

Chapter 1

The Omnivorous Academy

Europe pioneered the modern university, with those at Bologna, Oxford and Paris already established in the twelfth century. But by the mid-19th these ancient models were showing their age, viewed more often as roadblocks than as gateways to the industry and democracy taking shape around them. The academy's inability to promote radical new thinking, and reluctance to adopt it, had pushed other institutions to the centre of knowledge, culture and administration. Its imposition of an 'academic' curriculum was seen as frustrating upward mobility by putting a second-class stamp on technical and vocational education.

The twentieth century brought a spectacular turnaround. Universities' research eclipsed the authority of the religious, familial and traditional, and their teaching became the near-universal third stage of popular education as living standards rose. The causes and consequences of this 'academisation' of knowledge are often buried beneath problems arising from the increased numbers, as up to half of school leavers are channelled into higher education institutions still only organised and resourced for much lower proportions. These organisational problems obscure, but ultimately relate to, simultaneous changes in academia as an institution and in its production, validation and application of knowledge. Academic concepts become everyday meanings. The increasing numbers matter, but it is academia as a key but taken for granted institution that is changing our knowledge of the world and the way we make our lives meaningful.

Back from the Dead

Universities' early history, especially in their European birthplaces, makes their later marginalisation unsurprising. The academy had only ever educated a tiny minority – mostly in theologies that dis-

couraged the search for any undiscovered truth. As late as 1950 only one UK school-leaver in twenty could expect to find a place at university. As a knowledge creator, the modern academy had emulated the medieval monastery in defending scriptures that encouraged leaps of faith, but looked askance on more reasoned acts of imagination. Early displays of free enquiry by Oxford scholars Roger Bacon (1219–94) and Thomas Hobbes (1588–1679) were soon blotted out by the valedictory smoke of those on the wrong side of the Reformation debates. Most of the pathbreaking natural science discoveries that reshaped Europe in the 16th Century were made outside universities, in private laboratories and discussion rooms. From Leonardo da Vinci (1452–1519) and Galileo Galilei (1564–1642) to Charles Darwin (1809–82) and Sigmund Freud (1856–1939), the academy proved neither a relevant location for natural enquiry nor a safe haven when it offended prevailing religious values. Its paucity of places and propensity to assign them on respectability of background rather than strength of mind ensured that most pathbreaking scholarship took place beyond its walls.

The few universities then in existence perpetuated an Aristotelian view of the world: axiomatic, static and geocentric. Escape from this framework was often easier in the guise of a royal tutor (Hobbes), a mercenary (Descartes) or a lens-grinder (Spinoza) than as a wanderer in the college gardens. In France, economics had its first stirrings in the physiocratic theories of Quesnay (1694–1774), a surgeon, and Turgot (1727–81), Louis XVI's finance minister. Both contributed to the *Encyclopedie*, published between 1751 and 1772, most of whose other illustrious contributors – including Diderot (1713–84), Rousseau (1712–78) and Voltaire (1694–1778) were dramatists, novelists, journalists, social commentators, political agitators, but noticeably not academics.

Most of today's recognisable sciences (the term slowly replaced 'natural philosophy' from around 1830) were founded outside universities. The Royal Society had been mainly a club of friends, patrons and interested gentlemen amateurs. Its efforts to make members share and publish their results were often hampered by personal or commercial rivalries, such as the long stand-off between leading mind Isaac Newton and secretary Robert Hooke; publication was more usually in magazines such as the *Quarterly Review* or the *Edinburgh Review*. The nascent 'knowledge society', diffusing its ideas so they could be deployed for practical advantage, reacted against an institution that had traditionally confined knowledge to an elite, and detached its intrinsic worth from social values or economic value.

Yet by 1950 this moribund, outmoded institution was about to enter the most sustained and spectacular growth of any social institution. By the end of the century it would dominate social thought, activity and organisation in a way no mid-century political dictator had ever achieved. In 1900 there had been 14 universities in Britain with 20,000 students. This had risen to 31 universities with 100,000 students by the time of the Robbins Report (1963), whose recommendations accelerated the growth. By the end of the century there were 176 higher education institutions, including 115 universities, enrolling over 1,300,000 full-time and 900,000 part-time undergraduate students, and employing over 70,000 full-time staff. Postgraduate intake rose proportionally even more strongly: from 43,000 full-time and 18,000 part-time higher degree students in 1970 to over 170,000 full-time and nearly 300,000 part-time at the century's end. In October 2004, the number of students arriving at UK universities exceeded 1 million for the first time.

As remarkable as the rise in numbers were the reasons for the expansion. Whereas ancient universities cloistered themselves to shut out the distractions of the world, their modern counterparts opened their doors onto main city streets, or invited the new commercial realities onto their campuses. Universities were being pressed to engage with economic and social affairs, stripping away the insulation through which academics had sought knowledge for its own sake. When London and other major towns established their first universities in the second half of the nineteenth century, they were surrounded by an array of institutions that showed the unmet demand for technical and professional skills. Colleges of Science, Dissenting Academies, Training Colleges, Technical Colleges, Mechanics and Evening Institutes, Literary, Philosophical and Statistical Societies answered to workers' and professionals' as well as industrialists' need for new knowledge, comprising a genuine public sphere. Many marched towards university status in the subsequent century.

The Robbins Report (1963) saw expansion and reform of higher education as essential for maintaining a competitive position in the world. A generation later, the Dearing Report (1997) identified the university as the key source of knowledge and human capital for underpinning prosperity and human wellbeing in a democratic society. Where higher education had once been seen, like the wider welfare state, as a luxury product of economic development, it was now widely viewed as a vital input. Its expansion was prioritised by poorer countries seeking a way into industrial development as much as by richer countries seeking a way out of it.

Feeding and Fuelling the Demand for Knowledge

In Britain, the demand for a public education service was growing by the second half of the nineteenth century. When Lowe explained the need to 'educate our masters' he was acknowledging the political imperative of reform, as legislated shortening of work hours gave ordinary people more time to think about the world they were in, and extensions of the electoral franchise gave them more incentive to do so. The state's willingness to supply education also rose as, in the second half of the nineteenth century, weaknesses in appointment and promotion by patronage were acknowledged, and institutional improvement was sought – starting with the army and civil service – through a switch to appointment on merit.

Public knowledge expansion was driven principally by public authorities, channelling taxation into education, healthcare and public infrastructure, and by churches and other voluntary-sector institutions, motivated by religious or charitable values. Both acted simultaneously on supply and demand, putting more resources into educational provision and using subsidy or sponsorship to enable people to use it. At the start of the process, few individuals had the financial resources to acquire such knowledge, and few private enterprises saw any need to help them do so. But public authorities foresaw the disabling dearth of engineers and other professionals if private enterprise continued to step up their recruitment without financing more training. This was reinforced by the public sector's own growing need for such skills to build and run the hospitals, schools, housing projects, sanitation schemes, power stations, rail, electricity and gas networks for which it had assumed responsibility.

A partial reform of the civil service in 1855 introduced competitive entry by examination. A focus on subjects mostly taught in the independent schools and ancient universities still confined recruitment to a restricted intellectual elite, but in 1870 recruitment by open competition finally replaced patronage in the civil service. The army made similar slow reforms following incompetent displays in the Crimean War (1854–56), with aristocratic purchase of commissions abolished in 1868. 'Philosophical radicals' led by Jeremy Bentham (1748–1832) had successfully battled *laissez-faire* to assert the need for efficient administration based on knowledge of social conditions. With the municipal public works projects of the nineteenth century, and the expansion of welfare services through the twentieth, government also stepped up its procurement of knowledge-based services on behalf of the wider society. Educational,

medical, housing and transport were increasingly purchased on behalf of ordinary citizens, while companies and organisations were recipients of growing 'corporate welfare', as engineers, lawyers, accountants and other professionals were trained at public expense for private sector benefit.

As with more recent knowledge-economy breakthroughs (telephone, broadcasting, internet), the academy ensured take-up of its rising supply — of knowledge and professionals imbued with it — by enrolling government as a principal customer. Locally and nationally, the state needed new ideas and skill-holders for its own activities, especially public administration. But sustainable growth of higher education depended on public willingness to support governments that imposed the higher taxes needed to fund it, and to pay for it directly if the state ceased to do so. As they changed the conventional wisdom in existing disciplines, and launched additional ones in response to new discoveries, universities had to raise the public demand for public knowledge in step with its supply. Today, a knowledge of clinical medicine might seem essential for practice as a doctor or surgeon, and economics a useful input to a business career. But those who brought medical training into the university, and launched its first economics degrees, struggled to attract sufficient students. Patients preferred known remedies, even for new industrial-age diseases, and entrepreneurs viewed a university education more as an escape route from business than a means to run it better.

Until prospective employers recognised the value of new courses, even those who could afford to enrol in them had no financial incentive to do so. Having embraced what they believed was a formula for continuous knowledge production, universities had to ensure its continuous consumption on an equally large scale. Their triple need — for new research funds, new students and new sponsors — was solved in one by allying academisation to the century-old trend of professionalisation.

Incorporating the Professions and Training Institutions

Aware that the ancient universities had neither the capacity nor the inclination to raise enrolments to meet the new training demand, the major cities playing host to the new industrial and administrative expansion hastened to set up new ones. Most already possessed literary and philosophical institutions, historical and statistical societies, medical schools, dissenting academies and mechanics institutes. There were twenty residential teacher training colleges by

1850. Through the century a variety of institutions were established to train the new or rapidly expanding professional groups including accountants, doctors, nurses, social workers, teachers, technicians and musicians, often supported by local enterprise.

Once established, the new professional class drove reform, particularly in education and through the parliamentary Reform Bills of 1832, 1867 and 1884. Bentham was a co-founder of University College London; his cadaver still sits in its entrance hall, a riposte to earlier institutions' religious relics that has so far withstood the test of time. King's College London was established soon afterwards, to counter this godless presence in Gower Street. But Bentham's radicalism signalled a new, knowledge-based view of social improvement and political reform. Requiring information on contemporary conditions and on the likely impact of public policies to identify 'the greatest happiness of the greatest number', utilitarianism provided a calculus for optimising social action, re-basing it on facts.

The growing need to staff, and regulate, increasingly large-scale industry fuelled concern for adequate technical training. From 1832, when the Board of Trade's Statistical Department was established, a widening array of Royal Commissions, Poor Law and Civil Service Commissioners, factory inspectors, statistical and charitable societies provided data for policy analysis, and a basis for academic study. The global spread of this late nineteenth-century transformation of British society was accelerated by British Imperial imposition, and emulation in Europe and America. Even the ancient universities were forced to respond, with Cambridge establishing the Cavendish Laboratory and Oxford adopting Modern Greats (Philosophy, Politics and Economics), shortly after the 1871 Test Act had removed the remaining clerical regulations from these ancient universities.

The Samuelson Commission (1884), concerned about growing foreign competition, reported flourishing technical, science and art schools, often organised by employers and enthusiastically welcomed by employees. Most prominent were the Mechanics Institutes, whose evening classes provided practical instruction for skilled workers from the 1820s. London University's Birkbeck College, and the University of Manchester's Institute of Science and Technology, developed from such institutes, many of which achieved national reputations. But on the advice of industrialists, the Samuelson Commission dismissed theoretical studies, upholding a long tradition of keeping professional training 'practical'. This was also reflected in the professionalisation of increasingly narrow crafts, and the resultant proliferation of qualifying associations

aimed at quality control. Grays Inn for lawyers had been founded in 1391, and the Worshipful Company of Spectacle Makers in 1629, but a major proliferation occurred in the century after 1850.

Qualifying associations had 625,000 full and 125,000 student members by the 1960s. But technological and legal developments, placing new demands on practitioners, soon meant that newcomers were not sufficiently prepared by age 16 or 18 for immediate entry to full-time courses for professional qualification. Higher and further education institutions stepped in to provide the necessary extra tuition, alongside colleges established by the professional associations themselves. From 1889 cities and the new county councils were able to establish colleges; central government funding was made available from 1890, initially from a tax on whisky.

Recognition of the need for a conceptual and general-knowledge base for practical skills increased with the economic pressures following WWII. The Percy Report (1945), the Barlow Report (1946) and the White Paper on Technological Education (1956) led to the establishment of Colleges of Advanced Technology (CATs) in 1960, and the movement towards the incorporation of technical and training institutions into higher education. But professions were wary of control by central or local government and their agencies. As regulators, these might be tempted to distort professional standards for political gain. As employers, they might drive down professionals' market value by making qualification easier. Professions' concern to maintain their price and prestige ensured their acceptance of absorption into educational institutions that stayed independent of the state, and were initially just as selective in their intake.

The absorption of professional training institutions underpinned academia's twentieth-century expansion, especially through the new civic universities. Medicine and law had often been part of the medieval university, with medical schools such as St. Bartholomew's active from the twelfth century. The Apothecaries Act of 1815 systematised medical training, in schools that were usually affiliated to universities or university colleges. Universities also met the increased demand for lawyers by organising their first degree courses. This set the trend for accountancy, management and marketing, with universities offering academic groundwork to degree level, before students moved on to complete their qualification as commercial trainees.

Integration of professional training, with its large, regular and publicly funded intake, secured a vital financial boost, especially for newly founded universities. For justification, the acquiring institutions pointed to a change in the nature of professional knowledge,

which meant that practical skills alone were no longer enough to ensure well-paid or long-lasting employment. Academisation allowed professionals to distinguish themselves from the aristocratic amateurs of the past. Qualification required proven skill and analytical ability, which inherited wealth or family background could no longer guarantee. Training in general principles also enabled professionals to keep ahead of upwardly-mobile craft and technical workers. They were equipped to assess wider problems, decide new courses of action and acquire new skills, rather than repeating narrowly defined actions that lost effectiveness when the situation changed.

Universities promised to deliver a general professional preparation before the start of specialist on-the-job training, enabling recipients eventually to transcend their professional focus and move into the higher levels of enterprise management or politics. General capabilities, acquired and certified off the job, were a necessary complement to specific skills, and increasingly a desirable replacement for them. Academisation of the professions built on, and reinforced, the gradual extension of schooling and technical training. It fuelled a rising expectation of what such education could provide. As more people enjoyed full-time schooling for longer, more were acclimatised to higher education as the next phase. By the last quarter of the twentieth century the arts, technical, social work and teacher training institutions were an integral part of higher education.

Until the substantial rise in resourcing prompted by the Robbins Report (1963), training institutions remained under financial and time pressure to focus on skills and practice, plus some personal and moral guidance for future semi-professionals. Staff-student ratios were ungenerous, and academic content was often squeezed by the need to pack training and practice into a short certificated course. The universities, still catering for a tiny minority of school-leavers, enjoyed greater funding, study time and independence from government, and could confer more prestigious staff titles and student qualifications. Colleges of Advanced Technology were to form the apex of pyramids of technical colleges, and the Percy Report had called for them to offer degree-level courses. But a minority report by Lord Percy recommended that they should not be universities, and degree level courses were only agreed in 1956.

There was a double edge to the widespread mid-century belief in limits to growth of the universities, perhaps not far above their then enrolment of around 5% of those leaving school. A long tail of activities was assumed to be inherently 'practical', not needing an analytical dimension. The same was believed of those who came forward to train for these activities, seen as risking confusion and con-

strained performance if too much abstract thought were forced on them. The policymaking elite often reflected on its own academic bias – eloquence in elaborating the theory of electrical conductivity, unmatched by any ability to wire a plug – and assumed an equal and opposite practical bias on the part of the majority. Resistance to radical change in the university curriculum was long lasting. The Barlow Report (1946) had recommended a doubling of the output of scientists from the universities, but not at the expense of the arts and humanities, or of any devaluation of education to form character, temperament and wider qualities of mind.

Reluctance to alter higher education's priorities was predictable, coming from committees mainly drawn from Oxbridge, never noted for their speed of adaptation. At Oxford the study of Greek was compulsory until 1920, and some Latin remained a condition for matriculation (entry for school leavers) until 1960. Cambridge maintained similar restrictions. Women were only allowed to take degrees from 1920, being allowed into lecture halls but not into exam rooms with their male counterparts. Their full admission to degrees, and staff membership of Senate, had to wait until 1948.

Teaching the Teachers

Scepticism over whether addition of theoretical knowledge could do anything to improve practical skills or moral rectitude was most apparent in the training of teachers. The first teacher training college, Borough Road, opened in 1808. Yet even in 1900, after a century in which elementary schooling was slowly made universal, there were still twelve untrained teachers for each trained one. Only in 1833 was £20,000 granted to religious denominations for school building. Teacher training was supported by government grants from 1846, with selected students apprenticed to a schoolmaster for five years and examined by inspectors. An increasing number of successful applicants were selected for places in the training colleges, of which there were 49 by 1890. From 1902 local education authorities were also empowered to establish colleges. There were over 100 of these by 1960, with another 50 in the voluntary sector. But on the eve of prime minister Harold Wilson's 'white heat of the technological revolution', most children were still being schooled by teachers who never graduated in their subject.

The training colleges not only produced too few teachers, particularly following the 1870 Education Act, but were also criticised for training them to too low a level. The new civic universities, situated in the large towns with the most pressing shortages of trained teach-

ers, and attracted by the grants available for student teachers, pressed for involvement in closing the gap. By 1901 they were providing a quarter of all teacher training places, and met the increased demand for graduate secondary school teachers following the 1902 Education Act. Despite continued opposition from within academia and government, day training in universities was seen as guaranteeing educated teachers at minimum cost.

As with other emerging professions, incorporation into the university meant academisation of what was taught. Within the universities Education became a major department, its junior members becoming 'reflective practitioners' while their seniors turned exclusively to analysing and conceptualising the schoolteacher's craft. Insights from history, philosophy, psychology and sociology were grafted onto the practical training, even within one year postgraduate courses. The Robbins Report (1963) recommended that training colleges be renamed Colleges of Education, conferring Bachelor of Education (BEd) degrees. The certificate courses finished with the entry of 1979, and teaching was on track to become a fully graduate profession. From 1980 colleges expanded, diversified and often amalgamated with former polytechnics, so that by 1992 most were formally part of the university sector.

Colleges' prioritisation of academic content, anticipating university status, drew frequent complaint from inspectors and teachers' unions that practical classroom skills were being neglected. Intellectual input to teacher training had wider social repercussions, probed further in Chapter 6. When colleges finally merged into universities, government imposed detailed criteria for the approval of courses through the National Council for the Accreditation of Teacher Education (NCATE), established in 1984. The academisation of social work has followed in an almost identical fashion, with other 'caring' professions taking the same track as they expand. Training moves into higher education to gain academic accreditation and prestige, as well as to ensure better general education for the practitioners. Professional associations and government thereafter worry about the cost of academisation, through neglect of practical skills and on-the-job exposure; but they cannot reverse the process, without accusations of de-skilling professionals and short-changing clients.

Incorporating Commerce, Arts, Culture and Media

Absorption of the professions was followed by the academy's one major burst of 'internal' growth, fuelled by the social sciences

(charted more fully in Chapter 5). Social sciences' spread within academia opened the way for a further wave of incorporation, centred on extensions of arts and humanities, most of which have now become subjects of study and objects of research at universities. Like the professions, these activities could gain prestige, if not practical input, from the natural and social science now pursued in the academy, which had an equally strong incentive to draw them in. Degrees from tourism and librarianship to creative writing have duly made their appearance, many enhancing the area of study by prefixing it with Business, Critical, Cultural, Economic, Gender, Human, Management, Psychological, Social or Sociological, to emphasise its new academic foundation.

Academic contributions have supplemented and often replaced the skills that dominated earlier courses of training, usually outside higher education, often in apprenticeships. Cookery was a major subject in teacher training into the 1960s. It was converted into Domestic Science and then Home Economics. One of the present authors taught the first course in the Sociology of Home Economics. Now 41 universities offer Food Science and Nutrition as a first degree, 25 a higher degree, 14 a diploma and 4 a certificate. Biology, Biotechnology, Microbiology, Chemistry, Economics and Sociology have replaced the teacher-training skill of scheduling production of a securely coiled Chelsea Bun within a school double period.

The academisation of management and marketing has been an especially significant step. Quantitatively, this has provided one of the largest areas of postwar teaching and research expansion, especially in Europe and North America. In Britain, business or management studies was by 2004 offered as a first degree in 105 universities or associated colleges, as a higher degree by 82, a diploma by 61 and a certificate by 14. Those who know what kind of management they want to be in can run down another lengthening list of prefixes from Health Services and Facilities to Hospitality and Tourism. Business schools' boost to a university's research and teaching resources is amplified by the wealth of their client group: aspiring managers' propensity to pay large MBA course fees, and companies' keenness to sponsor research and continuing education for their executives, ensures a cashflow that can quickly overtake that of longer-established faculties. Poaching their subject matter from history, organisation theory, game and decision theory, statistics, engineering, economics and other social sciences, business-schools often do the same with their staff and students, who are lured by clearer career paths and better financial support.

Qualitatively, management can – along with computer science – be regarded as one of the first professions that universities have created, and not just incorporated. Although synthesised (like all ‘Studies’ subjects) from a range of older-established disciplines, business and management have now acquired their distinct methodologies (case studies, simulations, opinion surveys and text-mining ranking high), their own set of ‘classic’ texts, and refereed journals read exclusively within the profession. By mid-century in America, and end-century in Europe, management scientists had achieved a professional distinction from management practitioners, more extreme even than that of academic lawyers and physicians. Business scholars are now numerous enough to form their own internal market, exchanging ideas among themselves without the necessity to take input from, or target their output at, the commercial world outside. Their discipline has acquired the specialist jargon, models and statistics needed to exclude ordinary managers from the discussion, which can now treat firms and their leaders as objects of study not expected to answer back.

A generation of business professors who practised before they preached has been replaced by one whose academic management training was never needlessly interrupted by spells behind the executive desk. Journals once aimed at practitioners now feature subjects that sidestep their agenda, couched in terms that defy their vocabulary – a sure sign of success in escaping the perilous business environment for the faster-growing, more cyclically resilient academic one. Business has repeated the success of English literature, musicology, media studies and (in the UK) accountancy: subjects that grow much bigger, and enjoy more stable markets, than the real-world activities that inspired them. Other new disciplines can expect to join them as more, like Moliere’s *Monsieur Jourdain*, discover they are speaking prose, and fall silent while they seek to formalise its rules.

Conclusion: The Virtuous Circle

Universities expanded because they had become important, economically and socially. The governments, of all political stripes, that committed themselves to expensive programmes of building new universities and funding more students and academics to staff them, believed they were laying foundations for a stronger economy and a more just and contented society. But it can equally be said that universities became important because they expanded. Having prodded the state into initially enlarging them, they

entered a phase of self-sustaining growth, not open to derailment even when government support began to recede.

Increased participation in schooling, eventually compulsory to age 16, boosted the number qualified to enter higher education. The incentive to do so came from a comparison of graduate and non-graduate earnings that suggested a big lifetime return on the degree-course investment. Academic credentials became ever more necessary to pass employers' screening procedures, even if not relevant to performance of the actual work. The rate of return on higher education 'investment' thus stabilised or even rose, despite its graduates being channelled into tasks for which they were previously overqualified. A situation was created in which students, their families and prospective employers regarded university study as worth obtaining even if the costs are not met by the state. Degrees were now needed to obtain interesting, well-paid employment as well as post-school social initiation.

Social hierarchy has been reordered, with efficiency and apparent equity, on the basis of paper qualifications. When every applicant had good school-leaving grades, a first degree marked out the genuinely able ones; when everyone had a first degree, the master's became the distinction. Thus the twentieth century in Britain started with the completion of elementary schooling for all and ended with a target of half each age group entering higher education. Expectations of a university education had spread across the sexes, social classes and ethnic minorities. By 2000, women outnumbered men among full and part-time undergraduates and postgraduates.

The growth of compulsory education is, by definition, supply-driven. Governments lengthen and widen free school provision because they judge it to be in the individual and social interest, even if recipients do not always see it that way. In contrast, universities offer 'post-compulsory' education whose growth depended on demand – for places on its courses and outputs from its research. For almost a century after their late nineteenth-century revival, universities relied on governments to furnish the increased demand, by paying the fees and maintenance of an increasing number of students, and channelling substantial public funds into research. But by the end of the twentieth century, demand for universities' services had been extensively re-privatised, without curbing their expansion. The centrality created by that injection of public funds had created an expansionary momentum that can now survive their inexorable withdrawal. A major institution disseminating knowledge and accrediting knowers has been established.