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THE BUILDING OF AN AMERICAN EMPIRE

How did the United States become the global hub of scientific research? There is no denying that this is its position at the beginning of the twenty-first century. What is controversial, however, is whether this 'domination' is legitimate and rests on properly scientific grounds, or whether it is just a side-effect of the economic and military success that the United States achieved over the course of the last century. Occasionally this new centre is said to exclude its competitors (either intentionally or out of ignorance); sometimes it is diagnosed with initial signs of decline. Still, German authors who study the United States system of higher education like to point out that it was modelled on the German university. While obviously true for the late nineteenth century, this resemblance is as obviously untrue for the decades that followed. Within a very short time, the American post-secondary education system and the American way of organizing research developed a quite distinct profile. The apprentice outdid the master, becoming the global model.¹ European researchers concerned with exile and emigration, cultural history and the history of science sometimes suggest that this scientific and cultural pre-eminence was primarily due to the impact of those thousands of scholars, intellectuals and artists who had come to the United States as refugees from Europe. Rudolf Carnap, Ernst Cassirer, Erwin Chargaff, Max Delbrück, Albert Einstein, Enrico Fermi, Kurt Gödel, Walter Gropius, László Moholy-Nagy, John von Neumann, Otto Preminger, Leo Szilard, Alfred Tarski, Victor Weisskopf, Hermann Weyl, Billy Wilder ... – the list could easily be continued. However, as I will show in the following, the pre-eminence of the American system of science and its institutions was not only attained quite independently of any impact by emigrants from Europe but, on the contrary, offered them the very opportunities that allowed them to establish themselves (in many cases quite successfully) in the first place.

THE EXPANSION OF TERTIARY EDUCATION

In the first half of the twentieth century, all nations which had systems that differentiated scientific research and teaching faced similar problems. As an

immediate consequence of the process of modernization and the extension of civic rights that went along with it, there was the issue of granting access to higher education to previously excluded social strata, mainly – at least initially – the female half of the population. In democratic countries, it was no longer possible, and often undesirable, to defend the exclusiveness of access to education horizontally – against women – as well as vertically – against those strata that would later be described as the ‘educationally disadvantaged’. Sooner or later, one or more of these groups had to be granted access to higher education. Traditionally stratified societies (*Ständische Gesellschaften*), in contrast, were slower to give up practising social discrimination.

Since their earliest days, the American colonies and, later, united independent states conceived of themselves as a refuge for those whose freedom was compromised elsewhere. This came to be expressed iconographically in the Statue of Liberty in New York Harbor, a gift of French admirers of the American idea of freedom. If, initially, colonists were mainly non-conformist members of the elites of their countries of origin, the new immigrants of later periods formed a population that collectively adhered to the idea of upward social mobility as a promise to, or even a certainty for, the next generation. Educational institutions were the vehicles of this ascent.

Even after the end of the American Civil War, the system of higher education in the United States was a rather unsophisticated affair. Those who sought a scientific education had to go to Europe to get it. Between 1815 and 1914, more than 10,000 Americans obtained their doctorate at a German university (Brubacher and Rudy 1997: 175), among them some of the early sociologists, such as Robert E. Park, as well as many American philosophers and virtually all of those who made up the founding generation of American psychology. Not surprisingly, Johns Hopkins University, which was founded in 1876 and was the first US university to establish doctoral studies, did so by adopting the German model. It was Johns Hopkins, again, that later introduced the new type of academic teacher, who did both teaching and research, to the colleges and universities that had been set up at the end of the nineteenth century. Johns Hopkins became the model for both the reorganization of existing colleges and the foundation of new universities, among them, most notably, the University of Chicago. John D. Rockefeller Sr donated \$2 million (\$4.7 billion in 2010) to found it. In operation since 1892, this new university in no time became the leading centre of research and education for the new group of disciplines called the *social sciences*. Albion W. Small, the founding professor of sociology there and a Johns Hopkins graduate, had studied in Germany for a time and formed, with John Dewey, Thorstein Veblen, James R. Angell and others, a group of professors who departed from the German model with their stronger commitment to the practical application of knowledge. This commitment resulted in their being praised by pragmatist William James as ‘more consistently pragmatist than his own pragmatism’ (Brubacher and Rudy 1997: 186).

A problem all university systems had to solve was the status of the education they offered. Should the universities that educated for the sciences be

complemented by universities dedicated to vocational education, e.g. the technical or educational professions? Should the education offered by the establishments of the tertiary education system be hierarchically structured – for instance, by implementing a separation such as that between colleges charged with undergraduate education and special university-status ‘graduate schools’ for further education? Should new professions be allowed the same type of programme as the older medical or law schools? Finally, how much education (or training) was needed in the first place? For most of these questions, no definite answers could be found, and solutions changed with the decades. Different national provisions for the education of elementary school teachers and social workers are an impressive case in point. While traditionally stratified societies looked down on such education as mere vocational training and disposed of it by confining it to special institutions outside of the traditional universities, the young democracies routinely integrated it into their college and university programmes. In contrast, ‘home economics’² in the United States illustrates how problems of education were dealt with in a society that had already subscribed to the idea that formal education was a source of socio-economic distinction, and disapproved of any display of class arrogance towards inferior forms of work.

In the middle of the twentieth century, the ever increasing proportion of young people staying for longer periods in educational institutions led to a rise in the age of entry into the labour market, which in turn reduced the numbers in the workforce. This was a welcome effect at a time that was still experiencing the impact of the Great Depression. Around 1900, while the proportion of those between age five and nineteen who were in primary and secondary education was about the same in most rich countries of the time,³ the numbers of those in post-secondary education differed widely. In 1880, the absolute number of university students in the United States was almost three times that of Germany or Austria, and twenty years later the figure was only slightly higher. In the years that followed, however, the number of university students underwent almost exponential growth in the United States, while numbers in Germany remained stagnant. In 1930, the number of American university students was seven times the number of German or Austrian students; due to the Second World War, this ratio rose to a gigantic 21:1 by 1940 before going back, in 1960, to the still high ratio of 9:1 (Figure 1.1).

Since the layout of national educational systems differs widely and the quality of available data leaves much to be desired, the best way to do a long-term comparison of several countries is to cross-reference the number of individuals in post-secondary education, (i.e. university students) to the size of the general population of their respective countries. With these two sets of data, one can be reasonably sure that they were established in similar ways and are not too strongly biased. Table 1.1 shows these comparative data for four measurement points in the twentieth century. In the second half of the twentieth century, Austrian numbers keep declining towards the back positions (just as those of the three other countries that were in top positions in the 1920s, Czechoslovakia,

Figure 1.1 Development of the No. of Students in United States, Germany and Austria

or the Czech Republic, Switzerland and Hungary), whereas the English-speaking countries outside of Europe (United States, Canada, Australia and New Zealand) could maintain or even boost their leading position. Until 1970, Japan is among the countries with the highest proportion of students, while Israel maintains her front position and Argentina is for a certain time surprisingly close to the top. In the classical European science nations – France, Germany and Great Britain – the number of students is consistently lower than the mean of those 30 or so countries included in the comparison.

The countries exposed to a prolonged period of communist rule show a remarkable development of their own. While in 1950 and 1970, the communist countries are quite close to the top, they all – with the exception of Russia – lose this position after the downfall of the communist system. Unhampered by market constraints and funding problems, in the forty years of their existence these countries pursued an extensive educational policy, which may have been in part a systematic labour market policy as well. The high proportion of qualified personnel that migrated from these countries to the West after 1989 highlights the international competitiveness of education under state socialism.

In Austria, the First Republic was heir to an over-sized university system housing a disproportionate number of young people who sought academic education as a matter of family tradition. The result was an ‘over-production’ of under-employed talents because governmental retrenchment policies prevented any increase in employment openings. The universities were denied further appointments, and non-university research was as negligible then as it would be later.

In the United States, the number of university students, and of Ph.D.s, rose steadily. While in 1850, there were no more than eight ‘graduate students’ in

Table 1.1 Number of Students per 100,000 Inhabitants, 1920, 1950, 1970, 2000

Country (Year) 1920 unless specified	Per 100,000 Inhabitants	Country (Year) 1950 unless specified	Per 100,000 Inhabitants	Country (Year) 1970 unless specified	Per 100,000 Inhabitants	Country (Year) 2000	Per 100,000 Inhabitants
USA	566	USA	1764	USA	3713	Russia	4948
New Zealand (1921)	322	Japan	980	Japan	3280	USA	4676
Austria (1923)	298	Argentina (1960)	872	Israel (1972)	3097	Spain	4571
Japan	285	Soviet Union	597	Canada (1971)	2216	Australia	4414
Canada (1921)	262	New Zealand (1951)	567	Sweden	1486	New Zealand	4372
Czechoslovakia (1921)	208	Bulgaria (1946)	558	New Zealand (1971)	1292	Israel	4365
Switzerland	178	Poland	500	Finland	1277	Argentina	4267
Hungary	161	Canada (1951)	457	Yugoslavia (1971)	1272	Norway	4252
Mean	160	Israel (1948)	432	Bulgaria (1975)	1226	Ireland	4246
Romania (1930)	158	Mean	398	Mean	1111	Poland	4088
France (1926)	152	Australia (1947)	396	France (1968)	1088	Canada	3901
Sweden (1925)	150	Hungary (1949)	353	Argentina	1082	Sweden	3888
Australia (1921)	147	Austria (1951)	327	Italy (1971)	1036	Portugal	3722
Denmark (1925)	146	France (1946)	324	Australia (1971)	972	Denmark	3541
Germany (1925)	143	Czechoslovakia	315	Austria (1971)	840	Belgium	3459
Great Britain (1921)	138	Romania (1948)	307	Denmark	838	Mean	3446
Italy (1921)	135	Italy (1951)	303	Romania (1966)	796	Great Britain	3400
Poland (1921)	130	Finland	300	Netherlands	785	France	3393
Soviet Union (1925)	112	South Africa (1951)	291	Belgium	778	Bulgaria	3338
Belgium	126	Switzerland	271	Czechoslovakia	739	Austria	3217
Spain	110	Netherlands (1947)	270	Ireland (1971)	729	Japan	3143
Finland	108	Ireland (1951)	253	Germany	679	Netherlands	3068

Ireland (1926)	108	Yugoslavia (1948)	252	Norway	594	Italy	3067
Bulgaria (1926)	99	Sweden	233	Portugal	571	Hungary	3029
South Africa (1921)	96	Germany	230	South Africa	558	Czech Republic	2473
Argentina (1914)	95	Belgium (1947)	215	Switzerland	515	Switzerland	2160
Yugoslavia (1921)	93	Denmark	213	Mexico	514	Romania	2018
Netherlands	83	Great Britain (1951)	206	Spain	500	Mexico	1963
Norway	68	Spain	184	Great Britain (1971)	493	South Africa	1492
Mexico (1921)	67	Norway	165	Hungary	433	Germany	1449
Portugal	49	Portugal	161	Poland	300		
		Mexico	66	Soviet Union	143		

Source: Mitchell (1982); Mitchell (1992); Mitchell (1993). In the following cases data for students were not available for the census year: Yugoslavia 1923, Argentina 1913, Mexico 1924, Great Britain 1922, Bulgaria 1948, Soviet Union 1925, Hungary 1950. The numbers for students for the Soviet Union are: for 1925 Woytinsky 1928; for 1950 *Yearbook of the United Nations* 1950; for 1950 *Yearbook of the United Nations* 1970. Numbers for 2000 students: UNESCO 2003.

all of the United States, their number had risen to 6,000 by 1900, and to eight times as many by 1930. In the years following the foundation of the Johns Hopkins University, the number of Ph.D.s was about three dozen, by the end of the First World War it was already 562 per year, and within the next six years it doubled, reaching about 3,000 per year in 1940 (cf. Brubacher and Rudy 1997: 193; Thurgood *et al.* 2006).

GROWING DEMAND FOR ACADEMIC TEACHERS

Growing numbers of students usually lead to an increase in the size of faculties and, at least in the short run, in opportunities for those who aspire to an academic teaching career. It is in the nature of things that the increase in the number of degrees lags behind the increase in the number of students. An educational system that is closed to influx from the outside (i.e. does not allow for immigration) will necessarily result in an inadequate student-teacher ratio, as measured by the number of students to be supervised by one teacher. Educational systems are known for their capacity to put up with prolonged periods of overworking their faculties. The negative effects of the ensuing deficits in research output tend to register only with a certain delay.

While in Germany and Austria in the first half of the twentieth century there was an increase in the numbers of both university students and university teachers, the latter did not increase at the same rate. In the United States, in contrast, student expansion was accompanied by a disproportionate increase in the size of faculties. Supervision ratios may be taken as an indicator. For Germany, these are available for 1880 and 1930 (Titze 1987). In 1880, the best student-professor ratio is 4.4:1 at the University of Kiel, with the University of Berlin last but one with, even then, a ratio of 15.4:1. Half a century later, the top ratio is 10.4:1 for the small University of Giessen (with a faculty of only 177); Berlin ranges in the lower half at 19:1; and the most inadequate ratio is found at the University of Cologne with 29.1:1. For Austrian universities, the ratio is 10.5:1 in 1900, rising to 12.9:1 at the beginning of the First Republic (1920) and starting to re-decline in 1924 to the level of 10.4:1 that was maintained until 1933. In the following years, the number of students to be supervised by one professor keeps declining, reaching its lowest level in 1937 with 8.9:1. In the United States, the supervision ratio was essentially stable between 1930 and 1940, whereas from 1938 onward, there was a decline in the number of those who qualified for a professorship, approximately defined by the number of individuals having obtained the highest academic degree, the Ph.D. (Table 1.2; cf. Thurgood *et al.* 2006: 7, 14).

The reason for this marked difference between the two German-language countries is no doubt to be found in the special characteristics of the Habsburg Empire, where the German-speaking population formed the elite and was, thus, also more strongly represented in higher education. After the end of the Dual Monarchy in 1918, what had once been the educational institution for the multinational body of civil servants for a multi-ethnic empire became a relatively overpopulated university whose graduates were no longer absorbed by the

Table 1.2 Students and Teaching Staff, United States, 1900–50

Year	Students	Teaching Staff	Supervision Ratio
1900	237,000	23,868	9.9
1910	355,000	36,480	9.7
1920	597,000	48,615	12.3
1930	1,100,000	82,386	13.3
1940	1,494,000	110,885	13.5
1950	2,444,000	190,353	12.8

Source: Snyder 1993: 75, Table 23 (author's calculations).

Figure 1.2 Development of the No. of Students and Ph.D.s, United States 1926–50

Source: US Bureau of the Census 1964.

bureaucracy of the residual state that went by the name of Austria. This reduced absorption capacity of a severely downsized bureaucracy, in conjunction with the de facto abolition of the military as an alternative career for the graduates of secondary education, can be assumed to have caused an increase in the afflux to, and time spent in, the universities.⁴ There, students faced a comparatively large and almost constant number of faculties, which also was a legacy of the ancient Empire. Various reports refer to the high average ages of faculties, a result of long continuance.

In the United States, there was a short period in the 1930s where the size of faculties failed to keep up with the rapid growth of the number of students (Figure 1.2). The usual way of meeting excess demands is to rely on import. In the present context, this is of some relevance because the refugees from Europe who had come after 1933 now provided the human capital the American universities could draw upon. Between 1930 and 1950, the number of university teachers doubled. However, different cohorts of immigrants faced different opportunities for establishing themselves.

For those refugees – primarily those from Austria – who had come to the United States as late as at the end of the 1930s, and for those Germans who had

somehow managed to get through in the years between 1933 and 1938, conditions were comparatively favourable.⁵ For those who had already arrived in 1933, coping with the enforced delay in their careers was easier for the younger than for the older ones. Having been socialized in the Teutonic model, on the one hand they were more or less prepared for this career latency, and on the other found it easier to overcome their competitive disadvantages in terms of culture (of science) than the older refugees since they could opt for a second round of university studies. This was an outlook doubly barred to those of their comrades in misfortune who were their seniors in age as well as careers: for someone who had been a lecturer or even a professor in Europe, taking a second undergraduate degree was more or less unthinkable from a subjective point of view,⁶ while positions to be appointed to were few in the early 1930s. For those among the older ones who could not rely on support by some relief action committee, opportunities on the regular academic job market were next to zero. The few exceptions are just this: exceptions.

Since the late 1930s, the problem for many of the younger immigrant scholars no doubt was not so much finding a job but adapting to the cultural characteristics of the American system of science. The number of German-speaking sociologists who had come to the United States as refugees from the Nazis and were successful in their careers can be estimated at over 200; when they engaged in their career, there were no more than 50 American graduate sociologists to compete with (Riley 1960; Turner and Turner 1990). Growth in the number of students and the size of faculties varied between disciplines. In the 1930s and the 1940s, the overall proportion of social science graduates was stagnant while the proportion of Ph.D.s in psychology, sociology and political science increased, as compared to those in history and economy (Daugherty 1948).

DIFFERENTIAL CAREER PATHS FOR JUNIOR SCIENTISTS

The growing number of university students also led to an increase in the opportunities for engaging in a scholarly career. This career, however, is informed by other factors. University professors are the narrow peak of the system of science, and students are its broad base. Whoever wanted to gain access to this system had to start at the bottom, pursue their course of studies and then, maybe, work their way up – slowly in one culture, somewhat faster in the other. There is no ‘lateral entry’ in the academic world.⁷ For many decades, one-man representation was the prevalent model for most scientific fields in Germany and Austria. One man – and for once, there is no need to bother about a choice of words that might discriminate against women – represented the entire field at his university and, thus, determined curricular content. This constellation was full of consequences. The steep hierarchy of the academic universe did not allow for ‘peers’ at the full professor’s side, but only, in the best of cases, for aspirants to his succession. This is the humus in which myriad small groups have had to thrive, conceiving of themselves as ‘schools’.

Because of the small number of ‘formalized’ positions (i.e. those guaranteeing a regular income), full professors tended to foster only a small number of individuals, and in most cases only one, as their potential successor. If this individual happened to leave, or die, before the position reserved for him became vacant, this small universe cracked. Unexpected opportunities for promotion opened up for outsiders or for individuals whose socialization for the sciences had taken place elsewhere (which in this world was more or less the same thing). But early deaths were few, and academics seeking urban exodus rare.

This account is at odds with the self-image cultivated by Teutonic academics throughout the twentieth century and, thus, calls for a more detailed argumentation. There is no doubt that students often turn to more than one university in the course of their studies. This fact of student mobility seems to have given rise to the collective view that German-speaking academics showed an intense regional mobility. It was supported by pieces of popular wisdom pretending, for instance, that one had to accept whatever first position one was offered, regardless of where one might intend to end up. This view, however, is not borne out by statistical facts. The biographical data provided by *Kürschners Deutscher Gelehrten Kalender* allow for an assessment of the scope of German academic mobility. Between 1926 and 1950, there were six editions of *Kürschners* where sociology was registered as a discipline in its own right. During this period, 282 men and 7 women opted for sociology as at least one of several disciplinary identities. Among 147 sociologists who appear in more than one volume of the *Kürschners*, only 54 report a change of regional affiliation. This is a full third of those who might have migrated, but only one-fifth of the overall population. During the whole period under examination, 36 of those who were mobile went to other locations within the German Reich and 18 went abroad and can therefore be included in the group of emigrant sociologists.⁸ Thus, only 36 of 289, or 12 per cent, can be considered a living proof of Teutonic academic mobility in this turbulent quarter of a century. All the others pursued a career at the university where they had got their first position, unless they died prematurely or withdrew from academic life.

In pre-First World War Europe – and in part even after the war – sustenance for the time between graduation and access to a professorship had to be met by one’s own means. This career pattern was highly selective on the social level. In the United States, the idea that well-to-do families should invest part of their money into the (far from certain) future of their offspring well beyond graduation seems to have been non-existent. The pensioner scholar⁹ (who after the hyper-inflation in the wake of the First World War had become extinct at least in Central Europe) and the private lecturer pursuing a bread-and-butter profession in a non-scholarly environment while waiting for an academic opening, were replaced by the post-doc, a young person who was being paid for acquiring research competencies and who, due to flat hierarchies and the larger overall number of positions, could after one or two years take up regular academic activities. This threshold was later lowered to the level of Ph.D. students, ‘graduate students’, thus completing the career pattern and pushing it to a limit

where incompatible role expectations made conflicts inevitable. Paradoxically, US university students today organize themselves in unions not as students, but in terms of their role as low-paid substitute teachers.

Even Max Weber was impressed by the American career model, which he discussed in *Wissenschaft als Beruf* (Weber 2002). Its main characteristic was – and is – that comparatively young people are given admission to the ‘faculty’, where they have to prove their worth not as assistants of their seniors in age and status but as masters of their own fate: ‘publish or perish’ is much more of an imperative for beginners than for those who have tenure. Thanks to the volume of the academic market, those who fail at one location may find a niche somewhere else. Regional and status mobility sometimes interact here in ways that may strike the European observer as strange. The early career of Robert K. Merton is a case in point. Having graduated from Temple University in his hometown of Philadelphia, he went on to Harvard on a scholarship. There he received his Ph.D. in 1936 and attracted attention with his study on ‘The unanticipated consequences of purposive social action’ (Merton 1936). In the three years that followed, he worked at Harvard on the lowest levels of academic employment, as a tutor and instructor. Between 1939 and 1941, he was a member of the Department of Sociology at Tulane University, in New Orleans, where – skipping the level of assistant professor – he was appointed associate professor. During his three-year stay at this less elite university, he rose to be a full professor and chairman of the department. In 1941, he gave up this position which, while high-ranking on the internal scale, was marginal in a regional perspective, to become an assistant professor at the Ivy League Columbia University in New York City.

In the middle of the twentieth century, leaving one university for another that was less prestigious, or more remote from the cosmopolitan centres, was as much a characteristic of the American system of higher education as the skipping of rungs in the career ladder. For example, Lewis A. Coser, Alvin Gouldner and C. Wright Mills obtained their first positions as (assistant) professors even before they had finished their graduate studies (of course, at other universities than those where they were still pursuing their studies). Moreover, changing disciplinary affiliations was comparatively easy since it was pre-formed by the non-specialist character of undergraduate studies: Robert E. Park’s many years of journalistic activities were no more a handicap than a non-existent Ph.D. was for Daniel Bell – he was appointed professor, anyway. David Riesman transferred from a professorship at the Faculty of Law to a sociological one, and when Paul Lazarsfeld was appointed associate professor of sociology at Columbia in 1941, he still thought of himself as a psychologist. Career paths such as these were possible because there was such a strong demand for professors. In the 1940s and 1950s, the academic market in the United States was a ‘seller’s market’.

A major effect of the pronounced market structure that determined the allocation of human capital in the American educational and science system is that novices are put under strong pressure to present proofs of their competence

within a rather short time. This is counterbalanced by openings on the faculty level that do not depend on whether there is actually a vacancy or the present jobholder agrees to a partial cooptation. Upgrading the position of an assistant professor to that of an associate and, later, full professor is a matter of the performance shown by the holder of the position rather than of staffing schedules.

In the Teutonic culture of science, there is no competition, no openings for meritocratic promotion and temporary downward mobility, and no cooperation among peers. The loneliness of the full professor, resulting from structural constraints and ideological hypostasis, may in some cases have increased his willingness to engage in interdisciplinary cooperation since communication on a national or even international level with peers in his own field remained episodic for various reasons. The often ridiculed conference tourism of our day was as yet nonexistent.

INSTITUTIONAL INNOVATIONS

An innovation that turned out to be truly momentous was the department structure adopted by American universities. Unlike the Teutonic model of the professorial chair, the department consists of a stratified but nevertheless egalitarian group of teachers. Members differ in rank on the formal as well as on the pay level, but all are part of the 'faculty' and are called 'professors', and are often even addressed as such by students. Access to higher positions and better pay is based on individual performance. A new 'professor' is not recruited by the holder of a chair but by the head of the department, for whom the potential appeal to students of the education offered is a factor to be reckoned with when he composes his team. The result very often is that a wider range of orientations is represented within a field. Thus, this system allows for more diversity in the composition of a faculty than the Teutonic system does, where the obligatory first step for whoever wanted to engage in a scientific career was (and in many places doubtless still is) to be recruited as an assistant by one of the established faculty members, and according to this member's personal preferences.

One of the side-effects of the department structure is that it constitutes a barrier against the formation of schools around a single leader. Only in their very first years, the American schools that have become known as such in the history of sociology congregated around single men (William S. Sumner at Yale, Albion W. Small at Chicago and Franklin H. Giddings at Columbia), and even these could only hope for permanence if their founders managed to achieve a certain balance between shared beliefs and diversity among the members of the second generation. While Small was successful in doing so in Chicago, schools at Yale and Columbia universities disintegrated when their founders left. In the United States, one-man schools like those in Germany existed only at relatively minor or rather peripheral universities (George A. Lundberg at the University of Washington in Seattle, Howard Odum in North Carolina, Emory Bogardus at the University of Southern California), while larger departments typically became bi- or even multi-polarized after a few years, which frequently led to sharp rivalries: Robert Lynd vs Robert MacIver

at Columbia, Pitirim A. Sorokin vs Talcott Parsons vs George C. Homans at Harvard. Successful former antagonists such as Merton and Lazarsfeld contrast with failed efforts, as in the case of Parsons and Samuel Stouffer. In between, there is the standard case of the more or less heterogeneous department, such as at Berkeley in the 1950s, where symbolic interactionist Herbert Blumer worked side by side with historical sociologist Reinhard Bendix and Lazarsfeldians Seymour Martin Lipset and Martin Trow (Platt 1996).

Departments were first introduced in the newer American universities, while traditional universities like Harvard were comparatively late in adopting them. As a result, the number of representatives of the same discipline who were concentrated at one place increased, which in turn entailed a certain pressure for cooperation, since pursuing purely individualistic strategies in one's dealings with the administration meant that one was collectively worse off. Departments whose members had fallen out with one another risked being closed down and, at any rate, had their funds reduced (for examples see Abbott 1999 and Bulmer 1986). The fact that the department was the organizational level for allocating funds imposed cooperation and compromise among its members and ruled out individual free-rider behaviour, if nothing else because students, via tuition fees, acted as a regulative. Even though students never actually gained the exclusive position that should have been theirs by the rules of model economy, they still had a certain influence on the course of events since, as consumers, they had a market to choose from. In Hirschman's terminology they had the option of exit, but not of voice (Hirschman 1970). In order to appeal to students, the university had to guarantee minimum diversity, which in turn resulted in more opportunities for outsiders to establish themselves.¹⁰ Flat hierarchies and the absence of personal dependencies (such as the dependency on a full professor at German and Austrian universities) further contributed to internal diversity (a term used by Bulmer to characterize inner department diversity) (Bulmer 1986).

Even though Europe has seen similar (but historically very rare) cases of 'motley' constellations of faculties, this diversity rarely became productive because differences in status were strongly accentuated and there was no culture of cooperation to rely on. In First-Republic Vienna, Othmar Spann and Max Adler temporarily engaged in a heated rivalry for students' attention, albeit under very unequal conditions, since Spann was the chairman and Adler just an associate professor without civil-servant status.

American universities soon abandoned the combination of teaching and research that is characteristic of the German model for a teamwork model where junior scientists are specifically recruited as collaborators in a research project and work under the supervision of a senior scientist (for a European perspective on this, see Adorno 1972a). This model seems to have emerged during the First World War when even social scientists were required to engage in teamwork to serve the United States government and were put under severe time pressure to produce results. By the late 1920s, this type of collaboration had become so much the routine procedure that the committee on

'Recent Social Trends' set up by President Herbert Hoover (President's Research Committee on Social Trends and Mitchell 1934) needed a mere twenty-four months to publish their final report (a book of several hundred pages, supplemented by half a dozen book-length special reports). Reviews of this book repeatedly pointed out the novel character of this way of doing research.¹¹

At the same time, the 'Notgemeinschaft deutscher Wissenschaft' (Association for the Emergency Funding of German Science) was reflecting on 'collective research' (see Chapter Three). In the autobiography of Friedrich Schmidt-Ott, the *éminence gris* of German research policies, there is a revealing remark on how this 'collective research' used to be initiated: 'In most cases, proposals were submitted by individual eminent scholars, described and explained in individual memoranda and discussed in special committees which, after endorsement by the expert committee and the steering committee [of the 'Notgemeinschaft'], were also in charge of supervising their execution' (Schmidt-Ott 1952: 212).

In this corporate model, participation was limited to the high-ranking members since only these were represented in the respective committees. There they were of course confronted with competitors, but policies were routinely oriented to mutual non-interventionism. Thus, if one member out-rivalled another at one point, he had to give way to the losing party next time. In the Teutonic model, one had to find a field and establish a monopoly on it, often in the form of a long-term solo editorial project. It is hardly surprising, then, that no other science culture has produced so many 'complete works' that were never *really* completed, even as new ones continued to be launched. This is the exact opposite of teamwork, as described in the foreword of *Recent Social Trends of the United States*:

The investigators were recruited with the advice of officers of the Social Science Research Council, of universities and other scientific institutions. Frequent progress reports were made by them and staff conferences were held from time to time as the researches progressed. Preliminary drafts of chapters were submitted for criticism as to accuracy and freedom of bias. In published form the chapters represent not only a treatment of the factors of social change, but an attempt to coordinate and integrate the evidence into a useful whole. (President's Research Committee on Social Trends and Mitchell 1934: xciii)

As a consequence of the contract form of American (social science) research, the social form of the 'project' became the predominant organizational mould for conducting research. Its major elements are: external funding by organizations not necessarily interested in the material results but which, as with philanthropic foundations, may promote non-specific interests; limited temporal horizon of the research; collaborators who are specifically recruited for a project; supervision by an advisory board composed of prominent scholars and representatives of the public; and pressure for success in order to qualify for further funding.

Research was subjected to a new temporal regime because funds, whether provided by foundations or allocated by the universities themselves, were almost always bound up with a time limit, and decisions on renewals, extensions and new applications were also reached on the basis of previous results. As a major way of structuring research, the 'invention' and large-scale introduction, in the United States, of time horizons within which projects were socially expected to produce presentable results was a byproduct of external funding. Combined with the regulative effects of the obligation to submit a report and of having past achievements evaluated, it revolutionized scientific research.

One could escape the stress of teaching in the mass university and of being submitted to administrative control – both of which had already been identified, with some concern, by Weber as special features of the American system of higher education – by exiting from the university system and establishing oneself in the non-university sector. There were special research centres that had been set up by a number of scientific academies, and where there were no such institutions or the existing institutions were too insignificant, private sponsors stepped in to set up non-university research centres. Finally, starting in the late 1880s, there was a quick succession of specialized research institutions created by industry to serve as industrial laboratories.¹²

With the creation of non-university research institutions, funding issues became more pressing. Nations with strong central governments and few or no private sponsors felt the need to justify the way funds were distributed since acceptance for preferential treatment in a universe of nominal peers (full professors) was hard to come by. As recently as the late 1920s, Augustus Trowbridge, travelling Europe on behalf of the Rockefeller Foundation, was surprised to find more than one Nobel laureate rather poorly equipped, in local comparison, with instruments, laboratory equipment and the like (Kohler 1991: 150–56). In a country such as the United States with its huge private fortunes, the first task for scholars was to persuade potential private sponsors that what they were doing was worth funding. Of course, the 'utility' this science was supposed to have was not an invention of those days, but it was then that it became a criterion for the allocation of funds. Since there was no central state administration or funding of universities in the United States, new actors appeared, encouraged by a cultural climate of scientific optimism: foundations assumed steering functions. Foundation officers, often endowed with far-reaching authority, decided on the allocation of funds and the development of research fields.

The American educational and science systems not only expanded earlier and faster than elsewhere, but also implemented a number of institutions that quickly spread to other science systems. One of these is the sabbatical (Eells and Hollis 1962), a free year with half one's pay available not only to senior scientists, used as an opportunity to dedicate oneself to the completion of a larger individual project, unmolested by day-to-day university routines. The first sabbatical was granted in 1880 by the president of Harvard University to a philologist, and by the turn of the century this policy had become accepted

as the rule for all the so-called research universities of the American northeast that competed with Harvard because otherwise they would have risked a brain drain. By the end of the twentieth century, the sabbatical had become a more or less worldwide institution (Geiger 1986: 75).

As such, one might say with regard to the United States, as a variation from the term coined by Rudolf Hilferding to describe the capitalism of that time, that this was ‘organized’ science, developed in the first third of the twentieth century in the course of a comprehensive social experiment. There is a pattern here that seems familiar in the history of social theories in the United States: a strong affinity to social Darwinism. This common thread in American social theories has been attributed to the fact that the immigrant society offered opportunities for the many and exorbitant material success for the few. As far as I know, however, none of the authors who have dealt with the American spirit and its notions of *exceptionalism* and *destiny* as a critique of ideology have ever considered the idea that a quasi-Darwinist pattern might also be detected in the way institutions were formed. Since the end of the Civil War – before which one can hardly speak of a system – the United States science system has been oriented to a diversity that was free to evolve and combine into endlessly novel forms. In the competition with other models, this diversity soon turned out to be its strongest asset.

THE EMERGENCE OF NEW SCIENTIFIC DISCIPLINES

The national counterpart to the creation of the department on the level of individual universities was the creation of professional organizations. Combined with the opportunities for and pressure to mobility, this led to a standardization of the social and cognitive gestalt of disciplines. Being a member of the department of x and the professional organization of x encouraged a person to see him or herself as a member of the discipline of x . As the annual conventions of the professional associations began to function as a job exchange and, thus, as a transfer point for junior scientists, the result was a cognitive and social standardization of the respective disciplines. Thus, at the beginning of the twentieth century, the United States had already established the very structures which Europe came to adopt only with a considerable delay. On the local level of a department, the advantage of diversity seems evident at least to students since it makes for a wider range of the education offered. But diversity seems to be an advantage for research as well – provided one is willing to accept concepts such as critical mass and density of communication as factors that are conducive to innovation (Hage 1999; Hage 2000; Hollingsworth and Hollingsworth 2000; K.H. Müller 2000).

A non-intended side-effect of small social universes is that they generally lack a body that represents the interests of disciplines still in the making. The associations of German physicians and jurists, but also the *Deutscher Historikerverband* (German Historical Association), were founded because of, among other reasons, the growing numbers of members of these professions. Thanks to their large membership, these quasi-professional organizations

could effectively present their demands in public, while the valiant pioneers of the new discipline of sociology had to be content with filing petitions to these pressure groups and were unable to directly approach the sovereign or the administration.¹³ This absence of a professional or trade organization was also one of the reasons that prevented the emergence of an exchange of ideas among colleagues who were not personally acquainted. In the personal space of a full professor, new faces seldom appeared, a fact that could be conveniently justified by the romantic notion that friendships had to be established on a life-long basis and, therefore, were few in number.

Decisions about the fate of new disciplines were rare, while decisions about the fate of aspiring assistant professors were a regular event, namely in the cabinets of regents or in the antechambers of ministers. These discussions were not open to everybody, probably not even to every full professor if his university happened to be a provincial one. Since the proponents of anything that was innovative, uncommon and, therefore, highly suspect were rarely allowed to climb the internal status ladder to reach the rung of a dean or rector, they were barred from access not only to the salons, but also to the antechambers of power.¹⁴ By relying on mediators – power brokers in Eric Wolf's terminology¹⁵ – one could perhaps influence personnel decisions but surely not explain, let alone influence, something as incomprehensible as the social or cognitive gestalt of a new discipline and its potential for development.

Characteristically, innovation within this system was possible only indirectly via personnel decisions that had the support of those 'in high places'. Joseph Schumpeter owed his appointment to the University of Graz – by no means the biggest hit in the lottery of positions – to an intervention from the top which the emperor had surely not been given to sign without the help of a power broker (Swedberg 1991). Even in republican times, disciplinary policy was pursued in terms of personnel policy. The Prussian Minister of Education, Carl H. Becker, who would have liked to see sociology established as a proper discipline because it was an adequate means of 'civic education', had to rely almost exclusively on an appointment policy in pursuing this aim: 'While in England and America universities are based on foundations and are free to handle appointments and economic conduct, universities in Prussian Germany are state organizations ... Everywhere, professors are appointed ... by the government. It fills the vacancies and is theoretically empowered – and has more than once acted accordingly – to appoint faculty at its own discretion, disregarding the universities.'¹⁶

It was only at the bigger universities that there were opportunities for cooperation among the representatives of a field and, thus, for the formation of what is referred to in innovation research as critical mass – a term which, however, fails to specify its volume. A closer look at the development of the (social) sciences in the German-language area provides some confirmation for this: the Vienna School of the Theory of Marginal Utility only flourished when a second generation had emerged and, with it, the number of chairs held by its

proponents at the University of Vienna had increased. The Logic Empiricists of the Vienna Circle favoured an atypical collaboration among the representatives of various disciplines by opening the Circle to participation from outsiders. In Frankfurt, competition between the followers of Mannheim and those of the Institut für Sozialforschung (Institute of Social Research) is said to have inspired discussions in the early 1930s, while the presence of a large number of representatives of various disciplines united by the bonds of friendship similarly contributed to a fruitful dialogue. No such thing can be reported for the smaller universities where, as often as not, teaching was assured by mavericks who expounded on their very special versions of the respective disciplines. Adolph Günther in Innsbruck is a case in point, as well as Johann Plenge in Münster (see Stölting 1986: 129–33), or Richard Hildebrand, predecessor of Joseph Schumpeter at the University of Graz and dubbed the ‘miniature Herostratus’ (Seidl 1982). The one-man constellation implied that there was a tacit division of labour between the professors at the bigger universities, who did research as well as teaching, and the professors at provincial universities, who in most cases did only teaching but could compensate for this by being the local ‘top dog’.

At the structural level, the system of German-language universities was the equivalent of the German mini-state system that prevailed prior to the foundation of the Reich in 1871. Under conditions of low student numbers it operated well enough, but to glorify it would merely be to indulge in nostalgia. References to the highly productive and pioneering research achievements that were accomplished at the time have to be relativized in two respects. The achievements of the Vienna School of Medicine, the Berlin physicists and the Göttingen mathematicians, on the one hand, were not realized within this structural pattern but under conditions that were an anticipation of later developments, and were an exception in Teutonic science. The memorable achievements of German-language sociology, on the other hand, were realized under conditions one hesitates to describe as being conducive to creativity since they were, for a large part, due to the work of private scholars such as Georg Simmel, Robert Michels, Wilhelm Jerusalem, Gustav Ratzenhofer, Karl Renner, Edgar Zilsel and Alfred Schütz, or of ‘also-sociologists’ (academics with a strong, or primary, involvement in other disciplines) such as Hans Kelsen, Joseph Schumpeter or Emil Lederer, whose sociological achievements, at any rate, were not produced in an institutional environment that was favourable to sociology.

INTERNATIONAL DISTRIBUTION OF SOCIAL SCIENTISTS

In the last decade of the nineteenth century, René Worms (1869–1926) founded the Institut International de Sociologie (IIS). This institution, while largely bypassed in the literature, is interesting in two respects: set up in 1893, it was the first international (multi-language) organization to bring together social scientists under the label of sociology, and an analysis of its membership provides insights into the history of the institutionalization of sociology. Until the

beginning of the First World War, the IIS regularly organized international congresses of sociology, the proceedings of which were published in its *Annales* of the IIS. Worms was also the editor of the *Revue Internationale de Sociologie*.¹⁷

IIS membership was limited, as was customary for academies and similar institutions, to 100 full members and associated members, respectively,¹⁸ and since Worms could not win over all his colleagues for his undertaking, it does not reflect the entire range of the sociologists who were working around 1900. The most notable absence was that of the followers of Émile Durkheim. Still, the French were the largest national group, and French was the lingua franca. The United States provided only 14 IIS members (6 per cent) and, thus, was the sixth largest group – behind Russia! A change of name from ‘International’ to ‘European’ would seem to have been indicated, but since no such change occurred, this rather suggests that at the time the Europeans conceived of themselves as the unquestionable centre of the whole scientific world.

The scarce biographical data¹⁹ that were published in the register of members reveal that those who reported sociology as their professional identity already were the largest group, followed by the economists and the representatives of the juristic disciplines (including political science), all of whom, however, also conceived of themselves as sociologists. At any rate, the fact that they were members of the IIS strongly suggests this type of partial identity.²⁰

The biographical data further include information on whether or not IIS members were affiliated with a university, which in turn allows for conclusions as to the different degrees of institutionalization attained by sociology. While 35 (of a total of 37) jurists, 44 (of 47) economists and 22 (of 25) philosophers held a university chair, only 26 (of 49) of those who reported a sociological position did. This is even more striking when countries are compared: even in 1913, there still was no German member who could report both an exclusively sociological identity and a university position; of the 12 British members who identified themselves as sociologists, only 2 were affiliated with a university. Table 1.3 shows the cumulative data for the different countries of origin. What is striking is the large proportion of IIS members with a university affiliation in Italy, Belgium and Germany, which in the latter case, however, was primarily due to the so-called also-sociologists, as mentioned above.

In the early 1920s, there were about 200 international sociologists from a wide range of nations and disciplines. In some countries, the new subject was taught at the universities under the name of sociology, in others its efforts to gain ‘cognitive’ independency remained controversial, while in still others attempts at university establishment failed altogether. In many countries, the national sociological associations were dominated by also-sociologists. These did not always evolve to be ‘pure’ sociologists, nor did their associations evolve to be professional organizations. Whatever the individual reasons for this unwillingness, or powerlessness, to impose sociology as an independent university discipline (see Käsler 1981; Fleck 1990a), by around 1910 American sociology had already taken the lead. Sociology existed as an independent

Table 1.3 IIS Members, Affiliation and Country (in %)

Country	University based	Not university based	Total	No.
France	9.2	7.4	16.6	38
England	7.4	7.4	14.8	34
Italy	10.9	3.5	14.4	33
Germany	7.4	0.9	8.3	19
Other European	3.9	3.1	7.0	16
Russia	3.5	3.1	6.6	15
USA	5.2	0.9	6.1	14
Belgium	5.2	0.9	6.1	14
Spain	4.8	0.9	5.7	13
Austria	3.1	0.9	3.9	9
South America	2.6	1.3	3.9	9
Hungary	2.6	0.4	3.1	7
Switzerland	2.2	0.4	2.6	6
Asia Minor	0.9		0.9	2
Total	69.0	31.0		229

Source: *Annales de l'institut international de sociologie* 1913.

discipline with, what is more, sociologists teaching at prestigious universities. They had gained, via their professional organization, a distinct position that was unmistakable in the concert of the social sciences and unchallenged by the neighbouring disciplines. Even in these early days, the sociologists of the country that later provided the model for the discipline were otherwise distinguished than their European colleagues: 9 of the 14 American IIS members were full professors of sociology.²¹ No other country had a similar number of scholars who called themselves sociologists and were established as such at a university.²² Before the First World War – after it, the IIS became more and more insignificant – the social science elite that was brought together in the IIS was not yet concentrated in terms of regions, and still extremely diverse in terms of disciplines.

NEW DONORS, NEW DECISION-MAKERS

It was the immense wealth of the United States that made foundations possible, in the first place. This wealth was accumulated under cultural and economic conditions that were – and still are – characteristic of the American society and need not be described in detail here. Visiting foreigners observed them with amazement, Americans glorified and vilified them. Phrases like ‘self-made millionaire’, ‘robber baron’ and ‘big spender’ became household words not only in English-speaking countries.

The religious roots of philanthropy have been studied in much detail. The set of institutional conditions that allowed for the rapid acquisition of wealth, and the normative orientations that went along with them, are the reasons

why the United States is the wealthiest country of the world and, at the same time, has one of the least 'inclusive' systems of social security. John Kenneth Galbraith's decades-old diagnosis of 'private wealth and public poverty' still holds true. But since our concern here is not with present-day issues of social policies but with the emergence of a new way to promote the sciences, issues that belong to an analysis of society will not be addressed unless they are relevant for an understanding of scientific institutions.

Philanthropy is an ambiguous term, and its literal meaning – love of human beings – does not help much either when it comes to defining what it is supposed to mean. In one sense it describes every form of charity by individuals to other individuals or social groups. Due to the successful application of this form of altruism, the United States refrained from developing a system of social security such as those implemented by all other modern states to ensure the (re) distribution of wealth as well as of social risks. Charity is something between individuals, between those who give because they feel a moral obligation to do so and those who receive and who may count on being given to when they are in need – but with the power of definition lying not with the needy but with those who give. When Alexis de Tocqueville returned from his journey to the United States in the fifty-fifth year of its existence as a republic, he even claimed that a 'general compassion for the members of the human race'²³ would arise as soon as democracy would abolish the barriers of rank and the privileges that went along with them. He seems to have been right in at least one point, since American philanthropists, as we will see, often enough extended their activities beyond their own country to support needy foreigners.

In the course of the last two centuries, American philanthropists served religious, aesthetic, contemplative and cognitive needs, the Church, education, culture and science. In the beginning, there was the funding of the Sunday-school activities of some religious denomination by its members, but after the Civil War the focus shifted to the education of the great-grandchildren, still called 'negroes' at the time, of the slaves towed in from Africa. The extended system of public libraries that helped immigrants of every level of education in their struggle to find their bearings in the New World was almost entirely the result of private initiative. Today, philanthropists fund museums, concerts and research centres, and support efforts to rebuild an open society in countries formerly under communist rule (Nielsen 1972; Nielsen 1989; Lagemann 1999).

Any survey of the history of philanthropist activities in the United States reads like a chronology of the values that prevailed at different times. Philanthropy took a decisive turn when, with the emergence of mass society, social problems multiplied and every clear-sighted observer had to acknowledge that charitable donations could at best serve as palliatives to these ills but were powerless to eliminate them. The charity of former times, whose aim had been to help individuals cope with needs, was superseded by a philanthropy that used scientific findings and sought to foster them. Since foundation officers were university graduates trained to think in chains of causation, they were no longer oriented to

the immediate relief of distress but to the detection of its roots. The new goals were public health, medical research, and campaigns for disease and epidemics control, rather than the care for orphans or the wars against alcoholism and prostitution, which used to be seen as a healthcare issue. This also was the beginning of the liaison between affluent donors and scientists. Didn't the scientists promise to reveal the sources of diseases? So, why not use the same scientific approach to reveal the sources of those *social* evils which, at the time, were framed as a social pathology? Moreover, the widespread belief, stimulated by scientific achievements, that if only scientific research was permitted to go on long enough it would in the end also detect the laws that governed the social sphere, acted as a catalyst (Karl and Katz 1981: 243–4).

Around 1900, the first industrial magnates turned to the sciences as the 'needy' ones of modernity, and at the same adopted – by their own account at any rate – the tools of science in order to invest their donations with similar accuracy in meeting their targets. The two best-known philanthropists were Andrew Carnegie and John D. Rockefeller, two prototypical self-made men. From early youth both had donated part of their incomes, which at the time had by no means already reached notable heights, to charities and later continued to do so on a correspondingly larger scale. The part of their fortunes that was dedicated to charities was so large that new forms of organization had to be found.

Distributing one's wealth according to scientific standards as Carnegie and Rockefeller did was in the spirit of the age, so to speak; donating to the sciences was more of a surprise. The long history of philanthropy shows that in choosing the institutions to be supported, the owners of large fortunes often paid tribute to what were defined as key problems by their society and culture. They rarely acted as social innovators, leaving this part to the recipients of their funds or to one or the other of their foundation officers. Anyhow, in twentieth-century America, a widespread belief in the sciences prompted these two magnates to transfer part of their fortunes to foundations that in some way or another began to act as institutions for the advancement of science.

Carnegie, having risen to become the country's leading steel industrialist and multi-millionaire, made redistribution his personal philosophy and, since he liked to put pen to paper, preached it at some length. At the age of fifty-four, he declared that 'the man who dies rich dies in shame,' as if he had already been aware of the Kwakiutl Indian institution of potlatch (in which possessions are given away or destroyed to enhance prestige). Rather than entrust an immense fortune to inept heirs (or to donate it by testamentary bequest to some vague charities), Carnegie argued that every millionaire having reached the second half of his life should give his fortune to the public. Entitled the *Gospel of Wealth*, Carnegie's pamphlet found entrance not, it is true, in world literature, but in the history of philanthropy. One of its arguments is that it takes an expert to redistribute wealth just as it takes one to accumulate it. Until his death in 1919 at age eighty-four, the eccentric Scottish-born immigrant placed over \$300 million (\$3.7 billion in 2010) in the various

foundations that bore his name. But he came to learn that donating money was a difficult job. When he died, there still were millions of dollars left, even though he had begun to distribute his riches rather frantically in his last years.

Carnegie was an example that inspired. Among those who initially imitated and later competed with him, the one figure that stood out was Rockefeller, who had become rich in the petroleum industry. His reputation as an industrialist was even worse than that of Carnegie; since neither had bothered much with morals or the law when making their money, they were far from being popular with or respected by the general public. When they started to distribute their wealth, many people suspected that they did so only to embellish, disguise or even promote their entrepreneurial concerns. In the long run, however, both have become firmly rooted in the collective memory of Americans for their donations rather than for the way they accumulated their wealth.

For the present purpose, there is no need to go into the details of the philanthropic empires of Carnegie and Rockefeller (see Figure 1.3); it is quite enough to describe the problems that arose in the context of the advancement of science and to highlight the mechanisms that proved to be useful in this business.²⁴ Initially, Carnegie and Rockefeller took an active part in their foundations, which was by no means something all donors did. Unlike in business life, where they had ultimately relied on their personal intuitions, these new activities often required them to rely on the judgement of others. Philanthropists at the time sought to avoid public controversies about the institutions or measures they chose to support, which led to less confidence and more reserve in their actions in the world of science sponsorship.

Carnegie's funding of public libraries – he promised to pay the cost of setting up a library for every community that would provide a plot of land and assume the cost of current operations – occasionally met with resistance,²⁵ but the obstacles that had to be overcome were clearly outlined and the benefit of a library was unquestionable. In an American society where equal opportunities for starting out in life were highly valued, the diffusion of knowledge to all who were interested in it was much more evident than in the more traditionally stratified societies of Europe, which were much more reluctant to give up privileged access.

When scholars began to apply, foundations not only had to learn to distinguish between charlatans and experts but also to come to decisions about which fields of science were worth supporting. Prior to this period, philanthropic donations had been dedicated to more or less clearly outlined concerns which – and this, again, is specific to the United States – were supposed to either combat an evil on the local level, known to and deplored by everybody, or to satisfy some secondary needs, and thus to enable all members of the community to derive a clearly defined benefit. Scientific research and even teaching (which Carnegie had also sought to improve through a foundation) were no longer local concerns, but national and even international ones. When Rockefeller entered the scene as a big spender, his initial activities still evolved entirely in the local tradition: he

Figure 1.3 Andrew Carnegie's and John D. Rockefeller's Foundations (Selection)

Note: Title of foundation, founding year–final year, initial trust property; area proportional to trust property.

Source: Fosdick 1952; Lagemann 1983; Lagemann 1989.

donated money to a Baptist college in Chicago in order to found a university. That this would become the University of Chicago was not foreseeable. When local charitable concerns such as these were replaced by the general advancement of science, neither the definition of the object to be advanced nor the group to be favoured were clear, and the pompous mottos both foundations had given themselves were not least a result of this state of affairs. The Carnegie Corporation (CC), Carnegie's last and biggest foundation set up in 1911 with \$125 million in capital (\$2.8 billion in 2010), was supposed to 'promote the advancement and diffusion of knowledge and understanding among the people of the United States'. The Rockefeller Foundation (RF), established two years later with an initial capital of \$183 million (\$3.9 billion in 2010), was dedicated to 'the Well-Being of Mankind Throughout the World' (Geiger 1986: 143).

Big donors such as these two industrialists faced the problem of deciding what (else) they wanted to promote. The decisions reached in the end – for instance, with Rockefeller, Christian missionary work in China, various forms of medical and public health activities, support for war victims in Europe, or fighting disease in Central America – reflect the personal preferences and influence of advisors with a long-standing experience in philanthropic matters. When the entire territory was covered, so to speak, and there were still millions waiting to be donated, Carnegie and Rockefeller both looked beyond the small circle of advisors and ended up with the vague aim of advancing science. But in doing so, they also delegated part of their discretionary competencies to those who, as members of professional groups, were closer to the potential applicants than to the social worlds of the donors.

Foundations of philanthropists that are dedicated to such a wide range of purposes were, and are, organized like firms. The founder and namesake of the foundation – or later his heirs – would have a seat on the board of trustees and, in most cases, exercise an influence that went well beyond a mere vote. For support, they recruited intimates and celebrities. The former were supposed to help them reach decisions, the latter to function as experts in carrying them out. The founders, however, did not act as the president of the board or the foundation. Initially, this was a charge for one of the intimates, and a full-time job at that. As foundations evolved, presidents were selected very much like CEOs. Neither the founders nor the presidents were authorized to make decisions without consulting others. In some of the foundations established by Carnegie and Rockefeller, their influence was rather reduced, which was due not only to their old age but also to the fact they were no longer interested in the current affairs of these institutions. For individual decisions, the trustees who laid down the general guidelines (and in the early days also were responsible for day-to-day management) had to rely on the expertise of others unless they wanted to fall prey to lobbyists, insinulators and applicants.

As the philanthropic empires expanded, more and more people were involved in decision-making and, unsurprisingly, more and more debates arose. What, then, were the structured forms that crystallized? One of the problems to be solved was information: how should a decision be reached, and what prior

knowledge was needed to reach it? Another one was that the organizational structure of the foundations called for change because the work required could no longer be done as a part-time job. But who was to decide? Three options suggested themselves: obtaining expert opinion, delegating the decision to external sources or recruiting a new type of foundation officers.

The simplest case was for a foundation to ask, and pay, a renowned expert to do a survey, and to reserve its decision on what was to be done (i.e. what was to be sponsored) until an opinion was delivered, even if recommendations voiced by experts were not always acted upon. Considerably more influence was given up when foundations, following European examples, established research institutions of their own. The Rockefeller Institute for Medical Research (founded in 1901) and the Carnegie Institution of Washington (founded in 1902) were endowed with sizeable capital, the interests of which served to cover the cost of daily affairs (Geiger 1986: 59–93; Kohler 1991; Lagemann 1989).

For Carnegie's foundations, success only came when, after a long time, they helped to set up two new social science institutions. During this long incubation period, however, external political conditions as well as the staff composition of the Carnegie Corporation had drastically changed. Carnegie's role in setting up the National Bureau of Economic Research or the Brookings Institution is not evident in their names. Whether this was due to the amount of funds allocated or to the controversial nature of the disciplines represented by these two institutions remains an open question, but in the light of some comparable cases, the latter seems more likely. These two institutes were the first social science research centres that owed their existence to funding by a philanthropist. Therefore, we will discuss their emergence in some detail here.

Captains of industry did not feel that the knowledge that was the basis of their success still needed discovering. Only its diffusion seemed something of a problem. Malevolence and lack of education were taken to be the reasons why their perspective on the world of money making was not shared by everybody. So they readily took to the idea of popularizing the insights that guided their action. Thus, at a conference that brought together the wealthiest and most important industrialists in 1912, the founder and president of AT&T declared that a 'constant chain of correct information' should be directed at those who were most exposed to the influence of demagogues and agitators, and most ready to succumb to it (cited in Lagemann 1989: 53). Sympathizing with this view, John D. Rockefeller Jr, who had also been present at the conference, charged one of his officers to sound out possible ways of action. But having consulted the economists at various universities, this officer came up with the suggestion that an institute be set up in order to do basic research in economics. This, the researchers felt, was much more important than propaganda. Since no compromise could be reached between the advocates of propaganda, mainly found among the senior advisors in philanthropic affairs, and the junior academic economists who argued for setting up the research centre, the initiative was adjourned.

The Russell Sage Foundation, which since its founding in 1907 has been dedicated to the improvement of social work and the funding of social surveys to this end, did not strike the industrialists as a possible model. For a number of years, empirical economic research remained a domain of researchers at universities. In 1914, in the wake of an industrial conflict on the Colorado prairie that had turned to bloodshed when gunmen, hired by a company in which Rockefeller had a major share, had murdered strikers and their families, Rockefeller charged a Canadian with conducting a scientific study on 'industrial relations', a term that came to be used for the first time in those days. Because of the obvious link between the violent repression of the strike and this assignment, reactions among the public as well as on Capitol Hill were extremely hostile, recalling the populist criticism that had flared up during the anti-trust suit against the flagship of the Rockefeller empire. Due to this episode, Rockefeller abstained from sponsoring the controversy-prone social sciences for the next ten years.

Carnegie or, rather, the leading officers of his foundations, were less averse to economics and saw the danger that arose from such initiatives as rooted for by the political critics of plutocracy. One suggestion was to strengthen public control of the foundations. It took the political caesura of US entry into the First World War and the subsequent shake-up of many institutions, as well as the innovations brought about by war administration, to make possible the foundation (and funding) of the two research institutes mentioned above.

Carnegie Corporation funding began in 1920 for the National Bureau of Economic Research and in 1922 for the Institute for Governmental Research, which later became known as Brookings. In both cases, cooperation between scholars, industrialists and government officials during the First World War seem to have acted as a stimulant. After the end of the war, the idea of maintaining some of the research institutions that had been set up under the auspices of the federal government rather imposed itself, primarily for those institutions dedicated to statistical work. Emphasizing the fact-finding aspect of economic research, a proposal was drawn up that was acceptable to all concerned (Lagemann 1989; Grossman 1982; Bulmer and Bulmer 1981).

The long delay that characterized the social sciences' entry into the sphere of large-scale funding by foundations and, ultimately, the way to success of those who had ventured to promote it, was due to the fact that in the world of philanthropic organizations a number of changes had occurred that, in sum, contributed to facilitate the establishment of the social sciences. The traditional trustees, who were businessmen or even clergymen, had seen their influence more and more reduced in favour of individuals coming from the world of science. Scholars, or former scholars to be more exact, made their entry not only to the boards of trustees, but also to the various levels of foundation staff. This shift in the social composition of the main bodies also entailed a shift in the foundations' aims. While the funding of the natural and medical sciences, besides the actual benefits these disciplines might offer, had to a certain extent been geared to the instruction of and effect upon the lay public, this aspect

faded into the background when scholars in the foundations sought to improve the working conditions of their colleagues at universities and research centres. After the end of the First World War, the advancement of science was intensified. The shift from propaganda to basic research as the maxim for funding decisions was accompanied, on the part of the scholars, by a neutral, impartial, exclusively science-orientated attitude which was more and more taken for granted and made it easier for its advocates as well as for the foundations to appease contradictory or admonitory voices since there was no risk of triggering public controversy.

The fact that decisions were no longer made by the founders or their advisors but were delegated to the representatives of the profession that was to benefit was explicitly acknowledged when the foundations started to collaborate with organized groups of scholars. A committee that had been established during the First World War as an advisory body to the government evolved to become the National Research Council (NRC) which, due to its energetic protagonists, soon gained acceptance with their scientific colleagues and, what is more, could convince the foundations to carry on with their activities after the end of the war. The NRC was not only allotted large sums of money, or promised such sums for the future, but was also left free to decide on how to distribute them. In this case, the foundation actually was reduced to a kind of holding company that had no say in the operative part of the business. There was not much left of Carnegie's initial idea that a rich man should, in the second half of his life, become an 'administrator of surplus wealth' (cited in Bremner 1988: 102). The place of the self-assured super-rich dilettante was increasingly taken by well-paid employees who, before entering the world of philanthropic foundations, had come to know or even excelled in the world of science. Among the first presidents of the CC as well as the RF, there are former professors of sociology, such as George Vincent (RF, 1917–29), of psychology, such as James R. Angell (CC, 1920–21), and of mathematics, such as Max Mason (RF, 1929–36), all of whom also acted, before or after, as university presidents.

After the First World War, the number of staff at the sub-presidential levels also increased; almost all of these men and women were university graduates, and some of them had been more or less intensely engaged in scientific work themselves. They were, thus, much more familiar with the frame of mind of their clients. They had their own notions of the development the sciences should take, and a clear idea of the way in which foundations could contribute to this development.²⁶ We will meet some of them on the pages that follow.

Until the United States entry into the Second World War in 1941, some of these novel formations proved to be highly efficient; afterwards, the state became involved as an actor in the system of science and transformed it from top to bottom. In a sense, the United States became much more European after this, which some have attributed to the influence exercised by the intellectuals among the refugees from Hitler. After a review of some of the points that have been briefly evoked here, it will be easier to see whether or not this is true.

Hardly anybody will deny that after the Second World War, the United States became a world power on the military as well as the political level – and that, at the end of the century, it was the only one left. Most commentators date the ascent of the American science empire to this period as well. With respect to top achievements, as reflected, for example, by the number of Nobel Prize laureates, this is no doubt true. But on the level of institutions, the American science system was superior to the European one even in the interwar period. The two main driving forces were the rapid increase in the number of students in tertiary education and the willingness of private financiers to donate their fortune to the sciences. The basis for both was the belief in the utility of scientific research. The social sciences benefited from this utilitarian and science-friendly climate and, more specifically, from the fact that conditions for innovations to emerge and to impose themselves were more favourable in the United States than in Europe. The pioneers of American sociology, it is true, were no match on the intellectual level for their European contemporaries, if being awarded the honorary title of a '*Klassiker*' or a 'great' is taken as a criterion for someone's admission to the collective memory of the discipline – the only American from this generation who was admitted to the temple of the immortals was Charles H. Cooley.²⁷ But unlike their European colleagues who, with the exception of Durkheim, were institutionally impotent, the founding fathers of American sociology managed to participate in the establishment of the American science empire and even to derive an above-average benefit from the new institutions. These new innovations included features as diverse as the sabbatical with regular payment for university professors, paid work opportunities for graduates, departments and professional organizations that were more than intellectual debating societies, project-based organization of research and scholars who worked as experts in the new philanthropic foundations or acted as their advisors. These smaller or bigger innovations have as yet not been given much attention in the literature on the institutionalization of sociology, although there can be no doubt that they largely contributed to the success of the American world of science.

Finally, it has to be emphasized that the United States was much quicker to adjust to new conditions, no doubt also because there was no central state relying on national legislation to control the intricately linked worlds of higher education and research. As a result, innovations were pitted against each other in a qualifying competition that produced the very diversity which, in turn, allowed others to adopt the most successful among them. One need not share the belief that the United States system of science has come up with an adequate solution for every problem. But it can hardly be denied that this was the system where the broadest range of responses was put to the test. Some of the institutional innovations that proved to be successful in the United States have been adopted in other parts of the world. It is not an exaggeration to say that the United States has been – and remains – *the* laboratory for science policies in the twentieth century.