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# The Department of Commerce Under Herbert Hoover 1921-1928

Ethel H. Triebel  
*Loyola University Chicago*

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THE DEPARTMENT OF COMMERCE UNDER  
HERBERT HOOVER 1921-1928

by

ETHEL H. TRIEBEL

A thesis submitted in partial fulfillment  
of the requirements for the degree of

Master of Arts

in

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## Preface

Chicago, Illinois is my birthplace. Here I received my secondary education at Carl Schurz High School, where upon graduation I enrolled in the Chicago Normal School. I received my diploma and teacher's certificate after two years. Thereupon, I entered the University of Chicago from which institution I received the degree Ph.B. Since that time, I have been connected with the Chicago Public Schools in the capacity of elementary teacher and high school teacher. Graduate work in the field of American History was pursued at Loyola University. The interest I have felt toward historical study has been intensified by the stimulating guidance I have received from all of my professors at this institution.

To Dr. Paul Kiniery of Loyola University, I am deeply grateful. His helpful advice in the writing of my thesis and the study of history has been an outstanding experience.

Ethel H. Triebel

Chicago, Illinois

January, 1939

## Chapter I.

### Herbert Hoover

The Department of Commerce under Herbert Hoover became one of the important factors in the development of our economic prosperity during the "golden" twenties. Prior to 1921, when Mr. Hoover became Secretary of the Department, it was the least important cabinet post, the least esteemed, and the loosely knit catch-all for the other departments. A Washington wit aptly expressed the general attitude toward its functions when he said that its chief work was "Lighting the lamps along the coast and putting the fishes to bed."<sup>1</sup>

The work of the Department comprised six unrelated bureaus, including such diverse subjects as mining, aviation, and fisheries. In other words, it comprised bureaus that functioned in the heavens above, on the earth below, and in the waters under the earth.<sup>2</sup> Among the six bureaus which made up the Department of Commerce were the Bureau of Foreign and Domestic Commerce, the Bureau of Fisheries, that of the Census, the Bureau of Standards, that of Coast and Geodetic Survey and the Bureau of Navigation which included Lighthouse Service and Steamboat Inspection Service.<sup>3</sup>

1. Will Irwin, Herbert Hoover, A Reminiscent Biography, The Century Co., New York, (c1928), 259
2. George H. Moses, "Hoover" The North American Review, 225: 14, January, 1928
3. Irwin, 259

During the advent of Hoover's leadership, the Department of Commerce expanded either by transfer from other departments or by creation of Congress to included the Bureau of Mines, the Bureau of Patents, the All-American High Commission and the Radio Commission.

Mr. Hoover saw an opportunity for real service in his Department. He envisaged a new role for it, one which would contribute immeasurably toward the recovery of our economic life so sorely disturbed by the War.<sup>4</sup> He believed that a rejuvenated, reorganized, virile, closely-knit department under intelligent leadership would make the far flung activities under its scope instrumental in carving out for the United States a new place at home and abroad.<sup>5</sup> That he held to well defined ideals, the complete accomplishment of which he admitted were beyond achievement in this world, but toward which steady advances had been made during the first quarter of the twentieth century, was revealed in an article which was published in The American Review of Reviews at the turn of the quarter century when a number of leaders in the nation were asked to present their views on the economic achievements and their future possibility.

4. Ibid., 258

5. Isaac F. Marcossou, "Commerce Building" Saturday Evening Post, 201: 10, September, 1928

In this article, Mr. Hoover stated:

What we all want from this economic system is greater economic stability, that men may be secure in their employment and their business; assured returns on savings with less hazard and speculation; increasing the standard of living to all of our people, not only through increased stability of employment and business but through constant application of invention and steady elimination of industrial waste; an increasing diffusion of wealth; . . . a protection to the public from tyrannical action, monopolies and unfair prices by the minimum of responsibility to public interest from those who direct individual organization and who lead labor.<sup>6</sup>

Perhaps a glimpse into the life of Mr. Hoover at this point might not be amiss. He was the example of the actual fulfillment of the American saga, from log cabin to the White House. He was born on an Iowa farm and orphaned in early childhood. Well-to-do relatives befriended him and he was later educated at Leland Stanford University. As a youthful mining engineer and railroad expert he was unusually successful and accumulated a fortune. His career carried him into numerous obscure corners of the earth, so that he was as at home on the streets of China or Capetown as those of Los Angeles.<sup>7</sup>

During the World War Mr. Hoover became internationally famous for his meritorious record as Director of the Commission for Relief in Belgium. In May, 1917, President Woodrow Wilson placed Herbert Hoover in charge of the Food Administration.<sup>8</sup>

- 6. Herbert Hoover, "Advance Toward Economic Ideals," The American Review of Reviews 73; 32, January, 1926
- 7. Louis M. Hacker and Benjamin B. Kendrick, The United States Since 1865, F. S. Crofts & Co., New York, 1934, 560
- 8. Ibid., 514



This war agency was the one which most closely touched the average American during the war, for with the passage of the Lever Act by Congress in August 1917, the Food Administration exercised the power to license food necessities and fix food prices. The Food Administration's supervision of the Grain Corporation from 1917 to May, 1920 was also under Mr. Hoover's leadership.

In each of these tasks Hoover's capacity for organization was noteworthy. His technical training as an engineer augmented his natural ability as an organizer. No radically social or political viewpoints had a place in his philosophy. His was a philosophy of individualism. He firmly believed that American industrialism rested squarely on the corner stone of individualism. Thus all his work was colored by this outlook.

For seven years Mr. Hoover served as the handy-man of the Administrations in addition to his cabinet post. A coal strike, a flood, any disaster found him ready to direct, organize and untangle. In 1921 President Harding assigned him to direct the Unemployment Conference. Later he was asked to preside over the St. Lawrence Waterway Commission. It was he who was given much of the task of developing our water resources. His work of investigating the causes of the dangerous increase in traffic accidents led to the cooperation of the various states, from which beginning many practical remedies developed. He served

on the Foreign Debt Commission of the Washington Arms Conference in the summer of 1921. The movement known as the "Better Homes in America" was organized and conducted by Mr. Hoover.<sup>10</sup> He was chairman of the Colorado River Commission. By presidential appointment he presided over the "International Radio Conference to which seventy-four nations of the world sent delegates who were bound by an agreement to abide by the decisions and treaties adopted by the conference relating to this new international force. When Russia was gripped by the dreadful famine in 1922 and 1923, Hoover organized and directed the Russian Famine Relief. In 1927 he was again called upon to direct the work of relief during the greatest peace time disaster in the history of our nation, the Mississippi Flood.<sup>11</sup> His previous experiences and his genius for organization enabled him to accomplish a great deal of valuable work in a comparatively short time.

While these "outside" problems were occupying much of the time of the nation's #1 "trouble man", he was also reorganizing the Department of Commerce. Under his skillful guidance a minimum amount of friction developed during the rejuvenation. He had the capacity for selecting able subordinates and assistants, each an expert in a special field, whose advice and recommen-

10. Irwin, 260

11. Moses, 15

dations bore real weight. His willingness to take their counsel, impartially, bred within the department a loyalty which became proverbial. The fact that Mr. Hoover, himself a prodigious worker, never made an assignment to an assistant or subordinate which he felt could not be done, nor that he, himself, was unwilling to do, cemented his Department solidly behind him.

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When Mr. Hoover entered the Cabinet, he carried with him the simplification program of the War Industries Board and applied it to his Department. The waste and inefficiency in the Commerce Department was immediately attacked. He was appalled by the degree of waste in the industries of the nation. This condition called for the marshalling of the industries in the country into a sympathetic cooperative unit through which a program of eliminating waste could be achieved. Herbert Hoover believed in business organizations, in chambers of commerce, in boards of trade and trade associations. To him these represented tools through which he intended to carry out his program.

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By nature Hoover abhorred waste and had endeavored to eliminate it whenever he came in contact with it. When, in 1920 as president of the newly organized Federated Engineers Society, and member of a commission of seventeen from that group whose task it was to investigate waste in six of the largest indus-

12. Ibid., 15

13. George T. Odell, "Herbert Hoover--Super-Business Man" The Nation, 121: 325, September 23, 1925

tries in the nation and make recommendations for its elimination he became the ardent foe of this blight on industry and resolved to map out a program for its elimination. One pertinent paragraph from this report serves to illustrate the tenor of the work.

"We are a powerful industrial country, but we have much yet to learn. We have ingenuity and efficiency comparable with those of any other nation. But we tolerate to an alarming degree wastes of labor conflict, wastes of unemployment, wastes through speculative booms and over production. Above all, the industries of America while exceedingly favorably situated with respect to physical resources, are as yet profoundly lacking in that high average degree of the mental and moral of management which alone make certain the permanent prosperity of economic life of a country."<sup>14</sup>

It is interesting to note that the survey places the burden of waste primarily upon management, rather than upon labor. It reported that more than fifty per cent of the responsibility of waste rested upon the shoulders of management whereas but twenty-five per cent upon labor. In this waste, due to poor management, many factors were found to contribute. One third of this waste was laid at the door of inefficient organization which permitted workers to stand by intermittently idle waiting for material. Lack of efficient cost methods, no method for ascertaining needed replacements and improvements were also scored. An indictment against the impersonal relation between employer and employee was made in which it was suggested that this probably accounted in large measure for the large turnover of labor and

14. Frederick M. Davenport, "Underground Rivers of Waste" The Outlook, 130: 325, March 8, 1922

its resultant waste, the constant need of training new help. Another factor noted which contributed to the ever increasing turnover in labor was the failure of industry to provide training in special processes of operation which accounted for much of the inefficiency of workers and their discouragement. It recommended that some way be found to inspire employees with pride in their work, since in the realm of specialization they were too far removed from the finished product to feel any association between their particular abstract mechanical work and the article being produced.

Labor unions were scored in the report for their narrow and unwise regulations which restricted an individual's incentive through the adoption of uniform wages, for their restriction on the number of apprentices until particular trades became closed groups, and lastly for jurisdictional rules which distributed certain types and phases of work to different trades without regard to expense or time. An illustration of this collusion between employees and labor groups to distribute work and maintain high prices was cited in the instance of a project involving the moving of a pump.<sup>15</sup> Eight men, representing four trades were involved to complete the job. A steamfitter with his helper disconnected the steam pipe, two plumbers and a helper were used to remove and replace the suction apparatus, a structural

iron worker and a laborer to erect the rig to lift the pump, and an engineer to operate the valves of said pump. One skilled workman and a laborer could have done the entire job easily.

A number of recommendations to eliminate waste in industry were made in the conclusion of the survey. Among them, it suggested that American management become more efficient, and more human in dealing with employees. To labor organizations it recommended that they draft new bills of rights and develop a new list of responsibilities. Owners of industries were urged to insist upon better stabilization of production through better banking facilities. In conclusion it presented the need that government provide industry with statistical and scientific centers manned by staffs of experts. Secondly, the machinery as well as principles for adjusting labor disputes should be set up by some department of the government.

In an address before the National Conference of Social Work held in Rhode Island in the summer of 1922, Mr. Hoover scored some of the human wastes in industry. Child labor was the first to be attacked. He contended that child labor in the backward states was unfair competition to the industries of those states that prohibited such labor. More than that, child labor was an evil which attacked the very heart of the nation, its national health, and deliberately produced illiterate, untrained weak men and women, sacrificing national strength for profits.

Mr. Hoover recommended that federal action in the form of an amendment to the Constitution be taken to eliminate this blight since local governments had failed to regulate or prohibit this inhuman and economic waste of child life.

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Long hours of labor was another human waste in industry assailed in this speech before the National Conference of Social Work. Mr. Hoover viewed long hours from several angles among which was from that of the engineer's point of view. Therein he advocated a program of restricting the number of hours of human labor to that which enabled the worker to give his maximum best performance at the highest rate of efficiency. He added that various skills would require different regulations of numbers of hours since the efficiency point varied.

In attacking waste from the social worker's point of view he raised the question of the relation of long hours of work and the laborer's family life, with his value as a good citizen, the relation between long hours of work and leisure, and finally upon the individual's intellectual development.

A third human waste in industry attacked by Mr. Hoover in this address was the waste induced by intermittent employment caused by fluctuations in the business cycle. Admitting the difficulty of solving this waste, Mr. Hoover expressed an optimistic hope that there was a solution and it could be found.

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17. Herbert Hoover "Some Human Wastes of Industry" The Survey, 48: 505, July 15, 1922  
 18. Ibid., 506

In a speech before the United States Chamber of Commerce at Cleveland in 1924, this optimism was repeated. He said:

I believe that we are in the presence of a new era in which the organization of industry and commerce, in which, if properly directed, lies forces pregnant with information possessed of more progress. I believe that we are almost unnoticed, in the midst of a great revolution, or perhaps, a better word, transformation of the whole super-organization of our economic life. We are passing from one period of extremely individual action into a period of associated activities . . . We are upon the threshold, if these agencies can be directed solely to constructive performance in the public's interest.

How did Mr. Hoover plan to accomplish his missionary work in the field of waste in industry? His was a systematic program, not merely a number of addresses before interested groups, but one based on conferences, round table discussions with those vitally involved. A regular procedure was developed for calling these conferences. Some individual within an industry was stimulated to request the Secretary of Commerce to call a conference for the whole industry. The Secretary then proceeded to authorize either the trade association representing that particular industry, or some prominently competent individual in the industry in question to act as his representative in undertaking a preliminary survey of the needs, the wastes with suggestions and recommendations in said industry, for the elimination of waste.

The Department of Simplified Practice, which had previously been organized into some twenty different divisions according to industries to assist in this work, was called upon to cooperate



with the group making the survey. As soon as the investigation was completed a conference was arranged for, to which distributors, labor groups, owners, users and general interests in that industry were invited. They were made familiar with the survey and an opportunity for a round table discussion on it, its findings, its merits and its recommendations ensued. A printed set of the final recommendations adopted was then circularized among the individuals of the entire industry together with a pledge-form through which they strove to enlist their cooperation. A follow-up campaign to sell these ideas to reluctant and absent members was resorted to when necessary.

This manner of "Putting the government behind business rather than in business"<sup>20</sup> was Herbert Hoover's method of attacking waste. At the First Industrial Round Table sponsored by the National Civic Federation at New York and presided over Judge Alton B. Parker, nationally known leaders such as Secretary Hoover, William Green of the American Federation of Labor, and Gerard Swope, President of the General Electric Company were in agreement that it was possible to increase the standard of living of the American people, increase the wages of the American worker without increasing the cost to the public, by reducing waste in industry through the combined effort<sup>21</sup> of industry, labor, and government. They suggested that the

20. Ibid., 327

21. "To Help Us All by Cutting Out Waste", The Literary Digest, 85: 16, May 2, 1925

margin between the farmer and manufacturer producer on one side and the consumer on the other could be materially lessened by eliminating industrial waste without reducing wages or legitimate profits.

Wastes in the marketing of agricultural products was the subject of Mr. Hoover's address before the American Dairy Federation at Milwaukee, Wisconsin on October 1, 1924. To quote him, "To my mind, the whole problem of improved marketing is elimination of waste", summarizes his diagnosis of the difficulty.<sup>22</sup> The matter was no simple one, for it involved a multiplicity of wastes, each one complex and far reaching in its scope.

For instance, the chain of distributing dairy, fruit and vegetable products from their production centers to consumption centers was so honeycombed with waste, that often products were reconsigned and rehailed several times before reaching their final destination. This meant, that in the case of perishables, they arrived in a state of total decay. In 1923, the railroads paid over ten dollars a mile for deterioration and losses in the course of the shipment of perishables. As a result, freight rates were increased and further cost was added to the ultimate price.<sup>23</sup>

The practice of transporting inferior and unsalable pro-

22. "Secretary Hoover Analyzed Wastes in Marketing", Congressional Digest, 4: 262, October, 1925

23. Ebid., 271

ducts had developed an alarming lack of confidence among the buyers. An enlarged use of standardization of the quality of products plus the development of government inspection and certification would simplify commercial transactions and establish confidence. Mr. Hoover urged that cooperatives adopt this program, for they could lead the way so that commission men and wholesalers, too, would see the light.

There was much need for improving the inadequate facilities for handling products, modernizing terminal facilities and eliminating the irresponsible attitude among the terminal marketing distributors.

The existing practice of glutting the market with perishables during some seasons, and the over production of nonperishables some seasons with famine in others, demoralized the market. Mr. Hoover suggested that inferior grades and surpluses be converted into more permanent by-products and that more outlets be found. <sup>24</sup> Herein lay the solution of orderly marketing, and a reduction of waste in that field.

Mr. Hoover's crusade against waste continued without abatement all during his office as Secretary of Commerce. By 1926 tangible evidences of improvements in waste in industry could be verified in numerous quarters. The following table illustrates the point: <sup>25</sup>

24. Ibid., 285

25. "Hoover's Fight on Waste," The Literary Digest, 92: 22, March 19, 1927

Fluctuations Between High and Low Months	1920	1926*
Index of employment in manufacturing industries	22.8%	4.2%
Weekly car loadings . . . . .	28.0%	23.0%
Steel Ingot Production (daily average per month)	22.4%	15.7%
Pig Iron Production (daily average per month)	20.1%	9.9%
Building Activity (value) . . . . .	67.1%	42.2%
Coal Production (tons) . . . . .	27.2%	26.2%

\*Per cents based on figures for the first eleven months

## Chapter II.

## The Department of Commerce

"Less government in business and more business in government", were words used by Mr. Hoover in an address of a conference of the presidents and executives of Chambers of Commerce assembled in Washington in April 1922 for the purpose of becoming acquainted with the program of the Department of Commerce in relation to business. This quotation aptly describes the spirit of the Department and explains in no small measure, perhaps, the readiness with which industry accepted its program.

The rapid growth of the Department, which like Topsy, "just grew" from scattered odds-and-ends of various federal departments into one of the three major branches of the government's activities indicates also the transformation of our society into a highly mechanized, industrial system.

In 1903 Congress created the joint department, the Department of Commerce and Labor, with George B. Cortelyou appointed by President Theodore Roosevelt, Secretary of the new cabinet position. Commerce and Labor shared this cabinet post until 1913, when Congress separated the two.

The consolidation of the Bureau of Manufacturers and the

1. "A Business like Department", The Outlook, 130: 678, April 26, 1922 (No author mentioned)
2. Isaac F. Marcossou, "Commercial Exploration", The Saturday Evening Post, 198: 8, February 13, 1926

Bureau of Statistics of the Department of Commerce into the Bureau of Foreign and Domestic Commerce in 1912, launched the Department into the alien-trade field, one which had hitherto been an exclusive sphere of the Treasury Department. The latter continued to supervise the service dealing with statistics relative to imports, export values and tonnage.

The Act of 1913 provided that "It should be the province and duty of the said department (Department of Commerce) to foster, protect and develop foreign and domestic commerce, mining, manufacturing, shipping, and fishing industries and the transportation facilities of the United States."

In the annual budget presented to Congress by President Harding in December 1922, the duties "Of the Honorable Herbert C. Hoover, Secretary of the Department of Commerce," were stated as follows:

1. To perform such duties as are imposed upon him by law or entrusted to him by the President in the promotion of commerce and industry and the protection and regulation of navigation.
2. To determine policies affecting the collection of statistics, the establishment of aids to regulation of shipping, and the standardization of manufacturing processes.
3. To promulgate rules and regulations respecting the taking of censuses, the protection of fisheries, the administration of navigation laws and the use of government reservations under the control of the Department.

3. Ibid., 9

4. Herbert Hoover, "Backing Up Business", The American Review of Reviews, 78: 278, September, 1928

4. To pass upon all matters referred by the Solicitor to the Department of Justice.
5. To approve all leases, bonds, contracts and other similar documents.
6. To pass upon work programs prepared by the chiefs of the different offices and services.
7. To recommend the appointment of presidential officers in the department and to approve appointments under civil service rules and regulations.
8. To issue orders affecting the policies and programs of the different offices and services and bureaus and to effect inter-bureau cooperation.
9. To appear before Congressional committees on matters of appropriations and proposed legislation affecting the department.
10. Is a member in various capacities of several boards and commissions.

In another section of the budget the salary of Mr. Hoover as Secretary of Commerce was stated to be \$12,000 annually, and that the salary of the Assistant Secretary of the Department, Mr. Claudius H. Huston was to be \$5,000.

When Herbert Hoover took over the duties of the Department, he proposed eleven major objectives as his program. They were, the elimination of waste in railway transportation by providing adequate facilities and better methods; the improvement of our national inland water channels to provide cheaper transportation for bulk commodities; the promotion of an electrification program to effect a saving in fuel and labor; to reduce the periodic waves of unemployment in the boom and slump periods of the

5. "President Harding Transmits Budget for 1924", The Congressional Digest, 2; 73

business cycle; the establishment of an improved bureau of statistics within the Department as his chief aid in his program of eliminating waste in industry; the reduction of the unbalanced seasonal unemployment in both the construction and bituminous coal industries; a simplification program for industry whereby grades, qualities, dimensions and a reduction of the numbers of varieties of commodities would be standardized; the development of a research bureau capable of testing labor saving devices and better processes; the reduction of waste in the distribution of agricultural products through the extension of cooperative marketing, better terminal facilities and more efficient methods of handling; the provision of a means of commercial arbitration to overcome wastes due to litigations; the development of a labor board for arbitrating strifes between employers and employees.

This war-time energy in time of peace produced remarkable results. Every Saturday morning Mr. Hoover met with the chiefs and assistants of the divisions of the Department for an hour's discussion of the major commercial and industrial questions pending solution. A frank interchange of viewpoints was encouraged, and each one had the advantage of personally coming into contact with Hoover's ideas. Uncertainty about policies was thus eliminated. Furthermore, the Department was unified and imbued with his crusading spirit. Whenever, Mr. Hoover

6. "American Business Saving \$500,000,000 a Year", The Literary Digest; 87: 12, December 12, 1925



referred to "The Department's action or views," in public, he meant it literally.<sup>7</sup>

This collaboration of industry and government for the elimination of waste in industry worked very smoothly. Industry suggested, approved or nominated from among its own ranks, the experts to head the various divisions of the Department, through some sixty standing committees from the industries.<sup>8</sup> The innovation of practical industrial experts into government departments reduced the usual bureaucratic methods and red tape, with the result that efficiency increased while costs decreased. The following will serve to illustrate this: in 1921 the cost to the government of completing each commercial inquiry made of the Department was \$2.35. In 1925, the cost of each inquiry was lowered to \$1.35.<sup>9</sup> The striking increase in the number of daily commercial inquiries from seven hundred in 1921, to eight thousand in 1925 indicated the acknowledging of the importance of the service by industry.<sup>10</sup>

The Department developed into the greatest agency of business statistics of all time through its corps of experts at home and abroad which poured facts into its files daily. These facts were cross-referenced, analyzed, digested, systematized,

7. Julius Klein, "Hoover in His Workshop", The American Review of Reviews, 78: 276, September, 1928

8. Ibid., 277

9. Ibid., 276

10. Alfred Pearce Dennis, "Humanizing the Department of Commerce", The Saturday Evening Post, 197: 8, June 6, 1925

and interpreted into easily read and intelligible material for the public. An Englishman of the period said, "Our competitor is not so much American industry as it is the United States Department of Commerce."<sup>11</sup>

The Bureau of Census was another factor that made the Department known for its work in statistics. From its inception in 1790, the Bureau of Census had taken a census of the country every ten years. Its reports had increased from fifty-six pages in 1790 to 12,000 pages in eleven volumes, in 1920. Ninety-thousand enumerators were engaged in the latter census at a total cost of \$25,000,000.<sup>12</sup>

Formerly, the Bureau's services were valued only in retrospect, for its reports were usually published two years after being gathered, and interpretations and analyses of major industries, four or five years after being taken. These behind hand methods under-went a complete change under Hoover. Figures were ready for publication ten days after data was gathered in and supplementary bulletins were issued at regular intervals. By July 1921, the Department was able to begin the publication of a new official monthly organ called the Survey of Current Business. Charts, graphs, and condensed reports pertinent to individual industries and commerce as a whole were printed. It became the

11. Ibid., 9

12. J. Walter Drake (Asst. Sec'y of Commerce) "How the Department of Commerce Works", The Journal of National Education Association, 13; 18, January, 1924

business thermometer, registering the temperature of our nation-  
 13  
 al trade.

Another of the Department's indispensable aids to business was the inspiring development of the Bureau of Foreign and Domestic Commerce. Up-to-the-minute information flowed continuously into this division from the six hundred trade and consular representatives of this bureau scattered in all parts of the world. Before 1921, this bureau had limped along with an inadequate staff whose chief work had been filing information that was gathered. There was a lack of cooperation between it and the State Department, with the result that the Bureau of Foreign and Domestic Commerce neglected to reap the benefits from the highly specialized work accomplished by the Department of State's corps of experts in every foreign field. Mr. Hoover grasped the importance of cooperation between the two bureaus, so closely associated in their spheres of work, and established a cooperative program that worked for the mutual benefit of both.  
 14

He established three branches within the Bureau of Foreign and Domestic Commerce. One branch was given charge of collecting and distributing information regarding conditions and demands in foreign countries. Another was charged with gathering and disseminating this information to the men in charge of the various

13. Donald Wilhelm, "Mr. Hoover as Secretary of Commerce",  
The World's Work, 43: 410, February, 1922

14. Ibid., 407

and to the State Department, but examined by a trade expert, an experienced automobile staff officer, might reveal the fact that the arrangements actually constitute a violation of a favored nation clause in a treaty. It is up to our staff officer representing the automobile trade to carry the matter back to the trade and find out how it is affected. To facilitate such matters and assist all the commodities divisions to serve the business public, we have added two new divisions, one on commercial law abroad and one on tariffs in relation to American trade." <sup>16</sup>

The small business man was thus afforded the same opportunity as that of the big corporation which usually had developed its own organization for reporting and interpreting conditions in the foreign markets in which it was interested.

The hundreds of weekly Consular Service reports sent to the State Department on the trade conditions and trade opportunities in each individual field, supplemented the work of the branch of the Commerce Department engaged in fact gathering. The sum total of all the information gathered was organized and interpreted in the weekly publication of the Department of Commerce, Commerce Reports. This was one of the most complete and most active trade directories possible relating to business houses, prospective buyers and changing conditions in every phase of

American manufacture and trade.

The division of Domestic Commerce in the Bureau of Foreign and Domestic Commerce, was a relatively new addition to the bureau. It was chiefly concerned with the study of business methods to ascertain their efficiency or their lack, and locating the loopholes of waste scattered along the route from producer to consumer. It was this branch of the bureau that carried on in the unrelenting drive against waste in industry.<sup>18</sup>

Two of the three major bureaus of the Department of Commerce that of the Bureau of Census and the Bureau of Foreign and Domestic Commerce have been presented. The third is the Bureau of Standards. It is the only agency of its kind. It has the finest, the most complete and the best equipped laboratory in the world to serve the government and the business of the country efficiently and adequately.<sup>19</sup> Mr. Hoover described the purpose of the work of the bureau thus: "We are trying more than ever to make the Bureau of Standards into a thoroughly modern bureau of the largest possible helpfulness. The opportunities are enormous. For instance, the cotton growers always have on hand large quantities of practically unsalable fibre. The Bureau is now trying to get somewhere with this problem by find-

17. Harold Phelps Stokes (Assistant Secretary to Mr. Hoover)  
 "Your Department of Commerce", The Woman Citizen, 9: 9,  
 May 16, 1925
18. Drake, 20
19. Wilhelm, 409

ing ways in which marketable fabrics such as bagging can be made from this fibre. Obviously, no private chemist or individual cotton grower has the facilities to attempt a project like that." <sup>20</sup>

Another project of the Bureau of Standards was the program of simplification of processes in manufacturing and standardizing products. In order to accomplish this, two branches in the bureau were set up. One was the Division of Simplified Practice and the other was the Government Specification Division. The former was concerned with hundreds of major problems of waste and the working out of the factors that were contributing to waste in each industry. The conference method with representatives of the entire industry concerned was the method of approach ordinarily used. Every available resource of the department was utilized to cope with the problems.

The preparation of government specifications involved the testing on a grand scale, every commodity purchased by the government in every department in the entire country, and the preparation of scientifically prepared specifications based on extensive testings. The laboratories of the Bureau of Standards were equipped with every type of scale to facilitate this work, scales so delicate and sensitive that the operator of sat in an adjoining chamber to avoid any change of room temper-

ature which body heat might make, in the balancing of the instrument. Other scales had testing capacities of millions of pounds. Tests were made over a range of commodities from clinical thermometers and radium, to cement and full sized structural steel beams. A staff of nearly three hundred specialists<sup>21</sup> carried on this work.

The Bureau of Fisheries is one of the many lesser bureaus of the Department of Commerce. As its name indicates, it is concerned with the fishing resources and the fishing industry of the nation. Among its duties are the stocking of streams with fish eggs and fingerling fishes, the surveying of streams for a census of the types and varieties of fish found in them, and the introduction of new varieties to streams where conditions permit. This Bureau is the guardian of the salmon industry. By strict regulations during the salmon run, the Pacific and Alaskan salmon industries have been protected from threatened depletion of salmon before the bureau took over this work.

Another task of this Bureau is the protection of the great fur seal herd on the Pribilof Islands of the north Pacific. The threatened extinction of these seals through wanton destruction due to a lack of government supervision, brought about a rigid program of control. The enforcement of this program from 1911 to 1924 increased the herd six times in

number. Each year the government was in charge of the killing of the 20,000 allotment of male seals which produced \$700,000 revenue for the federal treasury. This item, alone, covered more than half of the total appropriation provided for by Congress for the operation of the Bureau, which in 1925 was <sup>22</sup> \$1,250,000.

The Lighthouse Bureau established for the purpose of protecting shipping from dangers along the coasts employed six thousand persons for this work. The annual appropriation for this Bureau was \$10,000,000. Not only does it make the 40,580 miles of coast line safe for ships, but the channels of the mouths of rivers which change constantly because of the silt and sediment carried down by the rivers are charted and marked with float lights. <sup>23</sup>

Another department in this group of lesser divisions of the Department of Commerce is the Coast and Geodetic Survey Bureau. Its duties deal primarily with the preparation of maps and charts for navigators and shippers, of the coasts and navigable waters in our nation. The shifting of river channels, necessitates constant revision and recharting to insure safe navigation. These charts are prepared with such minute accuracy that a ship can be guided with assured safety in strange waters.

22. Drake, 16

23. Stokes, 25



The work of the Bureau of Navigation consists of the registering of all vessels flying the flag of the United States, inspection of equipment of vessels, recording of the activities of vessels and the issuing of their "papers" or permits, without which vessels cannot enter foreign ports. The enforcement of maritime laws comes under their jurisdiction.

Mr. Hoover's program included a plan for organizing all the maritime agencies of the United States into a cooperative group for working our problems pertinent to their industry, or the disseminating of scientific discoveries and for becoming acquainted with the latest developments and devices of their

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craft. Through these conferences he knew that any advance in the work of these agencies and the promotion of safety would be of benefit to the nation.

The Steamboat Inspection Service is "charged with the duty of inspecting vessels and licensing of the officers of vessels and administering of the laws relating to such vessels and their officers for the protection of life and property.

25

The transfer of the Patent Office on April 1, 1925 from the Department of the Interior to the Department of Commerce was regarded as a great forward stride in many quarters. Mr. Hoover said, "The transfer of the Patent Office to the Department of Commerce recognized that patents and trademarks

24. Drake, 16

25. Phelps, 25

are inseparately connected with business and commerce. . . The supervision of that office naturally belongs to the Department which Congress has charged with the duty of fostering and promoting commerce. The transfer to it has been recommended by all the committees which have studied "government reorganization" including, Congressional Senatorial Committees,"<sup>26</sup>

For years, leaders in all fields of endeavor, newspapers, and magazines had continually advocated the transfer of the Patent Office to the Commerce Department. The Bureau had fallen several years behind in its work. Thomas E. Robertson, United States Commissioner of Patents used the work "deplorable" to describe the condition of the Patent Office in his annual report in 1921. The previous commissioner of the Office, Commissioner Newton, testified before a committee of Congress on July 1919, that the situation in his bureau was worse at that time than at any previous time in its history. He placed the blame for this condition on the type of staff which the Office attracted. The largest percentage of the staff were inexperienced men fresh from college without any knowledge of patent law or legal training, whose chief interest in their work lay in its being a place to garner experience before embarking upon their real careers. This situation was directly traceable to the low salary schedule of the Patent Office

26. Herbert Hoover, "Herbert Hoover and the Patent Office", Scientific American, 132; 373, June, 1925

employees. Capable, experienced experts in this branch of work were not attracted to it when a mere pittance rewarded their work. The New York Times attacked the situation in a sharply worded editorial when it stated, "One would expect that the Patent Office judge and recorder, of all these business breeders and wealth makers, would be encouraged and supported liberally by Congress. On the contrary, Congress has let the Patent Office break down. In 1848, the salary of the examiner was fixed at \$2,400. It has been raised only ten per cent in eighty years . . . Here is an establishment of vital moment to national development and prosperity. For its successful operation it must have agents of high ability, . . . linguistic, legal and scientifically trained . . . If the work of this office is to go on, if it is to retain the comparatively few veterans it still has, if it is to be able to fill vacancies, Congress must provide better pay."<sup>27</sup>

When this orphan bureau came under the wing of Herbert Hoover, it was reborn. Waldon Fawcett, eminent architect of the period, in an article that appeared in the Architectural Record of June, 1925, said that the entire country should rejoice in the transfer for it meant the eliminating of red

27. "Our Starved Patent Office", The Literary Digest, 72: 25, February, 4, 1922

tape and the building up of the Office into an efficient agency  
 of industry.<sup>28</sup>

The changed status of the Patent Office was explained by Mr. Hoover in an interview when he said, "The office is now functioning well, and while it is still behind in its work, due to insufficient personnel, and the great increase in applications, it is rapidly catching up and will soon be to the point where applications will receive prompt disposition and delays will be obviated."<sup>29</sup>

On June 4, 1925, President Coolidge by an executive order, transferred the Bureau of Mines from the Department of Interior to the Department of Commerce. Two of its offices, however, were to remain under the Department of Interior. These were the division in charge of national coal and oil reserves, and the division in charge of leasing mineral lands. Secretary Hubert Work of the Department of Interior explained that this transfer was one in the reorganization of government departments program of the President, and approved by the Joint Congressional Committee, whose primary object was the elimination of the numerous duplication of activities that existed.<sup>30</sup>

28. Waldon Fawcell, "The United States Patent Office Gains by the Influence of a New Environment", The Architectural Record, 57: 576, June, 1925
29. Hoover, "Patent Office", 373
30. "Transfer of the Bureau of Mines to the Department of Commerce", Science 61, 604, June 12, 1925 (no author indicated)

By an act of Congress in 1912, the control of radio had been placed under the supervision of the Department of Commerce.

However, no one at the time could possibly foresee the Aladdin-like changes that were to come about in the development of this infant industry, with the result that this legislation was entirely inadequate to meet the new situation. There had been a movement to enlarge the authority of the Secretary of Commerce by Congressional action. But politics prevented any such action. By 1926, Hoover saw that he was powerless to remedy the difficulties that had developed relative to broadcasting, wave lengths, licensing and duplications, that he renounced control of broadcasting and recommended to Congress that a Radio Commission be created immediately. Congress acted upon this suggestion, and passed the Radio Act of 1927. This act created a Federal Radio Commission with full power for one year to undo the existing broadcasting knot, and formulate rules and regulations to guide the Department of Commerce in its administration of matters pertaining to Radio.

After Herbert Hoover had taken over the portfolio of the Department of Commerce, an old gentleman wise in the ways of Washington politics observed to him, that after a year or two in that capacity, Hoover would loose his crusading spirit and

31. Orrin E. Dunlap, Jr. "Wanted a Radio Fan's Paradise", Scientific American, 138: 242, March, 1925
32. Thomas Stevenson, "Who is to Control Broadcasting?" Radio Broadcast, 9: 572, October, 1926

succumb to the obstacles of red tape in government machinery and the inertia of bureautic methods, and that he would be satisfied to work in a paternal, kindly, supervisory capacity, two or three hours a day. However, he said, "You will have leisure for your own entertainment and you will find that the position of cabinet officer is both dignified and agreeable." <sup>33</sup>

He was wrong in this prediction. At the end of four years, Herbert Hoover found himself working twelve to fifteen hours daily in order to carry out his program, with no thought of letting down. This capacity for work fortified with a crusading spirit accounts for the remarkable rejuvenation of the entire Department of Commerce under his direction.

## Chapter III.

## The Bureau of Foreign and Domestic Commerce

The Bureau of Foreign and Domestic Commerce as built up by Herbert Hoover, became the very life blood of the manufacturers, producers, and exporters of the nation. This bureau of the Department of Commerce became their scout, counselor and silent partner. It did everything<sup>1</sup> for them except sell their goods and collect their bills.

The history of the Bureau of Foreign and Domestic Commerce dates back to 1820, when Congress authorized the Secretary of the Treasury through his division of Commerce and Navigation to, "Collect and publish statistics of foreign commerce."<sup>1</sup>

In 1842, the statistical office of the Department of State became the Bureau of Statistics. Not until 1880 do we again hear of any changes connected with this branch, when monthly consular reports were established as a required procedure. Eight years later, Congress passed an act which instructed consuls to furnish to the Secretary of the Treasury, "Regular reports as to quantities and values of the merchandise exported to the United States from the countries in which they were stationed."<sup>2</sup>

In 1897, the Bureau of Statistics became the Bureau of

1. Louis E. Van Norman, "Selling Our Goods Abroad", The North American Review, 224: 287, June, 1927
2. Ibid., 287

Foreign Commerce. The following year, daily Consular Reports were begun. The Bureau of Foreign Commerce was transferred to the Department of Commerce under the newly created Department of Commerce and Labor in 1903. With it was also transferred, the Bureau of Statistics. At the same time a Bureau of Manufacturers was established, "To foster, promote and develop the manufacturing industries of the United States."<sup>3</sup>

In 1905, Congress authorized appropriations for special agents to investigate trade conditions abroad. Four itinerant scouts of trade began their work of investigation, thereby, of foreign conditions, and a staff within the Department was organized to direct the work. The first appropriation for this new work was \$30,000. The service grew in size and the appropriations set aside for its work became three million dollars in 1926.

A month before the outbreak of the World War, "Commercial attaches were stationed at certain stations abroad", with an appropriation of \$100,000.<sup>4</sup> Accordingly, ten attaches were appointed and stationed in London, Berlin, Paris, Buenos Aires, Peking, St. Petersburg, Rio de Janeiro, Lima, Santiago and Melbourne. Additional offices known as Trade Commissioners were added very soon, which duties were the making of commercial surveys of entire countries or the reporting on specific

3. Ibid., 288

4. J. Walter Drake, "How the Department of Commerce Works", The Journal of National Education Assn., 13: 16, January, 1924



industries rather than remaining in a capital at a stationary base.

Prior to 1914, only a few great corporations, possibly fifteen in number, were sufficiently large to maintain commercial intelligence abroad to facilitate their business. Hence, they were in control of our foreign commerce. For no industry was able to compete in the complex competition of foreign trade without a foreign staff of up-to-the-minute information on market conditions, needs, changes in trends, and opportunities. 5

The provision for such a bureau was accomplished under the leadership of Herbert Hoover. The Bureau of Foreign and Domestic Trade of the Commerce Department became the advisor on international law, tariffs, routes, conditions, packing methods, price movements, foreign production, currency movements, patent and trade mark legislation, sales and stamp taxes and countless changes vital to successful trade. 6

The Foreign Commerce bureau immediately proved to be indispensable to American business and it became highly desirable that its permanency be guaranteed by an act of Congress. Accordingly, a bill to provide for this permanency was introduced into Congress in 1924, by Congressman Winslow of Massachusetts, but failed to carry the required majority. A revised bill was then introduced by Congressman Homer Hoch of Kansas.

5. Isaac F. Marcossan, "Commerce Building", Saturday Evening Post, 201: 10, September 29, 1928

6. Ibid., 204

On March 3, 1924, this bill became an Act and it provided, "The Foreign Service in the Bureau of Foreign and Domestic Commerce in the Department of Commerce is hereby permanently established."<sup>7</sup> It provided for four grades of foreign service officers and clerks, the number of which was to be fixed by the Secretary. They were to be known as Commercial Attaches, Assistant Commercial Attaches, Trade Commissioners and Assistant Trade Commissioners. The duties of this group embraced the promotion of foreign commerce, the investigation of foreign trade conditions and to act as representatives upon commissions dealing with foreign trade, and perform such other duties as the Secretary might direct in connection with the promotion of the industries, trade or commerce of the United States.

The men of this corps were appointed by the Secretary of Commerce through the Department of State, and were officially attached to the diplomatic missions of the United States in the countries in which they were stationed. These men had diplomatic standing, but were not considered as, "having the character of a public minister."<sup>8</sup>

A comparison of our foreign trade problems before the World War and after is indeed interesting. The former problem was one of discovering a need for our goods abroad, whereas after the War, our problem was arranging Europe's finances so

7. Harry Collins, "United States Government Aid to Foreign Trade", The Annals of the American Academy, 127: 296, September, 1926

8. Ibid., 295

that they could purchase our goods. <sup>9</sup> During the twenties, Europe became better equipped to wage the trade battle, for hand labor was succeeded by machine labor and machine processes, and the Americanization of Europe resulted in mass production in many quarters, so that we were confronted with our own processes and frequently with our own plant equipment. Indeed, we began to feel the "rationalization" of Europe's industries. <sup>10</sup>

In 1913, Europe exported 62.75 per cent of the total world trade, and the United States only 12.90 per cent. We were amateurs in the business of world exports, and depended upon foreign agents, principally English and German, who naturally promoted their own national trade over us. Mr. Hoover revolutionized this arrangement. <sup>11</sup> In this new program, he revealed an uncanny grasp of international affairs and a real insight into alien countries and peoples. The following table illustrates the increased amount of world trade belonging to the United States before and after the reorganization of the Department of Commerce. <sup>12</sup>

9. Ibid., 296

10. Marcosson, "Commerce Building", 109

11. Van Norman, 289

12. Table compiled from figures presented in article by Marcosson, "Commerce Building", 109

Total Export Trade	1913	1927
Europe's total World Export Trade	62.75%	47.80%
United States' total World Export Trade	12.90%	15.59%
" " " Mexican " "	50.00%	70.50%
" " " Argentine " "	14.00%	25.50%
" " " Brazil " "	15.70%	29.30%
" " " Chile " "	16.70%	32.70%
" " " Peru " "	28.80%	40.20%
" " " Cuba " "	53.00%	62.00%
" " " World " "		
in Finished Mfrd. Articles	30.70%	41.60%

In a personal interview with Mr. Hoover, Isaac Marcossou, writer and journalist, asked him to outline the reasons for, and the formula of, our foreign trade. Mr. Hoover genially replied: "Aside from the incalculable social value of an enlarged national mind, opportunity and development of world unity and mutual interest, and thus peace, there are several highly important reasons why a big international trade is fundamentally essential to our modern economic system. The first of these is the necessity for a large volume of imports of those materials which we do not and cannot produce ourselves."<sup>13</sup>

"The whole fabric of our life and comfort depends upon such articles as rubber, coffee, tin and other products which enter into every phase of living. The standard of living depends upon how much of these commodities we can obtain and employ. But the quantities of such products that we can import depends in turn upon the volume of goods we can export and exchange. In this sense, therefore, our export trade may be regarded as a method of securing vital imports."

"Another primary reason for maintaining a large volume of exports is to give stability to our whole economic scheme by a wider spread of customers. The man who runs a business solely for customers is always in a precarious position. If he has one thousand customers he is assured of a degree of permanency in his affairs, and his labor can count on continuity of employment. The same is true<sup>14</sup> of a nation which distributes its products throughout the world."

These words of Mr. Hoover explain the popularly known, "Hoover Trade Formula" which guided the reorganization of the Department. Up to this period, the organization of the Department was similar to that of the Department of State, built along regional, not commodity lines. There existed an East European Division and a West European Division for European

13. Ibid., 53

14. Ibid., 54

commerce. In the same manner, the rest of the world trade was divided by regions. The reorganization under Herbert Hoover was likened to corporation organization, providing for specialized divisions in everything.

The Bureau of Foreign and Domestic Commerce's regional information division filed, recorded and classified all the data poured into its department and published a great number of publications. Three large divisions of regional information were created with a chief in charge of each. These included, Europe, Latin America, and the Far East.

Twenty-three commodity and technical divisions were established to deal with information concerning specific trade and phases of foreign commerce in cooperation with the industries concerned in the expansion of our foreign export trade. The following list gives the commodity and technical divisions created at this time:

Commodity Divisions

Technical Divisions

- |                                      |                            |
|--------------------------------------|----------------------------|
| 1. Agricultural Implements           | 1. Foreign Tariffs         |
| 2. Automotive                        | 2. Commercial Laws         |
| 3. Chemical                          | 3. Finance and Investment  |
| 4. Electrical Equipment              | 4. Statistical Research    |
| 5. Foodstuffs                        | 5. Statistics              |
| 6. Hides and Leather                 | 6. Commercial Intelligence |
| 7. Iron and Steel Hardware           | 7. Domestic Commerce       |
| 8. Lumber                            |                            |
| 9. Machinery                         |                            |
| 10. Minerals                         |                            |
| 11. Paper                            |                            |
| 12. Rubber                           |                            |
| 13. Shoe and Leather Manufacturers   |                            |
| 14. Specialities                     |                            |
| 15. Textile                          |                            |
| 16. Transportation and Communication |                            |

The Administrative Divisions of the Bureau, consisted of the Editorial Division, the Correspondence Division and the Division in charge of District Offices, and the Foreign Service Division.  
15

The field service duties of the representatives abroad was three-fold. In the first place it was their duty to report new laws, tendencies, official utterances, statistics, policies and their interpretations to the home office, a copy of which was also sent to the State Department. The latter exchanged copies of consul's reports stationed abroad. All this information was organized and relayed to the business world in weekly bulletins and monthly publications.  
16

Their second duty was the task of answering the requests for information or advice either by letter or personal calls. Lastly, they were to assist and advise ambassadors, ministers or the Secretary of Commerce on all economic matters dealing with matters pertaining to their particular foreign station. These commercial experts had diplomatic standing in the capitals of the countries in which they carried out their work. They became truly "Ambassadors of Trade" engaged in all phases of commerce.  
17

A part of their work consisted in soothing ruffled feel-

15. Collins, 138

16. Van Norman, 291

17. Edward N. Hurley, "Uncle Sam is a Good Drummer", Colliers, 75: 25, April 18, 1925

ings and correcting misunderstandings. Another phase of their activities involved investigating business ratings of foreigners interested in purchasing American goods on credit.<sup>18</sup> As these experts traveled about their foreign station, seeking commercial intelligence they wove the fabric of our foreign trade firmer and wider. Each representative was a picked man, one who was a combination of an economist, diplomat, author, banker, linguist, business man with social graces, and trade advisor.

Each man in the corps knew that the information with which he dealt must be timely. For, as Dr. Dulus Klein, the Director of the Bureau of Foreign and Domestic Commerce was want to say, "The most perishable commodity in the world is commercial intelligence."<sup>19</sup> To insure against this, Dr. Klein expected each commercial attache to cable him once each month, and men stationed in the United States to keep in touch with him personally, by telephone. A rule of the Bureau was that a reply to a commercial inquiry must go out within forty-eight hours after received, whether the information was complete or not. Additional material followed. This specific service of answering commercial inquiries increased from seven hundred daily commercial inquiries in 1921, to three thousand in 1923. This personalized attitude of Mr. Klein accounts for the virility of his

18. Collins, 136

19. Herbert Corry, "He Knows What You Want to Know", Colliers 72: 12, October 6, 1923



Bureau.

The general service rendered by the Bureau was given in reports and bulletins on trade conditions and opportunities for American products in foreign markets. A sampling of publications issued by the Bureau illustrates the scope of this service.

21

1. Packing for Export
2. Commercial Handbook of China \*
3. Commercial Traveler's Guide to Latin America
4. Stowage of Ship Cargoes
5. Caribbean Markets for American Goods
6. Railways of Mexico
7. Paper Work in Export Trade
8. Selling in Foreign Markets
9. Canned Foods in the Western Hemisphere
10. Rubber Production in the Amazon Valley
11. Peruvian Public Finance
12. Advanced Methods in Japan, China and the Philippines
13. Motor Roads in Latin America
14. International Trade in Cement
15. Merchandise Warehouse in Distribution
16. Foreign Capital Investments in Russian Industry and Commerce.
17. Glossary of Automotive Terms and Instructions to Exporters

These publications and countless others on foreign trade may be had for small sums from the Superintendent of Documents, Government Printing Office, Washington, D.C., or from any district office of the Bureau. The latter are listed as follows:

20. Hurley, 25
21. Collins, 139

District Offices

1. Central Mississippi, St. Louis, Mo.
2. Central Pacific, San Francisco, Cal.
3. Des Moines, Iowa
4. Detroit, Michigan
5. Houston, Texas
6. Louisville, Kentucky
7. Memphis, Tenn.
8. Minneapolis, Minn.
9. New England, Boston, Mass.
10. New York, N.Y.
11. Philadelphia, Penn.
12. Portland, Ore.
13. South Atlantic, Atlanta, Ga.
14. Gulf, New Orleans, La.

Cooperative Offices

- |                        |                                   |
|------------------------|-----------------------------------|
| 1. Akron, Ohio         | 19. Milwaukee, Wis.               |
| 2. Baltimore, Md.      | 20. Mobile, Ala.                  |
| 3. Birmingham, Ala.    | 21. Muncie, Ind.                  |
| 4. Bridgeport, Conn.   | 22. Newark, N.J.                  |
| 5. Charleston, S.C.    | 23. Norfolk and Newport News, Va. |
| 6. Chattanooga, Tenn.  | 24. Orange, Tex.                  |
| 7. Cincinnati, Ohio    | 25. Pensacola, Fla.               |
| 8. Cleveland, Ohio     | 26. Pittsburgh, Penn.             |
| 9. Columbus, Ohio      | 27. Providence, R.I.              |
| 10. Dallas, Tex.       | 28. Richmond, Va.                 |
| 11. Dayton, Ohio       | 29. Rochester, N.Y.               |
| 12. El Paso, Tex.      | 30. San Diego, Cal.               |
| 13. Erie, Penn.        | 31. Syracuse, N.Y.                |
| 14. Fort Worth, Tex.   | 32. Tacoma, Wash.                 |
| 15. Indianapolis, Ind. | 33. Toledo, Ohio                  |
| 16. Jacksonville, Fla. | 34. Trenton, N.J. 22              |
| 17. Los Angeles, Cal.  | 35. Worcester, Mass.              |
| 18. Lowell, Mass.      |                                   |

In each district office complete files are kept of trade opportunities abroad, sales information, representative foreign importers, trade directories and samples and exhibits of foreign merchandise. Conferences between the American exporter and the

representative of the foreign buyer are often arranged in them, thus bringing the foreign market to the home town of the American business man.

Illustrations of the type of problems the Bureau of Foreign and Domestic Commerce handles in its daily routine opens to us the many facets of its work. On February 20, 1924, the trade commissioner at Buenos Aires cabled the Bureau that that city called for bids on motorized street cleaning equipment. Two days later the Automotive Division of the Bureau issued a special circular describing the nature of this opportunity to all the leading manufacturers of street cleaning equipment in the United States. On March 26, that Division sent out another circular giving additional information. The bids were opened at Buenos Aires on July 25, but the contract was not let at that time. The commissioner attache at Buenos Aires kept in close touch with the proposed project and constantly kept the Automotive Division informed. He cabled the American manufacturer who was awarded the contract for eighty trucks on April 8, 1925. Several other American firms were awarded bids for furnishing material, equalling the sum of four hundred thousand dollars.<sup>23</sup>

Through the efforts of the Madrid Office of the Bureau, our commercial attache was instrumental in obtaining an initial order for a fleet of American made trucks valued at fifty

23. Isaac F. Marcossou, "Adventures in Exports", The Saturday Evening Post, 198: 49

thousand dollars. During the first ten months of 1925, two hundred thousand dollars in American made automobiles were sold in South America with the assistance of the Bureau. Similarly, a total of \$1,500,000 worth of cars were sold to Germany.<sup>24</sup>

A unique illustration of the manner in which the Department assists American business happened during the period when the tension over German reparations was most acute. A New York exporter who had immense quantities of cotton stored in warehouses in Germany sold twenty-three thousand bales valued at \$450,000, to a French firm. The French government demanded the twenty-six per cent reparations tax from the American exporter because the cotton was shipped from Germany. Our commercial attache intervened and was able to arrange that the entire consignment be made without the payment of this tax which amounted to \$100,000.<sup>25</sup>

The Department has been instrumental through its vast store of information to reduce the number of mistakes American firms make in attempting to sell goods to foreign countries where no local use can be made for them. Automobile manufacturers formerly circularized importers in Bermuda with automobile accessories and automobiles, unaware that automobiles were prohibited by law.

24. Ibid., 49

25. Ibid., 49

The foreign representative corps is constantly occupied tracking down stolen motion picture films and film piracy. With the aid of the State Department formal protests are launched via embassies and legations against discriminations against American made films, in countries where movements against what they call "American movie invasion" have appeared. In connection with the moving picture industry promotion in foreign lands, the Department of Commerce reports new theatres being constructed in foreign countries, the number of pictures each foreign district is able to absorb, the prices prevailing at the moment, the seating capacity of theatres, performances, the laws regarding censorship, the extent and nature of competition, and taxes and tariffs on American films.

The machinery commodity division has collected all the laws relating to regulations on the construction and operation of machinery in every country in the world. Any manufacturer interested in such information is able to have the most complete and up-to-date information in his hands within a few hours. This commodity division also published, Construction News, a brochure that informs manufacturers of machinery of all current construction projects in the world from a hotel in Winnepeg to the installation of an irrigation project in India. This makes it possible for American manufacturers to advertise their products from the bolts to the paints needed on such projects at the opportune moment, and have sufficient data and time to

prepare carefully worked out bids.

Similarly, the electrical commodity division has organized all the basic information regarding the character of the electrical development of every city of importance in the world, its water power resources, the competition<sup>26</sup> in the field, and projects under construction. As soon as any news breaks relative to any project or anticipated project in their field, the division immediately arranges all the necessary information for manufacturers in this industry.

In an interview with Dr. Julius Klein, Mr. Marcossou asked him to explain the significance of our export expansion. To this he replied, "Our export situation has undergone an evolution during the past two decades. Before the War, our overseas selling was confined to two groups of commodities. One was composed of self-selling staples like wheat, cotton and copper. The other, consists of highly specialized patent contrivances such as typewriters and cash registers. Today, over sixty-two per cent of our export shipments are partly manufactured goods as against about half that proportion a generation ago."<sup>27</sup>

"This invites an important change in our entire export strategy, for it means more intensive competition, more carefully developed sales campaigns and widespread educational

26. Marcossou, "Commercial Exploration", 54

27. Marcossou, "Adventures in Exports", 52

effort on the part of the manufacturer and producer. Experience has now become the work of experts backed up by accumulated government trained intelligence. The average American merchant or manufacturer has no accumulation of firm or family experience with such intricate problems as foreign market condition, commercial laws and baking practices. To meet his requirements the fact finding services of the Bureau have been expanded until they comprise some forty-five offices over seas about forty district offices in this country, and a corps of experts in Washington to direct the field work on the one hand, and the distributive agencies in the United States on the other.<sup>28</sup>"

The remaking of our economic world after the World War gave the United States the advantage over its European commercial rivals. Our immaturity in foreign trade gave us an elasticity, a readiness to meet new situations and conditions, which Europe could not cope with as easily. Europe was burdened with old traditions, antiquated trade practices and a demoralized post-war market. The reviving of European competition proved to be no bugaboo to American trade, for our foreign trade gains have been chiefly in commodity fields like the cheap auto, motion picture films, and office equipment, which Europe has never developed on the American scale. All gains in world trade must be based on quality products, and service to be permently held.

The Department of Commerce through its Bureau of Foreign and Domestic Commerce has made the conquest of world trade possible. American commerce and industry with this close cooperation of government should be able to maintain and expand its activities in foreign fields.



## Chapter IV.

## The Bureau of Standards

Service to business to enable it to better help it serve itself and the public, expresses the aim of Herbert Hoover in his program of reorganizing the Bureau of Standards. Indeed, this Bureau might well be called the service unit of the Department of Commerce. Its influence is directly felt by every industry in the nation, and indirectly by every person in the country. In the scientific laboratories of the Bureau of Standards, the finest laboratories in the world, tests of every conceivable nature, on every material or commodity purchased by the government, on the commodities produced by industry, and the working out of specifications for commodities purchased by each department in the government, are carried on daily.

These tests might include, for example, tests on samples of stone used on building projects of the government. The stones are placed in a pressure machine, in which gradually increased degrees of pressure are applied until they are eventually ground to powder. These results are compared with prepared government specifications to determine whether or not the material used comes up to specifications. Steel cables might be similarly tested. A pulling machine applied to these cables

1. J. Walter Drake, "How the Department of Commerce Works", The Journal of National Education Association, 13: 17, January, 1924

until they pull apart, would check the strength of the cables and ascertain their quality. The paper used in the various clerical departments might be tested for rag or sulphite content, resistance to light, to moisture, and to durability.<sup>2</sup>

Mr. Hoover's natural aptitude for exactness coupled with many years of engineering experience had developed an invaluable background for the type of testing carried on by the Bureau.

This "getting behind high pressure salesman's claims and modern advertising copy",<sup>3</sup> to determine the actual value received, is one phase of the work of the Bureau.

But, no story of the development of the Bureau of Standards is complete without mention of the work of Samuel Wesley Stratton. He was the man who had the vision and ability to take this little known, obscure bureau from the shelf, dust it off, and convert it into one of the three major divisions of the Department of Commerce. Born in a village near Litchfield, Illinois, Samuel Stratton spent most of his boyhood tinkering with mechanical gadgets of every description. It was more than childish curiosity, for his mind was mechanically bent, with a spark of genius that set it apart from his companions. He continued his scientific quests through most of his life. He became professor of physics at the University of Illinois, and

2. Donald Wilhelm, "Mr. Hoover as Secretary of Commerce", The World's Work, 43: 409, February, 1922

3. Stuart Chase and F. J. Schlink, "A Few Billions for Consumers", The New Republic, 54: 153, December 30, 1925

later, joined the faculty of the University of Chicago.

For many years he had been convinced that the chaotic condition of the standards in industry, was due to the lack of rigid government standards of weights and measures. At this period, the Bureau of Standard Weights and Measures was a division of the Treasury Department, with routine clerical duties to occupy its functions. Professor Stratton urged Lyman J. Gage, Secretary of the Treasury in 1900, to sponsor a bill in Congress to create a really worth while Bureau of Standards. The Stratton Bill was passed the following year. It renamed the old Bureau, with the title, National Bureau of Standards, and gave to it the custody, comparison and construction of standards recognized by the government, the "solution of problems which arise in connection with standards and the determining of physical standards and the properties of material".<sup>4</sup>

In 1903, the Bureau of Standards was transferred to the Commerce division of the newly created Department of Commerce and Labor. Samuel Stratton was appointed the first director of the Bureau. The Bureau with its staff of twenty-four was housed in a temporary shack. Twenty years later, it had grown to a size that required sixteen modern buildings for its exclusive use, on a site of forty-three acres, with a staff of over

4. H. W. Beach and F. S. Holbrook, "Division of Weights and Measures, Bureau of Standards", Congressional Digest, 5: 116, April, 1926

eight hundred men including sixty research associates, a library of twenty-nine thousand volumes and complete files of six hundred periodicals. Its annual appropriation for 1923, was two million dollars.<sup>5</sup>

The division of Standard Weights and Measures was divided into nine technical sections each dealing with specific problems in highly specialized and limited fields. First among these sections is the one delegated as Length. The work of this section is concerned with the preservation and comparison of the national standard of length and its copies, the development of methods and apparatus for the precise measurement of length, and the comparison of state, municipal and other standards of length with the national standard. It is also concerned with the testing of area measuring devices, the graduation and testing of precise and graduated circles. Some of the projects within its scope are the preparation of specifications for instruction of apparatus requiring linear dimensions of a definite and stated accuracy. The testing of such apparatus to determine the conformation to specifications follow. Compiling tests and the results there from, for distribution to manufacturers and others concerned with the subject of length measurements is an important phase of their work.

A second section of the Division is engaged with "Mass" in all phases. This comprises such fields of work as the improve-

ment of methods and apparatus for the precise weighing of mass, preparation of specifications for standards weights and precise balances, the testing of such standard weights and the preparation of all data in regard to standard weights and precise weighing for manufacturers who may be interested in the subject.

Research and investigations in the field called "Time" is the work of another section. This staff cooperates with, and serves on committees of organizations such as the Horological Institute of America whose object is the improvement in the construction, testing, use and repair of time measuring devices. Another phase of its work is the answering of inquiries referring to time, measuring devices and related and miscellaneous subjects such as standard time belts, and calendar reform.<sup>6</sup>

The work of the fourth section, called "Capacity and Density" includes the designing, improving, and calibration of special volumetric apparatus, burettes, pipettes, flasks and similar devices. It is also concerned with tests to determine density and volume coefficients of liquids and the preparation of tables based on them. The testing of capacity and density apparatus, hydrometers, picometers and similar devices are also included. This staff renders every assistance to manufacturers by personal conferences and correspondence on inquiries and

6. Ibid., 117

problems concerning any phase of the field of its endeavors.

The section dealing with "Gas Measuring Instruments" is primarily engaged in conducting researches on gas measuring instruments and preparing bulletins and publications on its findings. The experts participating in the work of this section, serve on committees engaged in preparing specifications for the construction, testing, and using of gas meters.

The "Thermal Expansivity Length Variations" section of the Division is likewise highly technical. Its name indicates its main field of work, although it is also engaged in the location and transformation regions when accompanied by length changes, the determining of dimensional variations incident to heat treatment or manipulative processes, such as distortions due to time, temperature, or use, and the preparation of ruling linear scales. The construction of such precision instruments as the dividing engine and precision screws, is another phase of its work. The determining of the physical properties of dental materials and proper technique for their most effective use has proven a most valuable contribution to the advancement of dental mechanics.

Weights and Measure Laws and their Administration is another highly specialized section. This division cooperates at all times with state and local departments of weights and measures, as well as with manufacturers of such devices. Research problems and investigations in this field occupy a large

a large part of its staff of experts.

The section charged with the Investigation and Testing of Scales included among the various phases of its work, the calibration, maintenance of accuracy and investigation of master track scales and railroad track scales. Allied with this is the calibration of test cars, the investigation of mine scales, the calibration of heavy weights and a close cooperation with railroad weighing bureaus of heavy capacity scales and weighing problems. The preparation and development of specifications of tolerances and methods of testing for capacity rating of master track, railroad, track, grain hopper and other heavy capacity scales and testing machines is a major phase of their work.

The ninth and last section of the Division of Weights and Measures is the one called "Limit Gauges". Its field of investigations include the determination of dimensions of master inspection and working gauges used in interchangeable manufacturers. The development and construction of apparatus for verifying gauges and measuring machine parts not readily or commonly gauged is another set of projects within its scope. The section maintains complete files of all data collected and compiled on stock sizes, standard dimensions and tolerances for common metal shapes and machine elements. The personnel of this section includes such experts as are chosen to cooperate with engineering commissions engaged in standardizing sizes and

tolerances for machine elements, such as, the Sectional Commission on Plain Limit Gauges, an organization under the rules of the American Engineering Standards Commission and also the National Screw Thread Commission.<sup>7</sup>

There are a number of additional divisions in the Bureau of Standards whose work include the fields of Electricity, Heat and Power, Optics, Chemistry, Mechanics and Sound, Miscellaneous Materials, Metals, Structural Materials, the Division of Simplified Practice, the division of Building and Housing and a very special group in Administering the Federal Work on Specifications.<sup>8</sup>

A committee established by Congress prepared reports on the work accomplished by the Bureau along with a list of its requirements, for the Secretary of Commerce. The annual report of the Director, covers a review of the achievements of the Bureau, the important fields of research in the period, tests conducted and a list of special recommendations.

In 1908, the Bureau of Standards set up a training school for its employees in which courses in mathematics, physics and chemistry were offered. Work in this school was accepted toward degrees by the leading universities and colleges of the coun-

7. Ibid., 117

8. George K. Burgess, "Federal Supervision of Weights and Measures, Bureau of Standards, United States Department of Commerce", The Congressional Digest, 5: 116, April, 1926



try. Opportunities for research were encouraged and provided for those working toward higher degrees. Classes ranged from ten to fifty in size. The teaching staff was drawn from within and outside the Bureau. Established about the same time, was an apprenticeship system for training in scientific, technical, clerical and shop work in collaboration with the work carried on in the Bureau.

Thirty-one research associates, employed by the industries and trade associations in the country, were stationed at the Bureau in addition to its regular staff. The chief work of this group, was the administration of research problems in some particular field which applied directly to current projects in industry.

Daily conferences with leading men in industry and education were maintained, in addition to the annual conferences of the Division of Weights and Measures, to which representatives from all the states, and manufacturers engaged in related fields assembled. A second important annual conference was the Public Utilities Engineers Conference which was of particular assistance to the Bureau in planning and guiding the work in its field. This program of cooperation with state, municipal and private agencies guaranteed immeasurable dividends to industry

9. George K. Burgess, "The Bureau of Standards as an Educational Institution", School and Society, 20: 330, September 13, 1924

10. Ibid., 331

and commerce. Incidentally, the close association of government agencies with industry insured the finest interchange of expert opinion and promoted the technical progress of the nation.

In the annual report of 1928, Assistant Director Dr. Ray N. Hudson alludes to the recognized value of the work of the Bureau when he said, "That farsighted leaders in industry recognize the dependence of their progress upon advance in science is evidenced by the increasing call upon government laboratories for cooperation in research."<sup>11</sup>

There is no question or doubt that the biggest beneficiary of the program of the Bureau of Standards is the public, the ultimate consumer and the small tax payer. Millions of dollars are saved annually by the work of the Bureau. For instance, the government purchases some three hundred million dollars worth of products and commodities from thumbtacks to battle-ships, annually. In fact, it buys everything that the consuming public uses in the way of food stuffs, textiles, clothing, furniture, building materials, office supplies and sporting goods. The division charged with the preparation of specifications, tests, experiments, and works out the best possible brands and formulas for government purchases. Skilled chemists, engineers, and experts in every known field, conduct tests and prepare specifications on the quality for all commodities purchased.

11. "Scientific Research in Government Laboratories", Science, 68: 542, November 30, 1928 (No author mentioned)

In 1925, one hundred seventy-three thousand such tests were made. The annual appropriation of the Bureau of Standards was two million dollars, whereas, the savings to the government in 1925, was over one hundred million dollars.<sup>12</sup>

A survey of some of the interesting experiments and tests carried on by the staff in charge of specifications serves to illustrate the savings effected by their work. A varnish used by the government in all its departments was purchased for \$4.27, for years. The chemists of the division of Specifications began a series of experiments in the formulas of varnishes, and discovered that it could produce an equally good grade of varnish for a cost of \$1.44 per gallon. The Navy Department alone saved \$90,000 in 1923 as a result of this experiment.

Burlap sacks were the customary wrapping of cement until the Bureau developed an experiment which proved that cotton sacks were stronger, and cheaper.<sup>13</sup> Three hundred burlap sacks and an equal number of cotton ones were filled with fresh, hot, ground cement, and shipped two hundred miles back and forth under all sorts of conditions. The cotton sacks stood up best, with the result that they replaced burlap.

A new safety release device for use on tanks containing compressed gases in shipment, was perfected by the Bureau, with

12. Chase and Schlink, 153

13. Dr. F. C. Brown, "Who Profits From Scientific Work?"  
The Scientific Monthly, 19: 655, December, 1924

an estimated savings of \$250,000 annually to industry. The public was directly benefitted by the experiments to determine the best paints to use on steam and hot water radiators. It was proven that radiators painted with aluminum or other metallic paints, which are non-conductors of heat, waste a large per cent of the fuel used, since the metallic paints retard heat radiation. This discovery led to many interesting adaptations. Army tents were painted on the inside with aluminum paints to partially insulate them, and similarly, manufacturers of ice wagons and golf caps utilized this knowledge by painting these interiors with metallic paints to provide an inexpensive insulation.<sup>14</sup>

The various departments of the government which purchased large quantities of shoes were interested to have the Bureau conduct tests to determine the best wearing leather. Postman, policemen, soldiers and clerks were fitted with carefully labeled shoes and tabulations were carefully made. A walking machine was also fitted with different shoes to test their wearing qualities. The tests were very conclusive. Government specifications were worked out from these tests, and have since been the basis for all purchases of shoes by the many departments of the government.

14. William Atherton Du Puy, "Science Shakes the Plum Tree", The Outlook, 146: 469, August 10, 1927

Tests on materials used in the construction of buildings were carried on in numerous fields. The Plumbing Commission worked in cooperation with the Bureau on a series of tests. One practical result from their work was the discovery that a three inch waste disposal flue or stack for plumbing was equally satisfactory to the here-to-fore required four inch stack. Small home owners of the nation were saved millions of dollars annually by this experiment.

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A series of tests on Portland Cement in various combinations of ingredients were conducted to determine the strength, resistance to temperatures and moisture of various mixtures. Similarly, various experiments to ascertain the effect of alkaline action, alternate freezing and thawing, and other everyday conditions on concrete mixtures were conducted. Tests to determine the waterproof qualities of such materials as coal tar, pitch and asphalt were completed. Tabulations were carefully made and recorded in order that such information, and others relating to penetration, ductibility, melting points, volatility and appearance are readily available to any industry or individual who has need for it.

16

A long involved experiment to determine "the factors which affect the strength of common brick masonry" was conducted by

15. F. C. Brown, 657

16. Delos H. Smith, "Our National Building Standards II.", The House Beautiful, 60: 608, November, 1926

17

the Bureau. Two gigantic testing machines arising three stories from the ground were used. Each machine was composed of great towerlike steel frames within which were mounted immense mandrels with accurate screw threads, and hydraulic jacks by which the crushing power was applied to the materials being tested. The larger machine produced a crushing power of ten million pounds. Heavy overhead traveling cranes placed the machines over the objects.

Thirty or more test walls were constructed with various types of common brick and pointing, using uniform mortar, and laid by skilled bricklayers. The walls were timed to set properly before the pressure machines were applied. The testing machines applied the power so gently and gradually, that the only evidences of strain were the cracking noises and low groaning sounds. Gradually, a crack appeared. Pressure was relieved just before the ultimate crashing of the wall was imminent. Tabulations of the effects of the degrees of pressure were recorded. Common brick properly laid and bonded proved to be equally satisfactory to face brick. Tests along similar lines showed that under like conditions, hollow tile walls bore weights equal to solid brick walls.

17. Delos H. Smith, "Our National Building Standards III." The House Beautiful, 60: 728, December, 1926

18. Ibid., 750

Efflorescence, that white deposit that often appears on finished brick walls to deface them after completion, had long been an unsolved mystery. Spurious "cures" appeared on the market periodically. The Bureau conducted a thorough experiment on the subject and discovered the means for successfully eliminating it. Again, industry and the small home owner were directly benefited.

The manufacturers of plaster materials were interested in a series of three major tests on plasters carried on by the Bureau. Ninety-eight different plaster finish coat walls were constructed. Twenty different substances and variations were used in the making of these plaster walls, including mineral and vegetable materials, several kinds of sand, and many types of water found in various localities in the country. The walls were under observation for five years. All pits, checks and blotches were tabulated as to degree, and time of occurrence. Experiments were begun when this data had been compiled, and preventions and eliminations of these defects were worked out. 19

The Chemistry division carried on a group of interesting experiments to determine the effect of light, moisture and cold and heat on paint mixtures when applied to wall surfaces. A positive relation between color and durability was proven. It was found that the disintegrating action of sunlight on paint

could be materially reduced by using colors that reflected rather than absorbed light, and that the colors, gray or buff, when added to white paint doubled its lasting qualities. <sup>20</sup>

The army asked the Bureau of Standards to determine whether or not the tumblers it used were the best, as far as durability was concerned, that were manufactured. A machine was devised that tapped, dropped, chipped, battered, scalded, split, and shattered thousands of specimens of tumblers produced in the United States. The results were very satisfactory. Thereafter, the army purchased tumblers that met the specifications worked out from this test.

The National Hotel Association followed this tumbler testing experiment closely, and suggested that hotel chinaware be tested in a similar manner. They contended that American made china did not stand up well. The tests substantiated this assertion. The Bureau straightway cooperated with the leading manufacturers of hotel china, and worked out specifications for china that would meet foreign competition. So satisfactory were the results of this experiment that markets hitherto closed to our chinaware became satisfied customers. <sup>21</sup>

20. Delos H. Smith, "Our National Building Standards V. Experiments with Paints and Varnishes", The House Beautiful, 61: 196, February, 1927
21. Herbert Corey, "How One Man Has Saved Us Millions", Colliers, 71: 7, June 9, 1923



Automobile users were saved millions of dollars annually as a result of experiments on brake linings conducted by the Bureau. Brake lining formulas were improved with the result that linings materially increased their heat resistance. 22

Precision lenses were purchased in Europe up to this time. The Bureau of Standards began an investigation on the manufacture of precision lenses. Furnaces, melting pots and all the necessary equipment were built and a complete plant was constructed. Out of it was born the American lens industries, which today produce lenses equal to any produced in the world. 23

In these laboratories a super sensitive plate for cameras used by aviators which registered images in fog was produced. This proved infinitely valuable to aviation.

Manufacturers of automobiles were curious to ascertain the loss of power in cars due to the overcoming of wind resistance. The Bureau cooperated with the industry by building a wind tunnel which produced winds to the velocity of two hurricanes, capable of regulation to any desired velocity. The results indicated that the pull of a sixty mile per wind uses over thirty horsepower of a small car to overcome its resistance. The study was carried on to determine the relation of motor car design to wind resistance. The ultimately brought about a revolutionized design in automobiles. 24

2. Du Puy, 469
3. Corey, 76
4. Drake, 17

The facilities of the Bureau in electrical lines and closely related fields were most extensive, and hence became the logical one to administer research in the field of radio. A special division for radio research was developed which cooperated with the laboratories of the Navy Department and the Army Signal Corps.<sup>25</sup> This laboratory occupied a two story building adjoining the electrical building. Two one hundred fifty feet radio towers belonging to the Navy Department were located within five miles of this laboratory. Thus its equipment facilitated its becoming the official radio research department. All problems in connection with radio, publications, inquiries, and conferences were within its jurisdiction. All departments referred their difficulties to it.

The rapid rise of broadcasting emphasized the necessity for maintaining strict regulation and enforcement of the rules adopted by the Department. The Director of the Bureau of Standards was appointed chairman of radio conferences. The Bureau maintains a complete file of all research problems conducted, literature, information, and publications in the field. Manufacturers, universities, and international research experts find this an invaluable aid in the promotion of the Radio industry. The division acts as a clearing house of information on

25. J. H. Dellinger, "The Bureau of Standards Lends a Hand", Radio Broadcast, 2: 41, November, 1922

radio. It publishes a number of publications, bulletins, and mimeographed pamphlets that range in price from five cents to twenty-five cents. Its popular monthly publication, The Radio Service Bulletin, may be purchased for twenty-five cents from the Bureau.

Thus the evidence points to the fact that the Bureau of Standards has fast become the champion of the Radio field, and through its scientific work has promoted, improved and developed apparatus as well as provided a valuable training ground for experts in the industry.

As the expanded program of the Bureau of Standards is reviewed, the achievement of Mr. Hoover's aim, "We are trying more than ever to make the Bureau of Standards into a thoroughly modern bureau of the largest possible helpfulness", <sup>26</sup> seems assured. Without question, the Bureau has become one of the three major arms of the Department of Commerce.

## Chapter V.

## The Division of Simplified Practice

Prior to the World War, a multiplicity of varieties of kinds and sizes in commodity manufacture had grown to alarming proportions in response to demands, both real and fancied. The slogan, "The customer is always right", was carried to extremes in all phases of industry. Factories were competing with one another in the policy of permitting buyers to depart from accepted standards, as well as make any changes in specifications as their fancies might take. The resulting waste in industry, threatened the stability of the nation's business.

When the United States entered the War, it was evident that drastic steps to eradicate this alarming condition must be taken. The War Industries Board, a part of the Council for National Defense was created with Bernard M. Baruch as chairman. Manufacturers were told to discontinue production on commodities that were not essential, for demand exceeded the supply. It was discovered that many things, processes, products and machineries had very little value and could readily be set aside.

The United States Chamber of Commerce joined forces with the War Board and it was largely instrumental in securing the whole-hearted cooperation of the industries of the nation. Or-

1. Charles Edward Russell, "The New Industrial Era", The Century Magazine, 112: 2, May, 1926

dinarily, methods had been developed to a seemingly efficient set of standards, but war conditions proved them to be inadequate to cope with the increased demands. It, thus, became necessary to mobilize, coordinate and reorganize industry to insure an uninterrupted flow of supplies.

In September, 1917, the War Convention of American Business sponsored by the United States Chamber of Commerce met at Atlantic City and endorsed a program of reorganizing industry in cooperation with the federal government. A committee of three hundred was appointed representing every important line of industry. The simplification of industry, a gigantic task was accomplished, and waste was eliminated. With the signing of the Armistice, the government relaxed its pressure and gradually withdrew from its role of dictator over industry, and there appeared a tendency in the ranks of industry, to revert to its old ways. The Chamber of Commerce noted the relapse, regretfully, for it fully appreciated the efficiency that business had developed and was convinced that war time efficiency could and should be carried over into times of peace.

The value of simplification in industry under the stress of war had not been lost upon Mr. Hoover, and others who had served upon the War Board. They, too, looked for some check upon this backward tendency in industry. At the annual meeting

2. Ray M. Hudson, "Organized Effort in Simplification", The Annals of the American Academy of Political and Social Science 137: 1, May, 1928

of the Directors of the Chamber of Commerce in St. Louis, Missouri, in September, 1920, eight service departments were established for the purpose of assisting business with the problem of eliminating waste. Experienced leaders were chosen managers of these departments, and an advisory committee of ten to fifteen executives of the leading industries of the country was selected. Fourteen conference rooms, of various sizes and admirably suited to heart-to-heart discussions about individual problems were set aside in the building of the United States Chamber of Commerce at Washington, D.C. Indeed, the Chamber was a vital factor in the program of Mr. Hoover for the simplification of industry and the elimination of waste. For the organization represented a strength of seven hundred thousand individual concerns and partnerships.

Within the Department of Commerce, one of its major divisions was the Division of Simplified Practice. Mr. Hoover organized it into twenty commodity divisions, each to specialize so thoroughly that it could diagnose, recommend, and solve the problems confronting the industry it represented. This was the arm of the government in its fight on waste. Closely allied to this Division, was the Bureau of Specifications, whose cooperation was constantly sought.

3. E. W. McCullough, "The Relation of the Chamber of Commerce of the United States to the Growth of the Simplification Program in American Industry", The Annals of the American Academy, 137: 10, May, 1928

The staggering report of the Federated American Engineering Society in 1921, shattered Mr. Hoover's confidence in the ability of industry to cure its ills. It brought to light the fact that ten billion dollars of waste annually leaked from the industries of the country. The total cost of all governments in 1921, was six billion dollars. If waste in government were compared with waste in industry, it would be possible for graft to increase several billion dollars before it became as rampant as the waste in industry.<sup>4</sup> This alarming state of affairs forcefully brought home to the leaders of business the crying need of a reorganization of industry, and prepared the ground work for the program of the Department of Commerce.

The largest consumer of manufactured products in the country is the United States government. Under Herbert Hoover, the Department of Commerce began to coordinate its own requirements through the Division of Specifications with the Division of Simplified Practice. The offensive battle on waste began to be fought in earnest. The conference method was the method of approach. In the first chapter, a discussion of this method was given, therefore a brief review of the main procedure is all that is necessary. After a preliminary survey of the problem of waste in an industry had been completed with the assistance of the Department of Commerce, a general industrial con-

ference of a particular industry was called in Washington to which representatives from the various manufacturers in the nation, labor groups, and collateral businesses affected, were sent. The recommendations adopted by this conference were presented to the entire industry for approval and written acceptance. The publication and endorsement of these recommendations by the Department of Commerce was dependent upon acceptance of the program by a minimum of eighty per cent, by volume of business, of the group concerned.

On several occasions, Mr. Hoover said, "These efforts are in the interest of the public", and he continued, "you and I are interested in the problem solely for the better service to our producers and consumers of the primary necessities and ordinary comforts of life." In another connection, he said, "more bonnets for the same money and effort", as being the desire of his program. Again, Mr. Hoover said, that his program of war on waste in industry through standardization and simplification will mean, "that we shall have more goods and services to spend individually".

In an issue of the monthly bulletin of the Division of Simplified Practice this interesting line appears: "An irresist-

5. Hudson, 2

6. Robert A. Brady, "How Government Standards Affect the Ultimate Consumer", The Annals of the American Academy, 137: 247, May, 1928



ible force just as potent as the law of gravitation will take these extra dollars and pass them around."<sup>7</sup>

One of the first national conferences in this war on waste, was the Conference of the manufacturers of paving brick, called in November of 1921, and reconvened in March 1922. Every manufacturer knew that there were too many sizes of paving brick produced, but up to then, nothing had been done about it. The preliminary survey prepared by one of the leaders in this industry, with the cooperation of the Division of Simplified Practice, concluded that eighty per cent of the sizes of brick should be discontinued. Mr. Hoover suggested that each manufacturer survey his field to ascertain the number of sizes of paving brick they produced, and the number of each size sold. Engineers, architects, different departments of federal, state and local governments, societies of engineers, buyers and users were asked to be represented. After careful deliberation, the conference agreed that only eleven of the sixty-six sizes of paving brick manufactured were used in constructing roads. It was further decided that eighty-four per cent of their business was done in five sizes. Obviously, manufacturers were producing sixty-one sizes of brick to take care of only sixteen per cent of their sales. This necessitated the maintenance of vast

7. Ibid., 249

store houses, large inventories, numerous molds, unnecessary insurance charges, high handling charges and a general piling up of overhead. By unanimous opinion, sizes were reduced to eleven, then five and finally four. "All this, being the affair of one trade, nobody pays any attention to it. For if we multiply the wasteful conditions ... into every product of every factory, and follow along where it leads at home and abroad ... the figures soar and sums dazzle us."

A conference of the manufacturers of Range Boilers was called as another step in the simplification program. A similar situation existed here also. Range boilers were produced in one hundred thirty varieties although ninety per cent of the boilers used were represented by thirteen varieties and sizes. The elimination from production of the one hundred seventeen occasionally used range boilers, effected a material saving for the industry and the ultimate user. In like manner, hot water storage tanks were generally used in one or the other of fourteen sizes and varieties. Yet, manufacturers had been producing one hundred twenty varieties. The dropping of the obsolete one hundred six seldom used kinds of hot water storage tanks accomplished another link in the chain of waste elimination.

At the conference of Hardware Supply Manufacturers, a great many simplifications were accomplished. The simple tack and

inconspicuous nail were the first to be considered. An elimination of more than fifty per cent of the four hundred twenty-six sizes and varieties resulted. In the production of shovels, scoops, and spades four thousand four hundred sixty varieties were reduced to three hundred eighty-four. Steel reinforcing bars used in reinforced concrete construction were slashed from forty varieties to eleven. This was indeed a boon to dealers in this article, for it permitted a reduction in their stock from 200,000 tons to 75,000 tons.

It would seem that plow bolts, a simple enough item, would need no attention. Yet, it was disclosed in a survey of this commodity, that the bolt was produced in fifteen hundred varieties. This necessitated a hardware dealer in a farming community keeping a small stock of every variety of bolt for plows, even though some varieties did not sell once in ten years. The opinion of the manufacturers of plow bolts was that forty-four per cent of the number of varieties should be discontinued. It was another step in the war on waste.

Hotels of the nation had long suffered from the multitudinous variety of sizes, varieties and styles of every commodity they used. An important conference of representatives from the leading hotels in the country, engineers and the manufacturers of all kinds of hotel supplies met in Washington early in 1922.

It was decided that hotel chinaware varieties be reduced from seven hundred to one hundred sixty, and lunchroom and cafeteria chinaware from six hundred sixty-eight varieties to one hundred seventy-seven. Of the then existing seventy-eight kinds and sizes of mattresses, only four were retained. Blankets were reduced from seventy varieties to twelve. Glassware, too, came under the program. The thirty varieties then in use shrank to ten. One large hotel chain, added a few individual simplifications. All patterns of table linens used in its establishments were henceforth to be uniform, and three carpet designs were adopted. Two hundred items of supply were effected by this slashing program, with a net result of one hundred thousand dollars savings to the company. This program was duplicated in thousands of individual instances.

One of the largest manufacturers of food products in the country began the simplification of its own varieties. As a result of a careful survey of their sales, their catalogue, opinions of dealers and sales force, it arrived at the opinion that eighty nine per cent of the varieties produced could be readily eliminated. The effects were gratifying to the company, dealers and consumers. It permitted a reduction in the price to the consumer, a saving of seventy-three per cent in selling costs, and an increase of six hundred per cent in sales. True,

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customers did not have as many flavors of apricot jam to choose from, but they were enabled to purchase twice as many.

Another instance of an individual concern's simplification program was the case of a large chain drug company. Their inventories disclosed the fact that they carried in stock twenty-two thousand varieties of items, many almost duplications of similar commodities. A careful check on the rate of turnover in each of these twenty-two thousand varieties was studied, with the result that only ten thousand of these commodities were retained in stock. The inactive twelve thousand varieties were discontinued. The ultimate savings were spread to stockholders in increased dividends, the wages of the employees were materially increased, sales increased seventy per cent due to reduced prices and the released capital permitted expansion.

Men's hats, usually regarded as a most prosaic article, were carried in three thousand four hundred eighty-six styles, grades and colors. Hat manufacturing plants operated part time, during the rush seasons. At the conference of the hat manufacturers and buyers of hats, in Washington in 1922, a program of simplification was adopted. Six hundred varieties, in all, in men's hats were agreed necessary. A policy of producing hats all year around proved popular. It permitted a merchant to carry a smaller stock, buying as he needed hats, thus reducing inventories. Warehouse space, a major item in the wholesaler's business,

could be materially reduced, thus lowering his operating costs. Customers found the price of hats reduced up to forty per cent.

Manufacturers of men's shoes had a similar experience. A survey of their industry indicated that two thousand five hundred styles of men's shoes in each of ~~three~~ grades were manufactured. It was decided that manufacturer's concentrating on one grade and one hundred styles within that grade could materially reduce costs, increase profits, and cut prices. <sup>11.</sup>

When the Department of Commerce, under the direction of Mr. Hoover, asked the manufacturers of women's ready to wear garments to meet in conference in Washington a general cry against such a meeting was sounded. Everywhere one heard criticism against government attempts to create uniformity, and crushing personal tastes in the art of dress. But, the Department of Commerce disavowed such criticism by insisting that its interest in the matter was primarily in the adoption of standard sizes. This was a much needed reform, and its accomplishment was indeed a step forward in the history of industry. <sup>12</sup>

The following tables illustrate the commendable accomplishments achieved by industry in its war on waste through the Division of Simplified Practice of the Department of Commerce. They were compiled by Ray M. Hudson, assistant Director of

11. Russell, 5

12. Ibid., 8

## Commercial Standards of the United States Bureau of Standards.

Table I. - Simplified Practice Applied to Mill Supplies, Shop Equipment, etc.,

Commodity	Varieties Formerly	Varieties Now	Per cent of Reduction
Files and rasps	1,351	496	65%
Forged tools	665	351	47%
Plow bolts	1,500	840	44%
Sheet Steel	1,819	263	85%
Milling Cutters	---	---	35%
Die heads, self opening	---	---	75%
Grinding wheels	715,200	255,800	64%
Average Reduction, . . . . .			59%

Table II. - Simplified Practice Applied to Construction Materials

Commodity	Varieties Formerly	Varieties Now	Per Cent of Reduction
Paving Bricks	66	4	94%
Asphalt	102	10	90%
Steel reinforcing bars	40	11	72.5%
Metal lath	125	24	81%
Woven Wire Fence	552	69	87%
Asbestos mill board	10	5	50%
Eaves, trough and conductor pipes	21	16	24%
Concrete building units	115	24	80%
Sand, lime brick	14	3	78.5%
Roofing slate	98	48	51%
-----			
Average Reduction, . . . . .			71%

Table III. - Simplified Practice Applied to Plumbing

Commodity	Varieties Formerly	Varieties Now	Per Cent of Reduction
Structural slate	---	---	84%
Range Boilers	130	13	90%
Hot water storage tanks	120	14	88%
Brass lavatory & sink traps	1,114	72	94%
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Average Reduction, . . . . .			89%



Table IV. - Simplified Practice Applied to Building Materials  
Equipment and Fittings

Commodity	Varieties Formerly	Varieties Now	Per cent of Reduction
Face brick, smooth	36	1	97%
Face brick, rough	39	1	97.5%
Common brick	44	1	98%
Lumber, soft wood, yard sizes	--	--	60%
Hollow building tile	36	19	47.5%
Builders' Hardware Items	--	--	26%
" " Finish	--	--	71%
Sidewalk light sizes	120	6	95%
Paint & Varnish brushes	480	138	71%
Blackboard slates	251	25	90%
Tacks and nails	428	181	58%
-----			
Average Reduction, . . . . .			72.5%

Table V. - Simplified Practice Applied to General Supplies and Furnishings for Homes, Hotels, Hospitals, Clubs, etc.

Commodity	Varieties Formerly	Varieties Now	Per Cent of Reduction
Beds, mattresses, springs	78	4	95%
Bed blankets	78	12	85%
sterling Silver flatware	190	62	67%
tinware, galvanized and japanned	1,154	873	24%
Milk bottles	49	9	82%
Hotel china	700	160	77%
Restaurant china	668	177	73%
Dining car china	700	113	84%
Hospital beds	67	4	94%
Steel lockers	65	17	74%
-----			
Average reduction, . . . . .			76.5%

The problem of adherence to the program adopted at the national conferences was satisfactorily solved by the manufacturers themselves. Each industry appointed a standing committee from among its own members to check on the sincerity of manufacturers in adhering to the simplification program. Each group made the necessary modifications and changes from time to time as the need arose, at the regular annual, semi-annual or bi-annual conferences. A survey to determine adherence revealed

that eighty-two per cent of the industries were abiding by the rules, practices and simplifications adopted.<sup>14</sup>

A survey of the benefits of the program of simplification to the consumer, to the producer, and to the nation at large brings to mind the realization of the vast ramifications the program of Mr. Hoover had. The consumer was directly benefitted for he paid less for the commodities he used. Furthermore, the quality of these commodities was greatly improved for the manufacturer was able to use better materials because of lower production costs, and an increased concentration on better design was permitted. Service was improved, especially in delivery and repair parts.<sup>15</sup>

The benefits to the producers were equally discernible. Less capital was required for raw material, obsolete machinery, storage space and labor costs. Larger units of production, longer runs, less frequent changes, better qualities in products, more accurate estimates for production enabled frozen capital to be released for expansion, advertising and scientific investigations. Increased profits for the capitalist, the stockholders, and the entrepreneur led to a period of industrial expansion which created the golden twenties.

14. Brady, 250

15. Hudson, 6

Distributors, too, were recipients of the benefits of the war on waste in industry. The rate of the turnover of their stock was speeded up, producing greater profits. Inventories were materially reduced hence less capital was tied up in dead items. A more effective sales force developed because of a more simplified stock and a better knowledge of it. Reduced handling charges, clerical help, and improved deliveries swelled their profits.

Our foreign trade showed a marked improvement during each year of Mr. Hoover's guidance of the Department of Commerce. The simplification program with its ultimate goal, the elimination of waste in industry, opened new markets to our goods, for it was now possible to produce cheap articles at high wage levels because of reduction of waste, thereby making it possible to successfully compete with foreign low wage levels. The following table indicates the increased export trade of the United States from 1922 to 1925.

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Year	U. S. Exports	U. S. Imports	Total foreign Trade
1922	\$3,831,777,490	\$3,112,746,833	\$6,944,524,323
1923	4,167,493,080	3,792,065,963	7,959,559,041
1924	4,590,983,845	3,609,962,579	8,200,946,424
1925	4,841,458,956	4,178,460,012	9,019,918,868

The Division of Simplified Practice under the aggressive leadership of Herbert Hoover achieved standards in industry that met with the approval of big and small business alike, the benefits of which were passed on to consumers in lowered prices and increased conveniences. Indeed, the successful war on waste undertaken by this division of the Department of Commerce merits the admiration of the entire nation.

## Conclusion

The changes wrought by Herbert Hoover within the Department of Commerce during the years 1921 to 1928 brought about an era of rejuvenation from which the Department emerged a new and vital force in the industrial life of the nation. It witnessed the metamorphosis of a stagnant government agency occupied chiefly with routine clerical duties to one that became a scientific research laboratory, the commercial aid, expert advisor and promotor of business, big and small, of the United States.

The aim which actuated Mr. Hoover in the reorganization of the Department of Commerce was clearly expressed by him in his annual report for the year 1925 in which he stated, "It seems worth while at all times to reiterate the fundamental purposes of this campaign. The philosophy that underlies it has but one purpose, that is, to maintain American standards of living on a more stable footing. . . There is only one way to further advance these standards and that is by improving methods and processes by the elimination of waste in materials and motion in our production and distribution systems."

1. H. W. Bearce and F. S. Holbrook "Division of Weights and Measures, Bureau of Standards", Congressional Digest, 5: 116-117, April, 1926.

The reconstruction of the Bureau of Foreign and Domestic Commerce into a virile reporting agency with a highly efficient system for the dissemination of pertinent business information was an outstanding achievement. The conversion of the Bureau of Census into a sensitive instrument for measuring of the pulse of America's industries was another. A third accomplishment was the extension of the sphere of influence of the work of the Bureau of Standards. The program for the elimination of waste in industry revolutionized production and distribution systems which in turn reduced waste, increased profits and reduced costs to the ultimate consumer.

The transfer of the Patent Office and the Bureau of Mines from the Department of the Interior to the Department of Commerce during this period was a step forward for numerous duplications within these bureaus were eliminated.

Another progressive development was the creation of the Radio Commission under the supervision of the Department of Commerce.

This brief review of the record illustrates the resourceful energy Mr. Hoover displayed as Secretary of the Department of Commerce which made possible the reshaping of this agency from a state of insignificance to a prime factor in the promotion of a closer relationship between government and business.

## Bibliography

General texts relating to the history of the United States during the period 1921 to 1928 which served to build a background were: Louis M. Hacker and Benjamin B. Kendrick, The United States Since 1865 (N.Y. 1934.) A swift characterization of developments of the period is presented in Charles A. and Mary R. Beard, Rise of American Civilization, V. 2 (N.Y. 1927); James C. Malin, An Interpretation of Recent American History (N.Y. 1926); F. L. Paxson, Recent History of the United States (revised edition, 1928); E. F. Humphrey, Economic History of the United States (N.Y. 1931); Mark Sullivan, Our Times, The Twenties v. 6 (N.Y. 1935); Preston W. Slosson, The Great Crusade and After 1914-1928 v. 12 of A History of American Life edited by Arthur M. Schlesinger and Dixon Ryan Fox (N.Y. 1934).

Biographies and writings of party leaders: Will Irwin, Herbert Hoover, A Reminiscent Biography (N.Y. 1928).

Periodicals furnished a generous number of articles. For general material on the Department of Commerce the following were particularly helpful: Alfred Pearce Dennis, "Humanizing the Department of Commerce", The Saturday Evening Post 197: 8-9, June 6, 1925; J. Walter Drake, "How the Department of Commerce Works", The Journal of National Education, 13: 15-21, January, 1924, is an extensive discussion by the Assistant Secretary of Commerce under Mr. Hoover. William Atherton DuPuy, "Uncle Sam,



Efficiency Engineer", The Outlook, 138: 406-407, November 12, 1924 discusses what the Department of Commerce seeks to do for the business man. Frederick M. Davenport, "Underground Rivers of Waste", The Outlook, 130: 389-390, March 8, 1922 is a digest of the report on Waste in Industry by the Committee of Federated Engineers' Society. Extracts from an address by Herbert Hoover before the American Dairy Federation at Milwaukee, Wisconsin in October of 1924 are presented in "Secretary Hoover Analyzes Wastes in Marketing", Congressional Digest, 4: 262, October, 1925. Herbert Hoover, "Some Human Wastes in Industry", The Survey, 48: 505-506, July 15, 1922, summarizes the substance of an address by Mr. Hoover to the National Conference of Social Work, at Providence, Rhode Island. Herbert Hoover, "America Solemnly Warns Foreign Monopolists of Raw Material," Current History, 23: 307-311, December, 1925 is a digest of an address by the author at Erie, Pennsylvania, in which he presented an economic phase of the work of the Department of Commerce. Herbert Hoover, "The Importance of Developing our Water Resources", The Congressional Digest, 6: 3-4, January, 1927 deals with another phase of his war on waste. Herbert Hoover, "Backing up Business", The Review of Reviews, 78: 278-283, is a summary of an extensive report written by Mr. Hoover for a bulletin of the Republican National Committee. Richard H. Lansburg, The Annals of the American Academy of Political and Social Science, 137, in the foreward by the editor dis-

cusses the contributions made by the Department of Commerce toward standardization. Harold Phelps Stokes, "Your Department of Commerce", The Woman Citizen, 9: 8-9, May 19, 1925, is a thorough overview of the Department of Commerce. John H. VanDeventer, "The Work of an Engineer in the Cabinet", Industrial Management, 68: 129-132, September, 1924, is commendatory by the editor.

Periodical material on the Bureau of Foreign and Domestic Commerce was abundant. Harry T. Collins, "United States Government Aid to Foreign Trade", The Annals of the American Academy of Political and Social Science, 127: 134-142, September, 1926. Herbert Corey, "He Knows What You Want to Know", Colliers, 72: 12 October 6, 1923, is a sympathetic account of the work of Julius Klein, Director of the Bureau, in his work to promote the sphere of its influence. Edward N. Hurley, "Uncle Sam is a Good Drummer", Colliers, 75: 25, April 18, 1928. Julius Klein, "Hoover in His Workshop", The Review of Reviews, 78: 276-277, September, 1928, is an intimate view of the work of the Department under Mr. Hoover. Another article by the same author, "Curious Business", The Saturday Evening Post, 201: 10-11, August 25, 1928, is an interesting statistical account of the inquiries received by the Bureau of Foreign and Domestic Commerce. Three articles in a series by Isaac F. Marcossan, "Adventures in Exports", The Saturday Evening Post, 198: 28, March 6, 1926; "Ambassadors of Trade", The Saturday Evening Post, 198: 14-15, February 27, 1926, and "Commerce Building", The

Saturday Evening Post, 201: 10-11, September 29, 1928 were written in the popular vein by the author following a number of interviews with Mr. Hoover and an extensive study of the work of the Bureau of Domestic and Foreign Commerce. John M. Oskison, "The Hoover Message to Export Manufacturers", Industrial Management, 65: 131-135, March, 1923, presents Mr. Hoover's view of the problems and prospects of trade for the year 1923. Louis E. Van Norman, "Selling Our Goods Abroad", The North American Review, 224: 286-296, June, 1927, is a very comprehensive study of the Bureau of Foreign and Domestic Commerce.

A number of fine articles on the Bureau of Standards was found in many of the periodicals of the period. H. W. Bearce and F. S. Holbrook "Division of Weights and Measures, Bureau of Standards", Congressional Digest, 5: 116-117, April, 1926, deals extensively with the work of the Bureau by men familiar with it, Mr. Holbrook in charge of the Division of Weights and Measures from 1921 to 1928. Dr. F. C. Brown, "Who Profits From Scientific Work", The Scientific Monthly, 19: 655-660, December, 1924, presents a general discussion of the work of the Bureau of Standards by a member of the staff. Dr. George K. Burgess (Director of the Bureau of Standards 1921-1928) "What the Bureau of Standards is Doing for American Industry", Industrial Magazine, 70: 257-263 is a scholarly work. Another article by the same author, "Federal Supervision of Weights and Measures", The Congressional Digest, 5: 116, April, 1926, presents a general view of the aims and

achievements of the Bureau of Standards. A third treatment of the work of this Bureau appeared in "The Bureau of Standards as an Educational Institution", School and Society, XX., 507: 328-332, September 13, 1924. Stuart Chase and F. J. Schlink, "A Few Billions for Consumers", The New Republic, 45: 153-155, December 30, 1925, has no material of value. Herbert Corey, "How One Man Has Saved Us Millions", Colliers, 71: 7, June 9, 1923, is a well written history of the Bureau of Standards in which an account of the work of Samuel Wesley Stratton is presented.

George H. Dacy, "Answering An Hundred Million Questions", Illustrated World, 37: 823-826, August, 1922, gives a general account of another phase of the work of the Bureau of Standards. William Atherton DuPuy, "Science Shakes the Plum Tree", The Outlook, 146: 468-470, August 10, 1927, is particularly valuable to the average layman for practical applications of the findings of science. "A Statement from Secretary Hoover to Readers of the American City", The American City, 5: 575-576, November, 1927, is written in a popular style. Herbert Hoover, "Your Automotive Industry", Colliers, 69: 5, January 7, 1922, attempts to picture the work of the Department of Commerce as an aid to the automobile industry of the country. "Scientific Research in Government Laboratories", Science, 68: 542, November 30, 1928, presents the views of the editor on the Annual report of Dr. Ray N. Hudson Assistant Director of the Bureau of Standards. Kenneth L. Roberts, "The Hooving of Hoover", The Saturday Evening Post, 194:

3, March 11, 1922, is a sympathetic presentation of the aims of Mr. Hoover in his program of the elimination of waste in the Bureau of Standards. Charles Edward Russell, "The New Industrial Era," The Century Magazine, 112: 1-11, May, 1926, is an extensive article summarizing the work of the Bureau of Standards under Mr. Hoover. Delos H. Smith, "Our National Building Standards", is a series of six articles that appeared in The House Beautiful, 60: 275, September, 1926; The House Beautiful, 60: 608, November, 1926; The House Beautiful, 60: 728, December, 1926; The House Beautiful, 61: 66, January, 1927; The House Beautiful, 61: 196, February, 1927; The House Beautiful, 61, 346, March, 1927. S. R. Winders, "Uncle Sam's Question and Answer Office, The Bureau of Standards and its Bearing Upon Everyman's Business Problems", The Scientific American, 129: 114, August, 1923, is an interesting article written for popular appeal. "How Uncle Sam is Saving Millions for Autoists, Home Owners and Industries", Popular Mechanics, 421: 103-106, July, 1924, is another article written in the popular vein without mention of the author's name.

A number of articles in periodicals of the period, treated the Division of Simplified Practice of the Bureau of Standards in great detail. Robert A. Brady, "How Government Standards Affect the Ultimate Consumer", The Annals of the American Academy of Political and Social Science, 137: 247-255, May, 1928, is especially good. One of the most complete in this field is

Ray M. Hudson, "Organized Effort in Simplification", The Annals of the American Academy of Political and Social Science, 137: 1-8, May, 1928. Mr. Hudson presented a number of tables in this article which materially aids one in securing a complete picture of the work in this Bureau. A sympathetic, yet highly interesting article written for popular consumption was presented by Isaac F. Marcossou, "Commercial Exploration", The Saturday Evening Post, 198: 8-9, February 13, 1926. E. W. McCullough, Manager of the Department of Manufacturer of the United States Chamber of Commerce, wrote "The Relation of the Chamber of Commerce of the United States of America to the Growth of the Simplification Program in American Industry", The Annals of the American Academy of Political and Social Science, 137: 9-12, May, 1928. Will Payne, "An Open Door Policy at Home", The Saturday Evening Post, 196: 16, August 18, 1923, deals with the Division of Simplified Practice.

J. H. Dellinger, Chief of Radio Laboratory, "The Bureau of Standards Lends a Hand", Radio Broadcast, 2: 40-48, November, 1922 is one of the most complete works on the work of the Radio Division of the Bureau of Standards. Herbert Hoover, "The Urgent Need for Radio Legislation", Radio Broadcast, 2: 211; January, 1923, is a summary of the aims of the Bureau. In another article Mr. Hoover, "Policing the Ether", Scientific American, 127: 80, August, 1922, deals with the proposed bill designed to regulate radio which was before Congress, February,

1922; Thomas Stevenson, "Who is to Control Broadcasting?", Radio Broadcast, 9: 572, October, 1926, presents the status of radio legislation and the difficulties between Mr. Hoover and the Congress. W. D. Terrell, "The Department of Commerce Radio Service", The Congressional Digest, 7: 264-265, October, 1928, surveys the field of the work of the division from the point of view of the chief of the Radio Division.

Waldon Fawcett, "The United States Patent Office Gains by the Influence of a New Environment", The Architectural Record, 57: 576-578, June 1925, presents the opinion of one of the leading architects of the country supporting the transfer of the Patent Office to the Department of Commerce. Karl Fenning, "A Neglected Well of Information, the Unrealized Possibilities of the United States Patent Office Files", Scientific American, 131: 116, August, 1924, is an account of the history of the Patent Office. Herbert Hoover, "Herbert Hoover and the Patent Office", Scientific American, 132: 373, June, 1925, treats the aims, plans and the improvements to be initiated in the department in a full account.

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The thesis, "The Department of Commerce Under Herbert Hoover, 1921-1939," written by Ethel H. Triebel, has been accepted by the Graduate School with reference to form, and by the readers whose names appear below, with reference to content.

It is, therefore, accepted in partial fulfillment of the requirements for the degree of Master of Arts.

Paul Kiniery, Ph.D.

September, 1938

Edward P. Lilly, Ph.D.

October, 1938