AMERICAN MANUFACTURING, AMERICAN TECHNOLOGY AND THE LABOR QUESTION AT THE PARIS EXPOSITION UNIVERSELLE OF 1867

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ABSTRACT

The Paris Exposition Universelle of 1867 was devoted to the theme, "The History of Labor," and awarded special prizes to firms with paternalistic labor policies to promote harmony between workers and employers. The guiding spirit of the Exposition and its labor theme was the French social thinker, Frédéric Le Play. American technology was a second trend on view at the Exposition, and American firms, including the Pacific Mills of Lawrence, MA won gold medals and international recognition.

The great world's fairs of the late nineteenth century offer economic historians a look into the making of the first global capitalist system. Advances in technology and production techniques were on display for all the world to see. Trade, investment and the exchange of ideas flowed from these international gatherings of businessmen, inventors, promoters and the general public. They all shared a faith in material progress and the salutary effects of advances in industry but they also shared a keen appreciation that material progress was uneven and brought with it a host of social problems. The politicians, reformers, economists and other social scientists who studied the trend called it simply "the labor question," or more broadly, "the social question." In tandem with the world's fairs, organizers called together the first international congresses to consider uniformity for weights and measures, copyrights and patents, and a host of other offspring of industrial societies. But the labor question, though clearly international in scope, was too broad, contentious and volatile a subject for most world's fair organizers. Only one world's fair devoted itself to the labor question, namely the Paris Exposition Universelle of 1867.[1]

A second distinguishing characteristic of the 1867 Exposition Universelle was the American presence. The London World's Fair of 1862, on account of the Civil War, had attracted few American exhibitors, but in Paris the U.S. showed off its inventions and labor-saving devices. Though the number of exhibitors was small in comparison to other leading industrial nations, American products won awards more frequently than those of any other nation, except the French. Productivity and efficiency were the bye-words of the American display, a harbinger of things to come.[2]

The 1867 Paris Exposition Universelle was the first devoted to a theme, the first to feature national pavilions, the first to be laid out in a rational scheme, and the first to showcase enough African, Asian and Latin American nations to rank as a real world's fair. Nearly 10 million visitors paid admission and 50,000 exhibitors showed their wares. For all of these "firsts" and accomplishments, the fair has been overshadowed in the

literature by the Crystal Palace Exhibition of 1851, the Philadelphia Centennial of 1876, Chicago's Columbian Exposition and the 1889 Paris World's Fair that left us the Eiffel Tower as a lasting memorial to the spirit of these enterprises. Paris 1867 has not been completely neglected, of course. Art historians call it the dawn of the age of Impressionism and literary historians see the great expositions as a source of inspiration for the nineteenth century French novel. A new bibliography of world's fairs lists fourteen items, mainly articles, in the secondary literature on Paris 1867 but the focus of most is art, architecture and Parisian social life.[3]

The fair's planner and guiding genius, Commissioner General Frédéric Le Play, would surely have found the judgment of posterity perplexing. To the great show of technological and scientific progress on display few historians have paid much attention. The fair's overarching theme—the history of labor—has attracted even less notice, and even fewer seem to appreciate how the fair stands at one end of a tradition of laissez-faire political economy and reveals the beginnings of a new era of state involvement. Perhaps the fair has been overlooked because both the Second Empire and the era of free trade would soon be discarded as failed experiments. It may also be difficult to find the seeds of a new political economy amid the glitter of a world's fair. But neither consideration justifies the neglect of one of the path-breaking world's fairs of the century.

Frédéric Le Play was one of a group of economists like Michel Chevalier who won fame and influence in the Second Empire. Adhering largely to the tenets of Manchester School economics, they achieved their height of power in the 1860s when France signed the Cobden-Chevalier Treaty with Great Britain and introduced British-style free trade to France. This spirit of free trade was celebrated in the 1867 Exposition Universelle as barrier after barrier fell to the force of technological change in transportation, communications and production. Free trade was part of the belief in progress itself as the free flow of trade, ideas and knowledge banished ignorance, prejudice and superstition. Free trade would usher in a new era of peace and prosperity as nations traded with one another and got to know one another's virtues. Free trade interconnected the world so intimately that war and international strife would become relics of the past.[4]

In acknowledgement of their special services to progress, Louis Napoleon awarded special citations to men like Cyrus Field for the transatlantic cable, to Matthew Maury for charting the currents and depths of the oceans, to David Hughes for improving the telegraph, and to Walter Woods and Cyrus McCormick for agricultural implements that enhanced farming, the life of the peasant, and the food supply of the nation. Just as Ferdinand de Lesseps won honors as the engineer and promoter of the soon-to-be completed Suez Canal, and the Union Pacific Railroad a special award for its achievement in building the world's longest railroad and connecting the Atlantic with the Pacific, so the French company that built the tunnel at Mt. Cenis was singled out for breaching the Alps barrier. Baron Haussmann's reconstruction of Paris with broad avenues and boulevards was part of the same spirit of progress and attracted favorable notice by visitors. There was no escaping the inevitable tide of progress and civilization, or so it seemed.[5]

Le Play's collaboration with architects created a structure as striking in its own way as the Crystal Palace. On the banks of the Seine a building arose consisting of 6 giant

freestanding oval walls, each contained within the next larger structure like a Russian doll. Sixteen radial hallways connected the oval walls, like spokes radiating from the center of a wheel. National exhibits occupied a slice of the whole structure from near the center outward. Visitors who wanted to see all of one nation's exhibits followed the radials and branched out to the ovals; visitors interested in one category of display items followed the oval around 360 degrees. This very French—or perhaps very nineteenth century—attempt at systematic classification and display broke down somewhat because France's contribution occupied over forty per cent of all exhibition space.[6]

The innermost circle of the oval was reserved for the fine arts and for the exhibit that gave the 1867 Paris Exposition Universelle its theme, the history of labor. The exhibit showed progress in production methods from the ancient world to the nineteenth century, displaying tools, products, techniques of production and articles characteristic of each age on display. To modern eyes the display might equally well have been entitled the history of technology or the history of production techniques, but Le Play's *L'Histoire du Travail* was intentionally broad-gauged and comprehensive to honor labor in all its facets.[7]

Le Play further persuaded Louis Napoleon to create a series of special prizes with awards of 10,000 gold francs apiece (about $2,000), prizes that attracted over 600 entries. A special jury, consisting entirely of employers and government officials, awarded honors to firms and localities that had promoted "the preservation of harmony in factories and communities" and secured "the material, moral and intellectual well-being among workers." A couple of small towns won honorable mention citations, but the rest of the forty awards went to private firms and cooperatives. The winners were mostly factories, workshops, mines and textile mills, though cooperatives and workers' benefit associations also won awards. How harmony could be preserved, and strikes, riots, social disorder and misery avoided was evident from the criteria judges used to award the prizes. A checklist with twelve categories and a thirteenth miscellaneous one allowed judges to give numerical scores and a comprehensive total count. In addition, detailed explanations were attached to each category, so the judges could not fail to understand the task. After prolonged and fruitless negotiations Great Britain chose not to participate in the award, thus omitting initiatives by the world's industrial leader.[8]

In category one were measures to promote harmony, including establishing workers' benefit societies for sickness, accident and burial insurance and provisions for widows and orphans. In category two were measures to suppress alcoholism and work absences designated as "Blue Monday." Religious and educational initiatives, libraries, apprentice training and workhouses for the poor made up category three. In category four were means to improve wages, including piecework, bonuses and what today might be called profit sharing; in this category were also measures to promote continuous, uninterrupted employment.[9]

Categories five and ten included provisions for worker housing, promotion of home ownership, reduced price provisions, and other means of promoting residential persistence. In category six were various schemes to promote workers' savings. Categories seven and eight concerned avoiding strikes, arbitrating employer/employee disagreements

and promoting an orderly and responsible work relationship. Measures considered in category nine tried to preserve connections between urban workers and the land. Finally, in categories eleven and twelve were provisions to supply the special needs of young women workers for housing in a proper moral environment and the needs of working class wives and mothers.[10]

The striking comprehensiveness of the list owes its origins to Le Play's own social scientific investigations into the conditions of the working class. Born in Normandy in 1806, Le Play studied engineering at L'École polytechnique and L'École des Mines. He traveled extensively in Europe and studied the connections between technical progress, economic prosperity and the status of labor. The Revolutions of 1848 impelled him to give up his professorship in metallurgy to devote his energies to social reform. His first important work, *Les Ouvriérs européens* (1855), was a collection of monographs on the material and moral life of thirty-six families. He pioneered in the use of workers' family budgets for the purpose of determining standards of living, a practice that shaped studies of the working class internationally. His work bears comparison with other nineteenth century social scientific investigators like Friedrich Engels or Charles Booth, but Le Play was no radical.[11]

A devout Catholic and constitutional monarchist, Le Play believed traditional Christian morality and respect for authority were the proper bases for social harmony and economic well-being. Protection of private property rights was the primary duty of the state, he believed, but he sought a social order inspired by self-interest rather than compulsion. He likened the properly functioning social order to a family where each member knew his or her place and worked for the betterment of all under the watchful guidance of the father. Paternalism was more than social metaphor for Le Play. His most important work, *La Reforme Social* (1864), advocated cooperation between employers and workers to safeguard religion, property and family. Factory owners were to provide labor with more than mere wages; they were to create an environment that fostered the emancipation of the oppressed. Le Play's philosophy inspired Christian social thinkers throughout Europe in the late 19th century from Cardinal Manning to the Christian trade union movement. [12]

Louis Napoleon and Le Play created the awards in the expectation that they would make up a permanent feature for future world's fairs. In fact, the competition was never repeated. In the event, employer paternalism proved to be a slim reed in dealing with the "labor question," and the demonstration effect of good results for employers who adopted such measures and thereby avoided strikes, absenteeism and social disorder was never persuasive enough to compete with the dictates of the bottom line. Le Play clearly believed that it was in the employer's self interest to promote the well being of his workers and that such policies would pay off in the long run in "material, moral and intellectual" improvements in the working class. Such improvements would foster greater worker productivity, stability and avoidance of work stoppages, and benefit society as a whole. Men of conscience like Le Play were distressed at the suffering and misery they encountered while completing their surveys and sought measures to improve the condition of

the working class. But in the end they were also constrained by the limits of laissez-faire ideology.

The presence of an American firm as one of twelve gold medal winners for paternalistic labor practices as early as 1867 may come as something of a surprise. American-style welfare capitalism is usually associated with the 1920s, but there were at least a few firms like Heinz and Co. of Pittsburgh that incorporated some of these provisions much earlier. In the aftermath of the Great Railroad Strikes of 1877 employers like the Milburn Wagon Works, one of the nation's largest, instituted company-sponsored mutual aid and benefit societies that offered insurance provisions for workers. Early savings and loans societies to promote thrift and home ownership pre-date the Civil War. And as Thomas Dublin has shown, the New England textile industry was one the earliest to sponsor company housing and special provisions for young female employees.[13]

The American gold medal winner was the Pacific Mills of Lawrence, MA. The mill began operations in 1853 and was one of the largest and most successful in the region. By 1867 over 1900 men and boys and 1700 women and girls found employment at Pacific Mills. Proprietor William Chapin expanded from cotton to woolen textiles and fabric printing to take advantage of Civil War-induced demand. He also stamped the firm with a paternalistic orientation. A company-sponsored savings bank that paid five per cent interest gave workers an incentive to save for retirement. The company provided housing and offered the opportunity to purchase stock and participate in stockholder meetings and annual elections of company officers. It is perhaps worth noting that the workers' stock holdings were worth $60,000 in a company initially capitalized at $2.5 million.[14]

Pacific Mills founded a mandatory mutual benefit society, a library company and built boarding houses for single women; the residents set the rules and ran the boarding houses themselves. The mutual benefit society deducted $.10, $.20 or $.30 per week from the wages of employees, depending on income. The fund aided workers in case of sickness and accident, paid for nursing care and bedding, and even maintained special burial arrangements in local church graveyards. Founded in 1855, the fund had paid out $25,000 in benefits to workers by 1867. Open from six a.m. to six p.m. the reading room of the library collected 4,000 volumes and provided space for newspaper and magazine readers, too.[15]

The judges found especially praiseworthy Pacific Mills' provisions for working girls, in particular the 17 dormitories housing 825. Each dormitory had a supervisor, an older woman who looked after "the good reputation (of) and proper moral influences" on the girls. Two girls occupied each room, meals were offered at a common hour, washing services and heating were supplied. Each worker paid one-third of her wages in return for room and board. According to the judge's report, "the residents live in complete freedom," and only repeated rule violations brought expulsion from the dormitories.[16]

Chapin himself taught Sunday school in order to "impress the children with the Christian message" and show their parents his personal concern for the family's well being. The report described Chapin's role in the lives of his employees as "friend and

advisor," listening to their complaints, encouraging and comforting them, and leading those who had gone astray back to the right path. As the judges' report noted:

> It is no coincidence that the good relationship between employer and employee has never been disturbed by strikes or other disorders, and that the mill has become a school for order, mutual trust, and fraternity.[17]

A total of twelve gold medals were awarded including five to French firms and one each to Prussia, Wurttemberg, Austria (Bohemia). Belgium, Brazil, the U.S., Italy and Sweden. Honorable mentions went to another twenty-four firms or localities, mainly from the same nations.[18]

The most influential award winner secured only an honorable mention, though it is impossible to dismiss the thought that politics may have played a role in the oversight. The firm of Krupp and Co. displayed its giant cannons in the main exhibit area and offered an unpleasant reminder of the unsettled state of European relations, especially those between Prussia, or the North German Confederation as it was then called, and France. The cannons on display, in fact, found use three years later in the siege of Paris. Friedrich Krupp's Essen steel works were famous throughout Germany for paternalism. The 8,000 workers there had the benefit of company housing, 650 unmarried men in the workforce lived in boarding houses, others saved money in a company-sponsored savings bank. All workers enjoyed sickness and accident insurance, received reduced price bread and beer, took part in profit sharing and even had a retirement fund set up for those who had put in thirty-five years of service to the company.[19]

Krupp's benevolent and paternalistic labor policies became widely known throughout Europe and even in the U.S. owing to publicity by Ferdinand von Steinbeis, one of the judges in the gold medal competition. A visitor and judge at several world's fairs, Steinbeis had translated and published as a book that part of the thirteen-volume French report describing the special gold medal labor award. A representative of the King of Wurttemburg and industrial promoter for the region, he also believed in paternalistic labor practices as an essential means to humanize the Industrial Revolution. Nowhere were these beliefs in greater currency than in Germany. Finally, in the early-1880s, Bismarck introduced state-sponsored sickness, accident and pension insurance based, in part, on the success of Krupp's Essen experiment. [20]

A second state intervention also spread from seeds planted at the Paris Exposition Universelle, namely American-style tariff protection. Another American silver medal winner in the textile branch was John Lord Hayes, a representative of another Lawrence woolen mill, the Washington Mills, and secretary and founder of the National Association of Wool Manufacturers. The National Association sent Hayes to Paris to spread the message of tariff protection and the political strategy necessary to achieve that end. Woolen manufacturers had prospered handsomely in the 1860s under the stimulus of war orders for Union soldier uniforms during the Civil War and the Morrill Tariff of 1862. They organized one of the first and most influential trade associations in 1864 and fought to

keep their preferred status with the passage of the Wool and Woolens Act of 1866. They achieved this feat by fashioning a political coalition with western wool growers and lobbied Congress to pass the 1866 act mandating high tariff protection. The woolens industry worldwide, indeed textiles generally, were in a serious slump in 1867. The National Association believed that spreading the tariff message as the answer to the industry's difficulties would offer a "tide that would lift all boats," in this era of free trade orthodoxy. The French textile industry offered another bastion of support for protectionism, but they suffered a setback in 1870-71 and failed to achieve the goal until the 1880s. The German woolens industry started an association in 1869 based loosely on the American precedent. Though woolens gained protection only in 1885, the cotton textile industry formed the core of the Central Association of German Industry, which won tariff protection in 1879. The Central Association's first general secretary, Hermann Grothe, visited Hayes in Paris in 1867 and came away from the Exposition Universelle with the American strategy in hand.[21]

Historians of technology are likely to insist that the solution to the "labor problem" lay in productivity increases not in employer paternalism, state-sponsored welfare measures and certainly not in protectionism. One British visitor observed of the display in Paris, "At first glance we see that the Americans' main object is to supply the want of hands by the powerful aid of machinery." Citing American machines that peeled apples, beat carpets, automatically cleaned glasses, and washed linen, he remarked, "The most simple and trivial things are done by its (machinery's) aid." John Findling, a noted student of world's fairs, pointed out that Paris 1867 was the first to show the range and excellence of American machinery. Philadelphian William Sellers' machine tool display won a gold medal and his firm was evaluated by British, French and German judges to be one of the three best in the world, with Johann Zimmermann of Chemnitz and the legendary Joseph Whitworth of Manchester. Elias Howe won a special prize for inventing the sewing machine, and the judges pointed out that the gold medal winner, Wheeler and Wilson, turned out three times as many sewing machines as all of Europe's sewing machine factories combined. Wheeler and Wilson were a distant second in the American market to Singer.[22]

American arms manufacturers won a special award for the class. Arms makers like Remington, Winchester, Spencer and Smith and Wesson put on such an impressive display that they started winning contracts in Germany, Russia and the Ottoman Empire to duplicate their mass production methods. Corliss steam engines were the best in the large class, and Hicks won a gold medal for smaller engines. Bent-wood manufacturers displayed a rocking chair, and American agricultural implements prevailed in competition over their chief rivals, the British. Even an America safe outlasted all others in a competition featuring professional safe-crackers. So spectacular was the showing of American inventiveness, technology and superior production that nearly a third of all American exhibitors won awards from international juries frankly stacked with French judges. The key was mechanization and productivity, greater output per worker, cheaper production methods and higher wages. A delegation of British artisans came to Paris at the

invitation of the Royal Society of Arts and praised the Americans' ability "to cast aside old theories (and) start out on new and untrodden paths,....their sagacity in finding out what is to be done and doing it." America's inventions, noted the British artisans, were destined "to live and influence the future of the world."[23]

Michel Chevalier had lived in the U.S. about the time de Tocqueville visited in the 1830s. Chevalier commented on the American display that as good as it was, it failed to convey the true excellence of manufacturing in the "colossus of the New World." His judgment will serve as the final assessment here:

> Considering their enormous market and their rapid progress, one can see that soon the Americans will be implacable adversaries first for England and soon after, for France, and that America will seek among us, in the name of free competition, consumers for their manufactured articles. Will this be in 10 years or in 20? Without hazarding to look too far into the future, we can clearly see American products taking their place alongside those from Europe[24]

Notes

1. Contemporary accounts of the Paris Exposition Universelle of 1867 include Michel Chevalier, *Paris Exposition universelle de 1867 à Paris. Rapports des jury international publiés sous la direction de M. Michel Chevalier* 13 vols. Paris: P. Dupont, 1868 , Frédéric Le Play, *Rapport sur L'Exposition universelle de 1867 à Paris*, 3 vols, Paris, Imprimerie, 1869, William P. Blake, ed., *Reports of the United States Commissioners to the Paris Universal Exposition, 1868*, 6 vols., Washington: GPO, 1868, Eugene Rimmel, *Recollections of the Paris Exhibition of 1867*, Philadelphia: Lippincott & Co., 1868, George Augustus Sala, *Notes and Sketches of the Paris Exhibition*, London: Tinsley Bros., 1868, and Henry Morford, *Paris in '67, or, the Great Exposition, its sideshows and excursions*, New York: G. W. Carleton, 1867. Secondary accounts include Patricia Mainardi, *Art and Politics of the Second Empire: the Universal Expositions of 1855 and 1867*, New Haven: Yale University Press, 1987, Philippe Hamon, *Expositions: Literature and Architecture in Nineteenth Century France*, Berkeley: University of California Press, 1992, and John Allwood, *The Great Exhibitions*, London: Studio Vista, 1977.

2. On the American display see Blake, *Reports*,v1, 15-25.

3. On the architecture of the Exposition Universelle see Siegfried Giedion, *Space, Time and Architecture; the growth of a new Tradition*, Cambridge: Harvard University Press, 1967, 240-255, and Allwood, *Exhibitions*, 41-48; on art history, see Mainardi, *Art and Politics* and Hamon, *Expositions*; the recent bibliography is Alexander Geppert, Jean Coffey and Tammy Lau, *International Exhibitions, Expositions Universelles and World's Fairs: A Bibliography* URL: http://libcsufresno.edu/Subject-Resources/Special_Collections/Worldfairs/Secondarybiblio.pdf, 2002, 28.

4. Michael Z. Brooke, *Le Play: Engineer and Social Scientist. The life and work of Frederic Le Play*, London: Longman, 1970 is the only modern and comprehensive study in English. See the introduction by Catherine Bodard Silver in Frederic Le Play, *Family, Work and Social Change*, Chicaco: University of Chicago Press, 1982.

5. On the influence of economists and social scientists in the Second Empire see Michael S. Smith, *Tariff Reform in France, 1860-1900: the Politics of Self Interest*, Ithaca: Cornell University Press, 1980 and W. H. C. Smith, *Napoleon III*, New York: St. Martin's Press, 1973.

6. On the awards to Americans see Morford, *Paris*, 25-40, Blake, *Reports*, v. 1, 315-324. On awards generally see Chevalier, *Exposition*, various volumes, and for an overview, Allwood, *Exhibitions*, 41-48.

7. Giedion, *Space*, 244 and Allwood, *Exhibitions*, 42; Blake, *Reports*, includes an architect's plan and aerial view of the building and gardens.

8. Both Rimmel, *Recollections*, 45, and Sala, *Notes*, 32 offer first-hand descriptions of the display.

9. The author of the report on the special prize for labor was Alfred LeRoux, a close associate of Le Play's. His report appeared in volume one of Chevalier, *Exposition*, 361-402. On Great Britain's refusal, Brooke, *Le Play*, 63.

10. I have used the German translation of the LeRoux report which appeared in 1868 as Ferdinand von Steinbeis, *Das besondere Preisgericht und die neugeschaffenen Preise für die Pflege der Eintracht in Fabriken und Ortschaften und die Sicherung des Wohlstandes, der Sittlichkeit und Intelligenz in den Arbeiter-Kreisen*, Stuttgart, Carl Gruninger, 1868, v-vii,109-111, 201-207. because it contains more information on the competition, scoring and categories than Chevalier's report.

11. On Le Play's international renown, see Charles Gide and Charles Rise, *A History of Economic Doctrines*, 7th ed., London: Macmillan, 1948, 221.

12. Brooke, *Le Play*, 59-76.

13. Stuart D. Brandes, *American Welfare Capitalism, 1880-1940*, Chicago: University of Chicago Press, 1976, 1-19, and Thomas Dublin, *Women at Work: The Transformation of work and community in Lowell, Massachusetts, 1826-1860*, New York: Columbia University Press, 1979, 112-150.

14. Steinbeis, *Preisgericht*, 42-44.

15. *Ibid.*, 44-46.

16. *Ibid.*, 46-47.

17. *Ibid.*, 48.

18. *Ibid.*, 109-111; Brooke, *Le Play*, 64-65.

19. William Manchester, *The Arms of Krupp, 1587-1968*, Boston: Little Brown, 1968, 259-266; Steinbeis, *Preisgericht*, 81-82.

20. Friedrich Müller, *Ferdinand von Steinbeis: Sein Leben und Wirken, 1807-1893*, Tübingen: H. Laupp, 1907, 107-127; Michael Sturmer, *Das Ruhelose Reich: Deutschland, 1866-1918*, Berlin: Seidler Verlag, 1983, 200-211.

21. Hermann Grothe, *Die Spinnerei, Weberei und Appretur auf der Weltausstellung zu Paris, 1867*, Berlin: Springer, 1868; Smith, *Tariff*, 36-38; Ivo Nikolai Lambi, *Free Trade and Protection in Germany*, Wiesbaden: 1963, Henry Axel Bueck, *Der Centralverband deutscher Industrieller*, Berlin: 1902 148-172 on Grothe's activities.

22. Rimmel, *Recollections*, 253; John H. Findling, *Historical Dictionary of World's Fairs and International Expositions*, Greenwich,CT: Greenwood Press, 1990, 39.

23. Blake, *Report*, vol. 1, 271-273, 282-285, 286-293, Brooke, *Le Play*, 64. On the success of American arms manufacturers winning European contracts see Wolfhard Weber, *Netzwerke, Stahl und Strom, 1840-1914*, Bd. 4, in Wolfgang König, Hrsg, *Propyläen Technikgeschichte* Berlin: Propyläen Verlag, 1992, 93-97. *Reports of Artisans selected by a Committee Appointed by the Council of the Society of Arts to visit the Paris Universal Exhibition, 1867*, London: 1867, 97-98.

24. Chevalier, *Exposition*, vol. 4, 136.

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