

## **The Composite Legitimation of American Universities And The Exclusion of Jews From Their Faculties, 1920-1945**

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The emergence of the university was one of the major cultural events of late nineteenth century American history. Pre-Civil War colleges were situated physically and intellectually at the quiet backwaters of the American republic. By contrast, in the eighties and nineties, the new universities moved almost directly into the midst of the booming and bustling society of the day and aspired to give their country informed and public spirited guidance. For the most part, the American universities have held that central position and aspiration ever since.<sup>1</sup>

In 1891, just as the new beginnings of the American university were becoming apparent, Josiah Royce, the American philosopher and historian, wrote a profound and influential essay, "Present Ideals of University Life," which helped shape the understanding and legitimations of American universities until World War II. In fact, Professor Laurence R. Veysey's definitive work, *The Emergence of the American University*, upon which most recent scholarship relies, clearly drew upon Royce's categories and analysis. Royce, in a Hegelian-historical argument, traced the evolution of the American university from its colonial origins as an English-styled college whose graduate was a classically trained gentleman, through its antithesis, the technical and professional schools of the Jacksonian mid-nineteenth century, and finally on to its synthesis in the research university (much beholden to Germanic notions) which claimed to integrate ultimate usefulness with the rigorous development and broadening of the mind.<sup>2</sup> How that synthesis, with its composite legitimation, worked out in practice and was modified in subsequent decades has not usually been studied. Through recourse to a historical perspective, with its awareness of cumulative ingredients as well as the immediate context and concatenation of events, I hope to provide some inkling of such workings and developments in this paper.<sup>3</sup>

The 1920s was a decade of growing xenophobia and ethnic antipathy in America. For a long while Americans were divided between those who were confident that their society had the strength and virtue to absorb foreign peoples and those who lacked that assurance. Between the 1880s and the 1920s, immigration from southeastern Europe soared, bringing about twenty-five

million newcomers and creating large blocs of foreign born population in all major cities. While in the early 20<sup>th</sup> century, there had been a decline in hostility toward immigrants, by the 1920s a shift had taken place and those who feared that the immigrants had become a threat to America culture and politics had become a majority. The outcome was the immigration acts of the twenties that set up restrictive quotas and in time drastically reduced the number of immigrants entering the country.<sup>4</sup>

This new emotional climate, with its fear of and contempt for strangers and outsiders of various sorts, had a significant influence upon the universities. It filtered into their traditional legitimations--- gentlemanly culture, proximate utility, and research---giving these a new and particular social reference. This affected Jews most sharply. Of all the new immigrant groups, Jews carried within their traditional culture the most flagrant respect and esteem for education. They quickly came to knock on the doors of the universities asking for admittance as students and even as faculty. Before World War I, a scattering of well acculturated Jews of German origin had found faculty positions at various colleges and universities but by the twenties barriers to entry, echoing the new immigration quotas, went up for students and even more so for faculty.<sup>5</sup> Using the careers of three Jewish Nobel prize winners in the biological sciences (Selman Waksman [b.1888], Arthur Kornberg [b.1918], and Joshua Lederberg [b.1925] as tracer elements, I will examine one of the patterns of exclusion and entry that the composite legitimation of American universities afforded in this era.<sup>6</sup>

By the twenties and thirties, notions of gentlemanly culture had changed drastically from that which had been evoked half a century earlier. The curriculum based upon ancient languages and accepted truths of moral philosophy had everywhere disappeared. What remained at the heart of the college curriculum was the belief that every well educated man or woman was expected to know “the great monuments of literature, especially in one’s own tongue” and the purported underlying verities of history, especially of one’s own nation.<sup>7</sup>

The principal locus of gentlemanly education was in the undergraduate school which aimed at a breadth of learning as well as some study in a particular discipline. However, a narrow specialization was to be avoided. Clearly the formal curriculum was only a small part of

undergraduate education. The conviviality and social skills of fraternity and sorority life as well as the ardent excitements of collegiate athletics loomed large in the imagination and experience of the students of this era. Of course, the eighteenth century gentleman would not readily recognize the raucous twentieth century fraternity man as his kin, nonetheless the whiff of chivalric values permeated many parts of the campus. This was most evident in the exaltation of physical prowess and physical beauty---a restricted sense of beauty that stuck very close to the exemplars depicted in the automobile advertisements of the Saturday Evening Post. The belief that none but the brave deserved the fair was revisited in much of undergraduate fiction. In addition, the Enlightenment educational credo of the necessary balance between body and soul still had important advocates. The colloquial phrase, “he is a gentleman and a scholar,” though both terms had decidedly shifted in meaning, had not yet taken on its present-day sardonic connotations.<sup>8</sup>

The locus of proximate utility was in the engineering school, the school of education, agricultural college, as well as in the diverse professional schools. Many of these had grown up in the middle years of the nineteenth century independent of any university affiliation, but by the early twentieth century they were increasingly attached to and absorbed by the universities. The prestige of technical education usually ranked below that of the liberal arts. The agricultural colleges, for example, often recruited its student body from young men of lower social class position and lower academic accomplishment. However even within the liberal arts college the students increasingly chose their major field of study with an eye to its vocational uses.<sup>9</sup>

The locus of research was in the graduate schools, and as the professional schools gradually came to require an undergraduate degree for admission they also took on the usages of the graduate schools and came to expect research as one of the responsibilities of their faculties. Even in the professional schools the distinction between “pure” and applied research appeared, and even there “pure” research was considered more worthy. The research scholar was the beau ideal of the universities and of those aspiring colleges that followed the universities’ lead. For John Dewey, the research scholar was the intellectual hero who continually and systematically probed a reality that was in flux and enabled society to advance and improve. Of course, there were sometime practical benefits of his work, however it was often justified in more exalted terms.

“Where the spirit of research breaks out,” wrote G. Stanley Hall, the president of Clark University, “there is life: the Holy Ghost speaks in modern accents.”<sup>10</sup>

Jews seemed most deficient by the standards of gentlemanly culture. From the student perspective, it was alleged that Jews lacked the graces that came from good breeding in good families. In addition, it seemed, they were without the proper enthusiasm for school spirit and rough-and-tumble sports. Even Charles W. Eliot, at the time, president of Harvard and an admirer of Jewish attainments, regretted that Jews were wanting in “the martial qualities.” However, of greater consequence were the views expressed by Professor Stuart Pratt Sherman, an editor of the various editions of the canonical *Cambridge History of American Literature*, asserting that Jews were insensitive to America’s “ancestral voices” and its “national experience.” Such people, it seemed, could not properly teach literature or history in the universities, and few Jews were permitted to do so.<sup>11</sup>

Ostensibly, the pursuit of research should have been open to all capable and inquiring minds. However, in the university setting the situation was more complicated than that. The research scientists in the universities usually took fundamental science, (or “basic” or “pure” science, as they frequently designated it) as their proper domain, while they relegated applied science (by implication “impure” science?) to the agricultural and engineering schools, as well as to the government and commercial laboratories. Basic research was not only more elevated but clearly, in their eyes, the researcher was as well. This was particularly appropriate in a university setting, for here he was also a teacher who played a role in the shaping of the character of his students. Moreover, a faculty member must be a colleague, with the special requirement of sociability that entailed. Lowell, while he clearly intended to establish a preeminent research faculty at Harvard, favored “the urbane scholar of the British type, who will charm and stimulate the undergraduate.” All this made the entry of Jews into faculty positions in research universities more difficult.<sup>12</sup>

In this era, disdainful characterizations of both Jewish intellect and character became more aggravated and widespread. The notion that the Jewish mind was cunning and clever but lacking in deep understanding goes back at least as far as Kant. (Its romantic translation in Wagner’s hands was that Jews had talent but never genius). Columbia Professor Franklin H. Giddings’

version claimed that Jews “are middlemen in economic life and middlemen in the world of ideas.” To the extent that such depictions of Jewish intellect were accepted, and there are sporadic examples of such judgments in contemporary materials, Jewish scholars found admission to research faculties quite improbable.<sup>13</sup>

Derogation of Jewish character was more common and more significant. If Jews were pushy, clannish, and unscrupulous then they would obviously make poor teachers and colleagues. Even “looking Jewish” was a serious disadvantage. Thomas Hunt Morgan, the famous geneticist, refused to admit, all the more, a brilliant Jew to his department at Cal Tech, but at the same time he refused to give the racial theories of his day his scientific imprimatur. This was indicative of the nature of anti-Jewish feeling that sometimes appeared among American academics. Yet there was nothing comparable among American scholars to the radical anti-Semitism of the eminent contemporary German mathematician, Ludwig Bieberbach, who argued that there was a fundamental difference between German and Jewish mathematics and that the chasm between them could never be bridged. Nonetheless, the constrained anti-Semitism of American academe, when filtered through the notions of gentlemanly education and the pursuit of fundamental research, served to place formidable barriers before Jews who attempted to enter onto university faculties between the two World Wars.<sup>14</sup>

The legitimating principle of proximate utility proved to be less obstructive. This is suggested by the academic careers of three Jewish Nobel prize biological scientists Selman Waksman, Arthur Kornberg and Joshua Lederberg whose work spans the years between 1920-1945. Biological sciences would be a likely path into academia for Jews, because of their links to medicine and the special honored place that medicine held within Jewish tradition. It is almost impossible to exaggerate the appeal of medicine to Jews in this era; even young Groucho Marx, for example, harbored dreams of becoming a doctor. Therefore, observing the Jewish lunge toward the biological science in this period as the academic barriers were going up, is something like watching an almost irresistible force come up against an almost unmovable mountain.<sup>15</sup>

Selman Waksman came to America as an immigrant from Russia in 1910, with a rigorous talmudic and gymnasium education. He had hoped to enter medical school here but found that

such an undertaking was much beyond his means. Instead he worked his way through the agricultural school at Rutgers and went on to secure a position at the New Jersey Experimental Station to which the school was connected. When he was a student, he did not readily fit into undergraduate life. He was too bookish to mix easily with his fellow students and he considered college athletics deplorable. He was proud of the fact that in ROTC training he was “probably the worst soldier in the battalion.” When he became a faculty member in the Agricultural school he did not easily fit into the academic milieu of the teachers and researchers there either. Most of the work at Agricultural School and the experimental station was inordinately practical, arising out of the farmers’ urgent problems, yet Waksman tried to look beyond these problems to the broader scientific issues. The Rutgers campus, moreover, was known to be an uncongenial setting for Jews. Waksman’s closest ties were to his students and to like-minded friends he traveled to visit with in New York City.<sup>16</sup>

Waksman endeavored to develop the discipline of soil microbiology. Through much of his career, he spent considerable energy defending its integrity as an independent science, and not just an application of microbiology and chemistry to problems of plant growth. He intended to create a respected discipline of “pure scientific research.” To counter the sneers that soil microbiology was “a science without scientists, without foundations,” he tried to develop a discipline of rigorous techniques and wide-ranging perspectives. Some of those perspectives might readily be considered aesthetic. Waksman’s response to the copiousness of his microbes was an almost religious feeling for the larger stream of life, a sense of plenitude somewhat resembling the eighteenth century notion of The Great Chain of Being. “The older concept of *the teeming earth* has been fully justified,” he wrote and he went on to present an intricate ecology of an interconnected and interdependent natural world.<sup>17</sup>

Ironically, it was neither for such “broadening horizons” nor for the fundamental science that he wished to develop, that he was accorded scientific renown and awarded his Nobel Prize. Rather it was for something quite practical and wonderfully beneficent. The exigencies of World War II and the development and use of sulfanilamide and penicillin encouraged Waksman to turn his attention back to the actinomycetes in the soil. These had been the microorganisms that he had studied at the very beginning of his career, and whose anti-bacterial properties he had long

known. The outcome was the discovery of streptomycin and neomycin, fame and fortune. Much of the fortune went to Rutgers University, the holder of the patents. In gratitude Rutgers set up the Institute of Microbiology (now the Waksman Institute) which Waksman directed during its early years and which supported research in general as well as applied microbiology. At this point the locus of Waksman's work had finally shifted from the College of Agriculture to the main campus, alongside the traditional and respected basic research sciences.<sup>18</sup>

Arthur Kornberg's career bears some similarities to Waksman's but there were also significant differences reflective of a later era. Kornberg was born just as Waksman was taking his PhD. The son of immigrants, but not himself an immigrant, Kornberg aspired to be a doctor, as had Waksman, but Kornberg actually reached that goal. Nonetheless, he met up with scathing anti-Semitism along much of the way. A top graduate at City College of New York, he looked forward to the fellowship that had been established just for such City College students to Columbia University Medical School. Columbia mysteriously decided not to fill the fellowship that year. City College, an excellent school with a predominantly Jewish student body, placed very few graduates in medical schools. Kornberg was one of the few who gained admission, but at the University of Rochester Medical School, which he entered, he met up with anti-Semitic jibes and was passed over for all the research fellowships, though again at the top of the class.<sup>19</sup>

When World War II broke out, Kornberg, a newly minted doctor, joined the Coast Guard and took a position aboard ship tending the sailors' minor ills. Unexpectedly, he received a call transferring him from sea duty in the Caribbean to a research job at the National Institute of Health in Bethesda, Maryland. While still a medical student, Kornberg had come down with a mild case of jaundice. He decided to read the medical literature on the disease and conduct an experiment using himself and seven other medical students who had contracted the disease. The resulting a paper that Kornberg published was read by someone at the National Institute of Health. Jaundice was a besetting problem for recruits and the NIH thought that it was worthy of study. Here again the urgencies of World War II played an important role.<sup>20</sup>

The National Institute of Health, like the agricultural experimental station, was concerned primarily with practical problems. It was also more accepting of Jewish scientists. Whatever

formal instruction it provided was a minor aspect of its work and gentlemanliness counted for less in its recruitment. Moreover, government jobs, sometimes directly and often indirectly tied to politics, were usually more open to ethnic minorities. For Kornberg, the NIH served as a graduate school. At first his work was chiefly in nutrition, but he soon persuaded the chief of the laboratory to permit him a year's research training with an eminent biochemist at New York University Medical School and then six months with two research scientists at Washington University at St. Louis. Kornberg returned to the NIH, convinced that the study of enzymes was the new frontier of medical science. Like Waksman, Kornberg worked in an institution that aimed at practical results, yet he was restive in this environment and set his mind toward questions of general understanding. While Waksman thought that an awareness of the complex interaction and interdependence of organisms was the fundament of the biological perspective, Kornberg argued that it was the reduction of biological processes to their chemical substructure that would supply the theoretical basis for scientific insight and advancement. Whatever the general validity of this approach, it provided Kornberg with the focus and enthusiasm for a rapid series of discoveries about enzymes and their roles as catalysts and directors of biochemical processes. Owing to the acclaim he earned for this work, Kornberg could resign from the NIH in 1953 and enter academia as a professor of microbiology. Six years later he won the Nobel Prize.<sup>21</sup>

Shortly after Joshua Lederberg began his college career, America entered into World War II. The War brought sharp changes for American universities and for American Jews. The Universities were mobilized for war and that meant that matters of proximate utility became uppermost. Many young men in the student body went off to fight but some of the most talented were held back for special training in various useful fields. Medicine was one of them. To the government officials who played a role in these programs, ethnic quotas seemed to conflict with the requirements of efficiency and were quickly dropped. It is not surprising that Lederberg was selected for the program in medical training, for he was unquestionably a very talented student.<sup>22</sup>

Lederberg grew up in the invigorating Jewish enclave of upper Manhattan, Washington Heights. His father was an impecunious immigrant rabbi whose prerogatives within the family and beyond had clearly diminished via the transit to America. Though unusually bright, Lederberg did not

receive a yeshiva education, and he gave notice early on that he would not follow in his father's footsteps. In perhaps his earliest composition, written at the age of 7, Lederberg scribbled, "I would like to be a scientist of mathematics like Einstein. I would study science and discover a few theories in science." [sic.] He was a studious and lonely young man who taught himself much of the mathematics and science that he learned prior to college from the books in the local library. At Columbia, in the pre-medical program, he was taken up and encouraged by some of his teachers, apparently those who were somewhat marginal to the faculty. One of them, Francis J. Ryan, admitted young Lederberg to his laboratory as an assistant to prepare the media but also as someone with whom he could talk about the latest work in the field. While working in the laboratory, Lederberg read a paper whose findings could be interpreted as suggesting the transmission of a gene from one bacterial cell to another. His excited response was that this finding was "unlimited in its implications;" and for him that meant theoretical implications. Unlike Waksman and Kornberg, Lederberg never imagined that he might be restricted to the work in applied science. Scientific work "unlimited in its implications" was just the kind of science that he was looking for. Up till that time, most scientists believed that bacteria reproduced asexually, but based upon the paper he had read, Lederberg proposed an experiment to test whether bacteria could reproduce sexually. Just one of the implications for such a finding was the promise of a great step forward in the study of genetics. Mendel's sweet peas and even Morgan's fruit flies spent a comparatively long time in providing new generations. Bacteria, however, multiplied very rapidly and one could trace the results of transmission of mutations almost overnight.<sup>23</sup>

Lederberg, then just a second year medical student, sent a letter to the eminent Edward A. Tatum at Yale, one of the leading geneticists in the country, proposing an experiment which could explicitly confirm that bacteria could reproduce sexually. (This was the experiment that ultimately won Lederberg the Nobel Prize.) Tatum, impressed by the precociousness of Lederberg and the brilliance of his proposal, invited the young medical student to his laboratory. The experiment proved to be successful, and instead of returning to Columbia to finish his medical training, Tatum persuaded Lederberg to work for the PhD. at Yale and take up a career as a research scientist. Although Tatum seemed to be uncomfortable working with Jews, he was greatly impressed with Lederberg's abilities and worked ungrudgingly to forward his career.<sup>24</sup>

Owing in part to the fact that his career was nurtured in the special conditions of the American universities mobilized for war, Lederberg, unlike Waksman and Kornberg, met up with little anti-Semitism as he rose to scientific eminence. However, vestiges of anti-Jewish feeling were not completely absent. After Lederberg completed the work for his PhD, Tatum tried to get him a job at the University of Wisconsin where he had some personal connections. Wisconsin asked for an evaluation from the genetics department at Cal Tech, then one of the most distinguished in the country, and a majority of the referees there voted against Lederberg. There is a remarkable letter of August 13, 1947, from Professor Ray D. Owen of the Cal Tech minority, writing to Wisconsin in an attempt to mitigate views of the majority. It suggests that at least for some involved in the decision, anti-Jewish feeling was still important. Owen argued that the majority had allowed Lederberg's "personal objectionableness" to color their opinions of his professional merit. It was true, Owen conceded, that Lederberg's ambitiousness led him to advocate the most spectacular conclusions from his experimental data, but that is no reason to automatically distrust the data or the views. It was also true that a sizable faction of his associates would surely "hate his guts," but that should not discount his solid and exceptional scientific merits. Moreover, it was wrong to discredit Tatum's favorable views because of his "overtolerance." Lederberg eventually got the Wisconsin job, but it is of some interest to note that Wisconsin was one of the few schools in the country in which genetics was in the School of Agriculture. (A few years earlier, it had been the Department of Experimental Breeding.) Nevertheless, Lederberg helped build it into an outstanding department of genetics, and he later moved to Stanford where he did the same. Today he is president of Rockefeller University, a preeminent medical research center in New York.<sup>25</sup>

A survey of the careers of these three outstanding scientists suggests that such Jews entered the universities in this era via the back door. For the most part, between the two World Wars, they were excluded from the most prestigious positions as research scholars. In addition, they were considered inappropriate transmitters of gentlemanly culture. However, among the least prestigious faculty, the proponents of proximate utility, Jews might find a place---even though they might be uncomfortable with that place. When America entered World War II, the legitimating ideal of proximate utility, in its many guises, became uppermost as the universities

were mobilized to win that war. In addition, it was a war of special sort, in part defined by the nature of the enemy. A war against Hitler became a step toward the discrediting of bigotry and race prejudice. The anti-Semitic sentiments that had filtered into the composite legitimations of the university between the wars and had set up barriers to Jewish entry into their faculties, had gradually dissipated and Jews rose to important places in higher education.

<sup>1</sup>For a general overview of this history see Frederick Rudolph, *The American College and University: A History* (1962); John S. Brubacher and Willis Rudy, *Higher Education in Transition: A History of American Colleges and Universities* (1976)

<sup>2</sup>Josiah Royce, "Present Ideals of University Life," *Scribner's Magazine*, 10(1891), 376-88; Laurence R. Veysey, *The Emergence of the American University, 1880-1910* (1965), preface.

<sup>3</sup>For a discussion of the various uses of the concept of legitimation see *Current Sociology* 35(Summer, 1987). The entire issue is devoted to the subject. Thomas Luckmann's "Comments on Legitimation," comes closest to the usage in this paper.

<sup>4</sup>John Higham, *Strangers in the Land: Patterns of American Nativism, 1860-1925* (1975), chapters 10 and 11

<sup>5</sup>See Marcia Graham Synott, *The Half-Opened Door* (1979) and Harold S. Wechsler, *The Qualified Student*, (1977) *passim*. Leon Sokoloff, "the Rise and Decline of the Jewish Quota in Medical School Admissions," *Bulletin of the New York Academy of Medicine* 68(November, 1992), 497-518.

<sup>6</sup>This pattern seems to fit the careers of many Jewish academics of this era who worked in the physical sciences. A random sample of biographical materials indicates this. The sampling came from *Jews in the World of Science* (1956), eds. Harry Cohen and I. J. Carmin. This is a *Who's Who* style compendium. Among those whose careers seem to conform to this pattern are: Simon H. Bauer(b. 1911); Seymour S. Cohen(b.1917); William Z. Hassid(b. 1897); George Kalnitsky(b. 1917); William Perlzweig(b.1891); Gregory Pincus(b. 1903); Albert Sabin(b. 1906); Jonas Salk(b. 1914); Murray Shear(b. 1899); Sol Spiegelman(b.1914); Sidney Weinhouse(b. 1909); Saul Winstein(b. 1912). See also Leon Sokoloff, "The Question of Antisemitism in American Medical Faculties, 1900-1945" *Patterns of Prejudice* 31 (January, 1997), 43-54. An older and less common form of entry in this era might be styled "patronage." A Jewish philanthropist would establish a chair or provide a hidden subsidy for a Jewish scholar. Felix Adler, Horace Kallen, E.R.A. Seligman, and Harry Austin Wolfson benefited from such patronage. In a variant form, the patron was someone with substantial power within the university, who for his own reasons pushed a Jewish candidate on to the faculty against strong opposition. Lionel Trilling and Harry Levin were aided by that type of sponsorship. For a discursive yet informative treatment see Lewis Feuer "The Stages in the Social History of Jewish Professors in American Colleges and Universities," *American Jewish History* 71(1982) 432-65

<sup>7</sup>A. Lawrence Lowell, "Culture," in *At War With Academic Traditions in America* (1934), 116-7; Albert Bushnell Hart, *We and our History* (1923), preface; Charles M. Andrews, "These Forty Years," *American Historical Review* 30(1927), 325-50. See also Edward Saveth, *American Historians and European Immigrants, 1875-1925* (1948). For the tribulations of those Jews trying to enter the domain of "culture" in the universities see Susan Klingenstein, *Jews in the American Academy, 1900-1946: The Dynamics of Intellectual Assimilation* (1991).

<sup>8</sup>For the shift in meaning of "the gentleman," see the sour comments in W.L. George, "Exit the Gentleman," *Harpers*, 140(January, 1920) 263-9; W. Orton, "Culture and the College," *New Republic* 46(April, 1926) 236-8; H. Nickerson, "Gentleman Wanted," *American Review* 7(September, 1936), 422-41. On curriculum changes and student culture see David O. Levine, *The American College and the Culture of Aspiration, 1915-1940* (1986), chapters 5 and 6. See also

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Paula Fass, *The Damned and the Beautiful: American Youth in the 1920s* (1977) chapter 3; Helen Lefkowitz Horowitz, *Campus Life* (1987) chapters 2,5,7.

<sup>9</sup> James Gregory McGivern, *First Hundred Years of Engineering Education in the United States, 1807-1907* (1960), 128-9, 150; Lawrence P. Grayson, "A brief History of Engineering Education in the United States," *Engineering Education*, 88(1977)256-67; Alan Marcus, *Agricultural Science and the Quest for Legitimacy* (1985), *passim*.; Levine, *The American College*. chaps. 3 and 4.

<sup>10</sup> John Dewey, "American Intellectual Frontier," *New Republic*, 30 (May, 1922), 303-5; Granville Stanley Hall, "Scholarship and the Training of Professors," *Forum* 17(1894)568; Granville Stanley Hall, "The Message of the Zeitgeist," *Science Monthly*, 13(August, 1921), 106-16; Roger L. Geiger, *To Advance Knowledge: The Growth of American Research Universities, 1900-1940* (1986) chapters 2,3,6.

<sup>11</sup> William T. Hamm, "Harvard Student Opinion on the Jewish Question," *The Nation* 115(September 6, 1922)225; Horowitz, *Campus Life*, 76-81, 144-7; Charles W. Eliot, "Address of the President of Harvard," *The Two Hundred and Fiftieth Anniversary of the Settlement of Jews in the United States* (1906)78; For a polemical response to the exclusion of Jews from gentlemanhood see Maurice Samuel, *The Gentleman and the Jew* (1950) *passim*.; Stuart P. Sherman, *The Genius of America* (1923) 9; For the importance of Stuart P. Sherman see Henry F. May, *The End of American Innocence* (1959) 74ff; Ludwig Lewisohn, *Upstream* (1922) 130, 254; Lewis Gottschalk, "The Meaning of Judaism for the Educated Jew," in Alfred Jospe, ed., *Tradition as Idea and Contemporary Experience* (1963)79.

<sup>12</sup> George H. Daniels, "The Pure Science Ideal and Democratic Culture," *Science*, 156 (June 30, 1967)2; Veysey, *Emergence*, 76-79, 121-25; David. A. Hollinger, "Inquiry and Uplift: Late Nineteenth Century American Academics and the Moral Efficacy of Scientific Practice," in *The Authority of Experts*, ed. Thomas L. Haskell (1984) 147. On Lowell see Geiger, *To Advance Knowledge*, 194-6.

<sup>13</sup> For Kant's and Wagner's characterizations see Sander L. Gilman, *Smart Jews* (1996) 15, 43-5. For Giddings' view see Alvin Johnson, *Pioneer's Progress* (1962)122. My principal source for contemporary judgments on Jewish scientists is in the Warren Weaver diary in the Rockefeller Archives, Tarrytown, NY. Weaver was the director of the Division of Natural Sciences for the Rockefeller Foundation (1932-57) and made recommendations for grants to individual scientists and scientific groups. He systematically and continuously visited universities in the United States and abroad, interviewing scientists, evaluating them and their projects, and soliciting evaluations of scientists by other scientists. His diary contains careful and detailed records of these evaluations. For deprecatory judgments of Jewish intellect see entries for October 23, 1934; February 21, 1935; January 12, 1937; May 21, 1939

<sup>14</sup> For such aspersions see the entries in the Weaver diaries, Rockefeller Archives, for April 6, 1934; October 6, 1937; December 7, 1937; May 13, 1938. See also Ellsworth Faris, "If I Were a Jew," in *The Nature of Human Nature* (1937)350-3. On Morgan see Lily E. Kay, *The Molecular Vision of Life* (1993), 96-8 and Charles E. Rosenberg, *No Other Gods* (1997), 2<sup>nd</sup> ed., 221-3, 271. For Bieberbach's views see *Deutsche Zukunft* April 8, 1934. See Norbert Schappacher, "The Nazi era: the Berlin way of politicizing mathematics," *Mathematics in Berlin* (1991). Ed. H.G.W. Begehr, 127-35, for a discussion of Bieberbach and other German mathematicians who adopted a similar radical anti-Semitism. Max Weinreich, *Hitler's Professors* (1946) presents a broader discussion.

<sup>15</sup> Harry Friedenwald, "The Relation of the Jews and Judaism to the Medical Art," *The Jews and Medicine: Essays* (1967) 2<sup>nd</sup> edition, volume 1,;5-17. For Groucho's dreams see Stefan Kanfer, *Groucho* (2000), 27

<sup>16</sup> Much of the information on Waksman's career come from his outspoken and self-revealing autobiography, *My Life with the Microbes* (1954), 68-70, 83, 172. I have also examined the Waksman papers at the American Jewish Historical Society Library in the Center For Jewish History in New York City.. Especially helpful was the unpublished essay, "A Student at Rutgers," which is in that collection. For a discussion of anti-Semitism at Rutgers see Michael Greenberg and Seymour Zenchelsky, "Private Bias and Public Responsibility: Anti-Semitism at Rutgers in the 1920s and 1930s," *History of Education Quarterly* 33(Fall, 1993), 295-319; Ruth Marcus Pratt, *The Jewish Experience at Rutgers* (1987) chapters 3-5.

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<sup>17</sup> Waksman, *My Life with the Microbes*, 5, 195, chapter 10.

<sup>18</sup> Waksman, *My Life with the Microbes*, 10-11, chapters 13-15. For the recent history of the Waksman Institute consult their web page, <http://waksman.rutgers.edu>

<sup>19</sup> Arthur Kornberg, *For the Love of Enzymes: The Odyssey of a Biochemist* (1989) 2-4, 310-3. A helpful supplement to this autobiography is the transcript of an oral history deposited in the Bancroft Library at the University of California, Berkeley. It not only adds detail but is less guarded in presenting Kornberg's sentiments. The interview was conducted by Sally Smith Hughes in 1997. See pages 1-3, 181-2.

<sup>20</sup> Kornberg, *For the Love of Enzymes*, 5-6; Oral History Transcript, 11-14.

<sup>21</sup> For a brief official history see National Institutes of Health (US), *A Century of Science for Health: National Institutes of Health* (1987) *passim*.; Kornberg, *For the Love of Enzymes*, 7-26; 30-1, 49-50, 65-87, 171-2; Oral History Transcript, 5-34, 110-15.

<sup>22</sup> John Morton Blum, *V Was For Victory: Politics and American Culture During World War II* (1976) 141-4. An excellent primary source which documents the impact of WWII upon the colleges and universities is the magazine created to help mobilize the different branches of higher education entitled, *Education For Victory*. See particularly Donald M. Nelson, "Universities and Conversion to Total War," *Education For Victory* 1 (June, 1942) 14. See also "Navy as an Educator," *Newsweek*, 23 (June 12, 1944) 108ff.. The most accessible biographical information on Joshua Lederberg is his autobiographical article, "Genetic Recombination in Bacteria: A Discovery Account," *Annual Review of Genetics*, 21 (1987) 23-46, reprinted in *The Excitement and Fascination of Science: Reflections by Eminent Scientists* (1990), vol. 3; part 1, 893-915.

<sup>23</sup> Lederberg, *The Excitement*, 894-904. The composition of 7 year old Lederberg "What I Would Like To Be" June 20, 1932, is available on the web in The Joshua Lederberg Papers, Profiles in Science, National Library of Medicine, <http://profiles.nlm.nih.gov/>. Eventually all the Lederberg papers will be available via the web at the National Library of Medicine; Joshua Lederberg, "A Fortieth Anniversary Reminiscence," *Nature* 324 (December 18, 1986), 627. These materials were supplemented with an interview with Joshua Lederberg, May 3, 2000.

<sup>24</sup> Joshua Lederberg to Edward L. Tatum, September 19, 1945, reprinted in *The Excitement*, 905; Ray D.

<sup>25</sup> Owen to R.A. Brink, August 13, 1947. A transcript of this letter will eventually be available in the NLM collection, now it is in the possession of Joshua Lederberg. The early history of the College of Agriculture is discussed in Merle Curti and Vernon Carstensen, *The University of Wisconsin: A History, 1848-1925* (1949), vol. II, chapter 11. For the later developments in genetics see William B. Sarles, "Examples of Progress in the Biological Sciences, 1949-1974," in *The University of Wisconsin: One Hundred and Twenty-Five Years* (1975), ed. Allan G. Bogue, 207-9.