take-off aircraft, wind and tidal power, colour television in every home, university education for all, and the Sahara flooded to make a playground for wealthy Europeans. When Birkenhead ventured to draw on his own expectations however, he advanced towards the improbable. There was little hope for a European federation of any kind and the British Empire would continue to flourish. He believed that 'British rule in India will endure. By 2030, whatever means of self-government India has achieved, she will still remain a loyal and integral part of the British Empire.'<sup>15</sup> His notions of interplanetary flight were even more unusual and were contrary to the received views of the time:

By 2030 the first preparations for the first attempt to reach Mars may perhaps be under consideration. The hardy individuals who form the personnel of the expedition will be sent forth in a machine propelled like a rocket; and equipped with a number of light masts which can be quickly extended, like fishing rods from its nose. The purpose of these will be to break the impact with which, granted all possible skill and luck, the projectile would strike the surface of the planet.<sup>16</sup>

That is an extreme example of the discursive and conjectural approach to the future that continued into the 1930s.

The time had come for the development of the collective analytical techniques that would provide the power base for the think-tanks of the 1960s, and for the investigations of organisations like the Club of Rome. An early sign of this new team thinking was the report to the president's research committee on *Recent Social Trends in the United States*. This was the first large-scale attempt to establish 'a basis for the formulation of large national policies looking to the next phase in the nation's development' (p. 9). The project followed on the decision of president Hoover to set up the National Resources Committee as a practical response to the many social and economic problems that sprang from the Great Depression. Hoover's exceptional experience as a mining engineer and as an administrator told him that the expertise of the few can illuminate the future for the many. The president took advice and chose his team from the then world leaders in sociology at the University of Chicago. William F Ogburn became the director of the President's Research Committee and Charles Merriam was the vice-chairman. The committee developed and applied the latest social indicator techniques. Their massive compendium provided the nation with adequate information for the formulation of new measures and interventionist policies. That was an important new direction in the examination of coming things, especially in the United States where it presented a model for the large-scale study of national problems.<sup>17</sup>

Looking backward from the 1990s, one book now stands out as the true account and accurate forecast of what one man would do, if he came to power. This was *Mein Kampf* which Adolf Hitler began writing in 1924 and completed in 1926. It contains a declaration of the war-to-come. His simple principle was that land belonged to those strong enough to seize it. So, if the Germans wanted land, they had to move east. That meant 'the new Reich must again set itself on the march along the road of the Teutonic knights of old to obtain by the German sword land for the German plough and daily bread for the nation.' The book sold one million copies in the fateful year of 1933 when Hitler became chancellor. Did his readers believe that the program contained in *Mein Kampf* would become a reality as forecast?

The Second World War now appears in the history books as a series of episodes when major events such as Dunkirk, Pearl Harbour, Operation *Barbarossa* and Hiroshima suddenly transformed the image of the future for nations, and at times for most of the inhabitants on Earth. The years from 1939 to 1945 were a sustained exercise in futures thinking. It was a time when the next day, the next week, or the next month engaged the minds of all combatants. It was a time when most inhabitants of our world found that in one way or another, they had become conscripts to the future. As the fighting spread across the globe from Tokyo and Port Moresby to Stalingrad and the Normandy beaches, some fifty-seven nations were involved in a new kind of progressive warfare that looked towards the future. The scientists and the engineers laboured to produce new weapons from the earliest radar equipment to the latest V2 rockets and the atomic bomb. Some of the most important decisions followed from the recommendations of the operational research (OR) sections. The survival of the United Kingdom owed much to the OR team within the Coastal Command of the Royal Air Force: the safety of convoys depended on OR decryption work and their day-to-day assessments of U-boat intentions. They fought tomorrow's battles, routing the convoys to safe areas and placing the destroyer escort groups in attack positions. On 22 May 1943, their calculations on paper became the reality of sinking U-boats in the Atlantic. Of the twenty-two U-boats that attacked convoys SC 130 and HX 239, at least eight were destroyed. On 24 May Admiral Dönitz ordered all U-boats to retire from their operational areas in the North Atlantic.

The planning experience of the wartime staffs carried over into the reconstruction work of the postwar years on both sides of the Atlantic. In the United Kingdom, one of the OR experts was C H Waddington, late Professor of Animal Genetics at the University of Edinburgh. He had served with distinction in the anti-submarine operations, and after the war set out to spread the word about the importance of operational research techniques. In fact he published *Operational Research in World War II* to show what could be done. 'It is one of the main purposes of this book,' he wrote, 'by expounding what operational research did in one field, to suggest what kind of things it might be called on to do in others.'<sup>18</sup>

In the United States, however, the development of forecasting methods was both immediate and extensive. In 1944, as victory was coming in sight, the Commander of the US Army Air Force, General Harley Arnold, asked the Director of the Air Force Scientific Advisory Group, Theodore von Karman, to investigate the feasibility of the new weapons and new means of air warfare: 'What is the bearing of the new inventions, such as jet propulsion, radar and other electronic devices?'<sup>19</sup> The answer appeared in von Karman's report, *Toward New Horizons* (1947), and that led to the establishment of the Army Long-Range Technological Forecast. The report persuaded Arnold that he should establish a permanent centre for the work of the Army Air Force analysts and forecasters. In 1946 he urged the Douglas Aircraft Company to set up Project RAND to investigate rocketry and intercontinental warfare. The group grew rapidly and in 1948 Douglas made them into an independent nonprofit group, the RAND Corporation. That was the beginning of the explosion of think-tanks in the 1950s, as the world learned from Herman Kahn how to 'think about the unthinkable' and from Olaf Helmer how to apply the Delphi technique.

That development was followed in the 1960s by an explosion of forecasting journals: *Analyse et Prevision* in France, *Futures* in the UK, and the *Futurist* in the USA were the first wave and many others have followed since. By the 1970s futures thinking was well on the way to becoming a profession for experts. There were even attempts to make a recognisable discipline out of it. One of the last acts of C H Waddington was to serve as chairman of the CIBA symposium. 'The Future as an

... Waddington had to serve as chairman of the CIBT symposium, 'The Future as an Academic Discipline'. In his keynote address he told the delegates that they were there 'to discuss whether the universities in general and the British universities in particular should take account of the problems that mankind is obviously going to face in the next few decades, and, if the universities are going to do this, how should they do it?'<sup>20</sup>

Many others followed where Waddington had boldly gone before, and others will follow this brief survey to report on the sunburst of futures thinking that began in the 1960s. By the 1970s, futures thinking had become editorial fodder throughout the world, familiar enough to receive the final compliment of ridicule. In 1971 that most original Polish writer, Stanislaw Lem, added a chapter to the story of his astronaut hero, Ijon Tichy. The English translation entitled *The Futurological Congress*, opens with: 'The Eighth World Futurological Congress was held in Costa Rica', and it rapidly comes to the first problem of the future: 'Present-day scientific conventions, obviously, also suffer from the population explosion. Since the number of futurists grows in proportion to the increase in magnitude of all humanity, their meetings are marked by crowds and confusion.'<sup>21</sup>

## Notes

1. J R Seeley 1883, *The Expansion of England*, Macmillan, London, p.1.
2. William Baxter 1897, 'Forecasting the progress of invention', *Popular Science Monthly*, no. 5 1, pp. 307-14.
3. Charles Richet 1892, *Dans cents ans*, Paul Ollendorff, Paris, p. 1 1.
4. Field-Marshal Viscount French 1929, 1914, Constable, London, p. 1 1.
5. George Sutherland 1901, *Twentieth Century Inventions: A Forecast*, Longmans & Green, London. q.v. Wells caught up with George Sutherland in *Anticipations* (1902, Chapman & Hall, London). A footnote (p. 23) recorded: 'Since this appeared in the *Fortnightly Review* I have had the pleasure of reading "Twentieth Century Inventions" by Mr George Sutherland...'
6. H G Wells 1902, op. cit., p. 183. The text of the lecture was first published in *Nature* (LXV, no. 1684, April 1901, pp. 109-1 1).
7. *ibid.*, p. 200.
8. Wells gives no sign that he knew of Bloch's forecast on trench warfare. However, his footnote clearly refers to the article by Bloch on 'Wars of the Future', *Contemporary Review*, no. 429, September 1901. This appeared when Wells had reached the sixth of his eight essays in the *Fortnightly Review*.
9. H G Wells 1902, *The Discovery of the Future*, T Fisher Unwin, London, p.92.
10. H W Hillman 1906, *Looking Forward: The Phenomenal Progress of Electricity in 1912*, Valley View, Northampton, Mass., p. 5.
11. Some of the more important studies were: Admiral Mahan 1897, *The Interest of America in Sea Power, Present and Future*; General Palat 1913, *Les Probabilites d'une guerre franco-allemande*; Admiral Sir Cyprian Bridge 1910, *Sea-power*.
12. Karl Pearson 1910, *Social Problems and their Treatment*, University College Press, London, p. 4.
13. Winston Churchill 1923, *The World Crisis, 1911-1914*, (6 vols), Thomson Butterworth, London, p. 1 1.
14. The Earl of Birkenhead 1930, *The World in 2030 A.D.*, Hodder & Stoughton, London, p. 15.
15. *ibid.*, P. 155.
16. *ibid.*, p. 132.
17. President's Research Committee on Recent Social Trends 1933, *Recent Social Trends in the United States*, McGraw-Hill, New York. There is also a good account in Martin Bulmer 1986, *The Chicago School of Sociology*, University of Chicago Press, Chicago.
18. C H Waddington 1973, *Operational Research in World War II*, Elek Books, London, p. viii.
19. For the full story see Michael H Gom 1983, *The Universal Man: Theodore von Karman's Life in Aeronautics*, Wiley, New York.
20. C H Waddington 1975, *The Future as an Academic Discipline*, Elsevier, Amsterdam.
21. Lem, Stanislaw 1975, *The Futurological Congress*, Futura Publications, London, p. 3.

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## About the Author

I F Clarke was the Foundation Professor of English Studies in the University of Strathclyde, Glasgow, and he retired from that post to begin a new life in the Cotswolds, dedicated to bread-making, brewing beer, and writing about the future as it used to be. Experience in code-cracking during World War 2 taught him that today's signals are tomorrow's battles; and that thought led to a life-long interest in the idea of the future. His two pioneer works in that field are *Voices Prophesying War* (2nd ed. 1992), the first-ever study of future war stories and *The Pattern of Expectation* (1979), a history of the origins and development of future-thinking in all its varieties.

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