Chapter 21

Techocracy

Technocracy means 'rule by experts', a phrase which naturally suggests the question, 'experts on what?'. To answer this, we have to ask a further question: "What is the chief task facing society?" There is no given answer to this question. Answers that have seemed reasonable to past societies include 'To win the war' – implying rule by military leaders and changes in civilian life to make it more closely resemble life in the armed forces; 'To bring the people closer to God', implying rule by a priesthood – examples would include the political supremacy of the Pope during the Dark Ages, or the involvement of mullahs in the governance of Khomeini's Iran; 'To so organise the human and material resources of the country to provide material abundance for all' – implying rule by experts in organization and production, that is, by engineers.

Thus, a necessary precondition for techocracy is the emergence of a class of engineers with experience in handling large enterprises, a class which started to emerge at the beginning of this century in response to the introduction of mass production and the assembly line.

Although techocracy as a political movement belongs to our century, it was anticipated by several earlier thinkers. One of these was the Englishman Francis Bacon, whose '*New Atlantis*', published in 1627, envisaged an ideal society directed by an establishment of scientists. Bacon was, perhaps, inspired by the impact on his society of three recent scientific developments: printing, gunpowder, and the compass. However, his ideas had no immediate political effect.

From 1802 to his death in 1825, the French writer Saint-Simon set out his ideas for technocratic government in a series of books. His general position was that competent organization of production was more important to society than any other political question, and that society should therefore be organized by those with experience in production. He was writing at a time well before the emergence of engineers like Taylor and Gantt, expert in manangement and organization, so his 'experts' were made up of industrialists as well as engineers. For example, he proposed a three-part parliament for France, its three parts being concerned with Invention, Examination, and Execution respectively. The first chamber of this parliament was staffed by engineers and artists, the second by scientists, but the third by industrialists – people we might now call owners or entrepreneurs rather than experts.

Unlike Bacon, Saint-Simon left a political legacy. His followers, the 'Saint-Simonistes', continued to advance his ideas for several decades.

The next steps in the history of technocracy occurred in the United States. In 1899, Edward Bellamy published a novel, *"Looking Backward"*, in which he imagined the America of the year 1999 as a utopian community, offering material abundance and pleasant, useful work for all. This transformation was based, not on any miraculous new invention, but on the rational reorganization of work within the society. The details of the new society reflect the ideas that would emerge from the technocractic movement over the next thirty-five years.

Over the same decade, the number of college-educated engineers increased tenfold. At the same time, there began to be a change in the loyalties of the engineers. In the nineteenth century, the engineers had identified closely with the interests of their employers; one leading engineer advised those joining the profession: "always be subservient to those who represent the money invested in the enterprise." The new graduates had a higher idea of their importance and their independence. Henry Gaslee Prout, speaking before the Cornell Association of Civil Engineers in 1906, said, "The engineers more than all other men, will move humanity forward until we come to some other period... On the engineers and on those who are making engineers rests a responsibility such as men have never before been called upon to face." However, no-one had a clear idea of how engineers were to take on this responsibility, beyond doing their jobs as well as possible. One of the most ambitious proposals came from Frederick Winslow Taylor (whose ideas on scientific management we discussed in the last lecture.) He argued that there are scientific laws governing the most efficient management of labour, just as there are governing the properties of matter; and this argument immediately extends the engineer's domain of expertise to the managerial, admininstrative and political spheres.

One of the chief political issues of that time was conservation, and this seemed to be an area in which engineers could take the lead. Frederick Haynes Newell, director of Roosevelt's Reclamation Service, claimed that "In all matters pertaining to the conservation and use of the resources of the country, both material and human... the engineer should be the leader."

One of the most aggressive proponents of the independence of engineers from businessmen was Henry L. Gantt, disciple of Taylor and inventor of the Gantt chart. Gantt argued that "our great waste is caused by the system of production for profit." Such a method of production, he argued, "puts in places of authority those who seek selfish advantages regardless of the interests of the community." If business "failed to accept its social responsibility and devote itself primarily to service...the community will ultimately make the attempt to take it over in order to operate it in its own interest." His solution was to bring business under the control of experts. He suggested that industry had become "too complex to be run any longer by mere deskmen who sit as the agents of a leisure class...The role of irresponsible finance and the adverteisers' press is played out." Just as Taylor had introduced methods for measuring the efficiency of the worker, Gantt believed it was time to measure the efficiency of managers, and replace those who didn't measure up.

In December 1916 Gantt attempted to get the ASME to support his call for bringing production under the control of experts. When this attempt failed, he organised a group of fifty engineers into a group called 'the New Machine' to press for the changes he advocated. However, nothing came of this, and the group collapsed the following year, as the U.S. entered World War I.

The War itself may have helped make the case for technocracy; meeting the requirements of production for global conflict required setting up wartime planning boards, staffed by non-partisan experts. If such policies were the most effective way of waging war, why should they not be extended to plan for a prosperous peace?

The wartime experience led some engineers, including the editors of *Engineering News*, to hope for a more rational organization of postwar production. The newly formed Federated American Engineering Societies organized the 'Committee on Elimination of Waste' to study irrationalities in the existing system. This committee was headed by Herbert Hoover, himself an engineer (and who would be elected president of the States in 1928). The committee's report, published in 1921, documented the existence of immense waste in the six industries it studied: low production resulting from faulty management and equipment; interrupted production due to strikes and lock-outs; conscious restriction of production; and low production caused by acccidents, physical defects, and ill-health. The report concluded that this waste resulted primarily from bad manangement, and that it could be cured by scientific management.

However, the report did not have much effect. A conservative backlash led to the formation of a new engineering body, the Engineering Council, which viewed engineers as advisors to business rather than replacments for business. Hoover himself seemed to share this view.

In the same year as Hoover's report came out, radically new criticisms of the existing system were set out by Thorsten Veblen in a new book, "The Engineers and the Price System." Veblen was an economist, not an engineer. Nevertheless, he believed that engineers were the best fitted to direct society's production. Over a series of books, he contrasted the greed and short-sightedness of businessmen with the disinterested, scientific approach of the engineer. Clearly, society could only expect to see universal prosperity when the engineers took over. But how was this to happen? Veblen approached the leadership of the ASME, but was unable to fire them with his enthusiasm. By 1920, he had concluded that, "By settled habit the technicians, the engineers and industrial experts are a harmless and docile sort."

Given this unpromising revolutionary material, it was difficult to see the path from the present situation to technocracy. Veblen considered two possibilities: that the businessmen, swayed by his arguments, would simply abdicate power; and that the technicians would call a general strike, thus demonstrating their power and bringing down the existing order. (A similar scenario is envisaged by the right-wing ideologues Ayn Rand and Robert Heinlein, in "Atlas Shrugged' and 'The Roads must Roll' respectively.)

Since neither of these possibilities seemed at all likely, Veblen spent the remainder of the 1920's proposing a major study of U.S. industry. The study would concentrate on the amount of waste in the current system, and would have two benefits: it would raise awareness of the irrationality of the current system, and it would provide the engineers with the necessary data for building a better one. One of his disciples, Howard Scott, formed an organization known as the Technical Alliance to promote technocracy and to conduct Veblen's study. But, although the Alliance briefly attracted some outstanding engineers, it broke up in 1921, many of the participants being sharply critical of Scott's managerial and financial abilities.

By the late twenties, society was no closer to technocratic rule. Then something dramatic happened. On Tuesday, 29 October, 1929, the New York Times industrial averages share price dropped by 43 points, losing all the value it had gained over the previous year. With intermittent rallies, the price continued to drop, until by November it was at 224 – down from a high of 524 in early September. Industrial production also began to fall – automobile production, coal mined, iron and steel production. And things continued to get worse. By 1932, industrial average share price was down to 58. Steel production was at 12% of capacity. The striking thing about the Crash was not that it occurred, but that its effects lasted so long. Four years later, one out of four of the workforce was unemployed. Even in 1938, nine years after the Crash, one in five was unemployed. The country returned to full employment only when the Second World War started.

North America had been hit by a disaster more crushing than a military defeat. And yet, the means of production had not been destroyed. The steel mills were intact, but idle. The problem lay, not with any material cause, but in the controlling economic system. The country was ready to listen to alternatives.

Scott returned from obscurity with a new ally, Walter Rautenstrauch, Chair of Columbia Univesity's Department of Industrial Engineering. In 1932, Rautenstrauch formed a new organization, the Committee on Technocracy, which would chart the path to a more rational form of society. The Committee began by conducting an 'Energy Survey of North America', which would prepare the ground for the reorganization of production. The idea that energy was the appropriate metric for designing and measuring productivity originated with Howard Scott; not all members of the Committee agreed on the importance of introducing this new measure, and many felt it was a distraction from the needed social reforms. In particular, the concentration on energy led the Committee to concentrate on manufacturing and to ignore service industries, whose activities were more difficult to measure in terms of energy.

The initial aim of the Committee was just to outline and diagnose the current problem. But as technocracy became more visible, they came under increasing pressure to propose a solution. Many groups calling themselves technocrats appeared throughout North America, offering schemes for a new society. The most thoroughgoing proposals came from Howard Scott, and we will focus on those as the closest thing we have to an official technocratic solution.

21.0.1 The Solution

The continent of North America is to be administered by a committee of experts – the Technate. Each industry will be administered by engineers experienced in that field, with the goal of producing the goods required by society in the most efficient way. The government of the Technate will be restricted to the efficient organization of production; government has no religious or ethical program to impose upon the people. Individuals will be appointed to the Technate on the basis of the competence they display in other tasks.

Money will be replaced by the Energy Certificate. These certificates are issued to each member of the population at the beginning of each year, and entitle the bearer to $1/n$ of the goods produced in the country, where n is the number of people living in North America. The certificate can be used in exchange for goods of any kind, the rate of exchange being determined by the amount of human energy needed for their production. The certificate cannot be transferred or inherited; at the end of the year, all certificates become worthless and must be replaced. (If some limited natural resource is required for the manufacture of a product, it may be necesary to factor this into its exchange rate.)

[This change is not entirely without precedent. It could be thought of as producing and charging for all goods in the way B.C. Hydro currently produces and distributes water.]

Everyone is expected to work, though the incentive for work will be pride in workmanship and the respect of others, rather than money. By elimination of wastage – for example, the money now spent on advertising – the current standard of living can be maintained with four hours of work a day, four days a week, between the ages of twenty-five and forty. Individuals would choose their work on the basis of personal aptitude and inclination; the Technate might lower the required hours of work for particular jobs if too few people volunteered for them.

Personal property will be limited to those goods that an individual uses directly. Thus, a person could own a house, but not an office building.

21.0.2 Denouement

After the peak of public interest in 1932, the technocracy movement began to decline, to split, and to self-destruct. One blow came from John H. Van Deventer, editor of *Iron Age*. He examined the Energy Survey and found it full of errors: for example, he showed that in the past fifty years, productivity per worker in the iron industry had increased twenty-three-fold. While that's an impressive increase, it's very different from the 650-fold increase that Scott had claimed. Similarly, Scott claimed workers in the flour industry produced 30,000 barrels of flour per person per day; the true figure was 500. These errors were particularly damming in a movement that based its legitimacy on technical competence.

Scott was an embarassment to the Committee in several other ways. One was his readiness to admit that technocracy was necesarily an undemocratic movement. A particularly bad moment was a nationwide radio address he delivered in January 1933; his presentation was clumsy and incoherent, and he lost his temper during the question-and-answer period that followed. Shortly afterwards, the American Engineering Council charged the technocrats with unprofessional activity, questionable data and drawing unwarranted conclusions. The Committee on Technocracy split on the question of whether to support Scott, Rautenstrauch withdrawing to return to academia.

Although this marked the end of technocracy's credibility in eastern America, splinter groups continued to develop and evolve in the western States and in western Canada. Robert Cromie, editor of the *Vancouver Sun*, used his paper to promote Scott's ideas in B.C.. Years later, these ideas, mixed with evangelical Christianity, formed the foundation of the Social Credit party.

Two wings developed: Technocracy, Inc., lead by Howard Scott, and the Continental Committee on Technocracy, led by a committee. The two wings initially tried to unite, but Scott's controversial public style remained a problem: addressing a convention in Chicago in 1933, he was asked how technocracy could be instituted if factory owners refused to go along with the program. Without hesitation, he replied, "Stick a bayonet up their [expletive]." There was silence, then a thin scattering of applause. That broke up the meeting. Years later, one member of the Continental Committee characterised the difference between the two wings:

"Technocracy Inc. recruited those individuals who favoured a conspiracy of picked men in key positions who would wait around to seize power by force when the economy collapsed. All the others, the dreamers, the Utopians, the anarchists and the left-wing liberals joined up with the Continental Committee."

Scott's new organization, Techocracy Incorporated, adopted an official symbol – the monad. Grey became the official Technocratic colour; their correspondence was printed on grey notepaper, they drove grey automobiles with the monad printed on the door, and dressed in gray gabardine double-breasted suits, worn over a grey shirt and blue neck-tie. Speaking in 1938, Scott gave a description of how the youth of America would usher in the new society: "It will present an ultimatum for a clean, hard, bright design for living. Should any minority, racial, religious or economic, stand in its way, youth will concede nothing short of that minority's annihilation."

Scott's organization still exists; a local branch publishes the B.C. edition of 'Technocracy Digest'. The ideas in the Digest will be familiar to anyone who's read this far: they are the ideas that Scott set out in the 30's, unmodified by anything that has happened in the past sixty years.