"Business Shall Proceed in the Following Manner": Corporate Managers, the Bureaucratization Process, and the Creation of Divergent Corporate Cultures, 1880-1932

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Bureaucratization has been one of the most researched topics in the history of American business. Even from early in the century, a large and diverse group of scholars ranging from Max Weber and Thorstein Veblen to Karl Marx and Friedrich Engels to Alfred Chandler and Thomas Cochran to David Montgomery and David Hounshell have grappled with this issue.

So why return to this "well-trodden ground" and conduct more research? I spent nearly two decades working as a business bureaucrat and serving as a consultant to other business bureaucrats before pursuing my Ph.D. in history, and I found the existing scholarship regarding bureaucratization incongruent with my own experiences. Moreover, while the majority of those dealing with bureaucracy ask such common questions as why bureaucratization occurs and who does the bureaucratizing, the answers often contradict one another. For example, Chandler argues that bureaucratic practices emerged as a result of expanding markets, the adoption of high through-put technologies, and the new sophistication required in sales and after-sales activities [Chandler, 1977, 1990]. In contrast, labor historians such as David Montgomery assert that capitalistic owners used bureaucracy as a means of wresting control of the production process from their shop-floor employees [Montgomery, 1982]. Finally, during the past two decades, new questions regarding bureaucratization have emerged. Historians such as Olivier Zunz have raised but unsuccessfully addressed the issue of the role of middle- and lower-echelon managers in business bureaucratization [Zunz, 1990]. With the rise of women's history, scholars such as Angel Kwolek-Folland have begun exploring the relationship between business bureaucratization and gender roles and attributes [Kwolek-

Folland, 1994]. Much of their work, however, focuses on bureaucratized corporate offices and women rather than men and factory floors.

For these reasons, my dissertation returns to the topic of business bureaucratization. Basing its theoretical approach on the work of organizational sociologists Charles Perrow and Melville Dalton, it examines what is at the heart of bureaucracy – rules and procedures and paperwork. It analyzes the informal and formal rules and procedures evident primarily, but not exclusively, in the daily operating papers of Dupont's High Explosives Operating Department (HEOD) between 1880 and 1921 and Sun Oil refineries between 1895 and 1938 and addresses the following issues: 1) Why do some companies bureaucratize while others do not? 2) To what degree does bureaucracy centralize power and control over daily operating matters? 3) Who, particularly within the management ranks, participates in the bureaucratization process? 4) To what extent do firms adopt other firms' bureaucratic practices, and what sources serve as the key conduits for such information? 5) Among managers, is the bureaucratization process consensual or conflict ridden? 6) How do bureaucratic practices affect prevailing attitudes regarding gender roles and attributes?

What emerges from using a detailed operationally focused approach in addressing these questions is a depiction of business bureaucratization that not only supports and contradicts previous scholars' interpretations of the process but substantially enriches and enhances their conclusions.

Why Bureaucratization Occurs and the Issue of Corporate Power and Control

DuPont's HEOD and Sun refineries represented divergent corporate cultures because their leaders held vastly different opinions regarding bureaucracy. Hamilton Barksdale, who became the head of HEOD in 1903, firmly believed that the most efficient and effective way of operating his thirteen plants scattered across the continent was to mechanize, standardize, and formalize their operations. This notion of bureaucratizing production was repugnant to the Pew family who owned and operated Sun Oil. Joseph Newton (J.N.) Pew, the founder of Sun Oil, had, as a key competitor, Standard Oil, which not only engaged in monopolistic practices but was an early adopter of bureaucratic practices. Due to his experiences with Standard Oil, J.N. came to equate monopolistic practices with bureaucratic practices. Since he hated monopoly, he also hated bureaucracy, and he passed this aversion on to his sons, J. Howard and J.N. Jr., who assumed leadership of the company upon J.N.'s death in 1912.

One would assume that given these attitudes, HEOD and Sun refineries would diverge in their adoption of bureaucratic practices. Yet quite the opposite occurred. The business practices of the two converged, with both organizations' production activities becoming bureaucratized. In fact, certain areas within Sun refineries became more formalized than their equivalents within HEOD. Why did this occur? The two firm's daily operating papers reveal that various combinations of the following nine external and internal

environmental conditions spurred the bureaucratization of production (not ranked in order of importance): 1) increased governmental regulation of the firm; 2) geographically dispersed facilities in which standardization was economically and logistically feasible; 3) high labor turnover 4) the threat of unionization or labor unrest; 5) an inexperienced workforce; 6) dangerous working conditions; 7) complex production technologies; 8) production materials that were easily standardized, specified, and/or dealt with uniformly during production and, 9) multiple high-volume primary products and/or multiple customers. While their leaderships' attitudes towards bureaucracy could somewhat affect the pace of bureaucratization, they not alter the final outcome. The absence or presence of these factors determined this.

Although this list was generated by examining only two continuous process firms, the conditions noted are general enough so that one could use them to predict levels of bureaucracy within other types of manufacturing firms. At the same time, however, the list is not comprehensive in regard to citing all the possible causes of bureaucratization. A comparison of this list with other scholars' arguments clearly indicates that the causes of bureaucratization one identifies depend on what aspect of bureaucratic practice one examines and in what areas of a firm or types of firm one conducts their investigation. For example, while the dissertation's findings resemble those of JoAnne Yates, they clearly do not note that key managers' attitudes towards bureaucracy served as the pivotal force behind bureaucratization. This is because Yates' analysis focuses on the emergence of formal communications mechanisms throughout a company, not the rise of formal rules and procedures in production, and does not include Sun Oil as one of the examined cases [Yates, 1989, pp. 271-273].

While this list may not be fully comprehensive as to the causes of bureaucratization, it does clearly challenge the labor historians' arguments that the owners' desire for power and control served as the paramount motivation for firms' adoption of bureaucratic practices. Bureaucracy does indeed centralize power and control upward within firms, but such is an outcome of rather than a motivation for bureaucracy. Moreover, power and control are not centralized to the degree depicted by labor historians [Nelson, 1975, pp. 9-10, 16, 20, 23, 35-47; Noble, 1977, pp. xxiv-xxv, 33-49, 262].[1] Within HEOD for example, certain production processes remained informally organized; therefore, workers and foremen in these areas had significant say over how they performed their work. Sun and HEOD foremen and workers assisted in the testing and refining of formal standardized manufacturing processes and equipment, and they comprised the membership of such rule-making bodies as

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[1] The labor historians reviewed in preparing the dissertation include Harry Braverman, David Montgomery, Dan Clawson, David Gordon, Richard Edwards, Michael Reich, Sanford Jacoby, David Noble, and Daniel Nelson. Only the works of Nelson and Noble were specifically cited throughout the dissertation for two reasons: 1) their scholarship is representative of the approaches and arguments raised by other labor historians, and 2) of all the labor historians, their arguments focus more than the others on bureaucratic structures and their effect on the workers rather than the workers' responses to the structures.

plant safety committees. More importantly, they provided the production data upper management used in making its operating decisions, and they had ample opportunity to provide inaccurate, incomplete, and tardy information – a fact Sun and DuPont managers clearly recognized and attempted to limit.

The Bureaucratizers

While their leaderships' receptivity to bureaucratic practices had limited effect on the two firms' growing reliance on formal production rules and procedures, their attitudes did determine who made the rules and how rule formation occurred. Although university graduates came to represent an ever-increasing percentage of HEOD's rule formulators and reviewers, a significant number remained men with only practical on-the-job experience. Due to such activities as the in-plant testing of new production approaches and such employee participation schemes as plant safety committees and employee suggestion plans, foremen and their subordinates played integral roles in HEOD's bureaucratization. Moreover, due to the department's open embrace of bureaucratic practices, rule-making occurred primarily through such formal structures as committees, commissions, conferences, and employee participation plans.

In contrast, the Pew family's extreme distaste for bureaucracy, their need for control, and their belief in the high value of practically trained individuals, all created a different pattern regarding rule-makers and rule-making bodies. Rule-making was far more centralized at Sun and even the firm's president took an active role in formulating and approving the refineries' daily operating rules and procedures. Among the rule-makers, practically trained men outnumbered university graduates, and the usage of such formally organized rule-making bodies as committees emerged only in regard to employment rules.

Although these arguments most resemble those raised by Olivier Zunz, they also point out that even Zunz's analysis of the bureaucratizers does not extend far enough. Like the dissertation, he challenges the commonly held belief that bureaucratizers were predominantly college educated engineers, scientists, accountants, social workers, and professional managers. Yet because he focuses solely on the role of middle managers in bureaucratization, he does not see that lower echelon managers as well as production workers played limited but integral roles in establishing formal rules and procedures. Moreover, the dissertation challenges his assertion that all bureaucratizers, be they university or practically trained, believed that bureaucratic structures and practices maximized efficiency [Zunz, 1990, pp. 6-10, 49-54, 65]. It repeatedly points out that although the Pew family believed that formal rules and structures harmed efficiency, they played active and on-going roles in devising their refineries' formal rules and procedures. Moreover, in the case of DuPont, it would have been unwise for any bureaucratizer to express any strenuous opposition to the process since one's ability to rise through the ranks of HEOD depended on demonstrating one's strong support for bureaucratic practices.

The Use of Outside Bureaucratic Models

As to the sources of their formal rules and procedures, HEOD and Sun refineries were far more likely to rely upon their employees' previous work experiences, their personal contacts in other companies inside and outside their industry, and what they learned about other company's practices through professional association membership than either professional, technical, and industrial books and publications or consultants. Since HEOD dominated the domestic explosives industry and had already adopted "state of the art" explosives manufacturing techniques, other companies undergoing bureaucratization outside its industry, particularly U.S. Steel and the other firms that would come to comprise the membership of the Special Conference Committee, served as key sources for a number of its bureaucratic safety and employment practices.[2]

Whereas HEOD had to go outside its industry for bureaucratic models, Sun refineries did not because they lagged a number of their industry counterparts in the adoption of bureaucratic production, safety, and employment measures. Moreover, the company's emphasis on hiring individuals with practical refining experience meant the company could hire people away from its more bureaucratized competitors and use them as a key resource during bureaucratization.

This did not mean, however, that the two organizations made no use of the bureaucratic models that often comprised one-third or more of the editorial content of the professional, technical, and industrial books and publications available after the turn of the century. In particular, such sources provided much of the theoretical background necessary in designing HEOD's and Sun refineries' standardized production procedures and equipment.

These findings contrast sharply with the depiction offered by the overwhelming majority of business, labor, and technological historians who note the proliferation of bureaucratic models available through universities, books and publications, professional organizations, and consultants and assume that availability equated to usage. Only the minority, such as labor historian Daniel Nelson and business historian JoAnne Yates, argue that model availability did not equate to model usage, and this dissertation provides additional, significant, and detailed evidence to support this minority view [Nelson, 1975, pp. 62-68, 70-78; Yates, 1989, pp. 271-272].

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[2] The Special Conference Committee was a secret organization formed in 1919 for the purpose of exchanging information regarding employment practices and industrial relations policies. The nine companies comprising the committee were all early advocates and adopters of bureaucratic practices and included: DuPont, Bethlehem Steel, General Electric, General Motors, Goodyear, International Harvester, Standard Oil of New Jersey, U.S. Rubber, and Westinghouse.

Managerial Conflict and Resistance Regarding Bureaucratization

Although managerial conflict and resistance never reached the serious and at times violent levels seen in the confrontations between production workers and upper management over bureaucratization, the establishment of formal rules and procedures within HEOD and Sun refineries generated a great deal of conflict and resistance at all management levels within the two organizations. Senior officials as well as middle- and lower-echelon managers argued over the strategic issues of authority, organization, and the company's overall approach to management and about such tactical matters as the logistical and economic feasibility of standardization, the best methods of standardization, and safety rules and procedures. Managerial resistance also accompanied the process. While resistance was far more prevalent among mid- and low-echelon managers than among their superiors, even executives, particularly those with strong opinions regarding what constituted best bureaucratic practice and those who remained wary of bureaucratization, resisted certain bureaucratic practices. While their leaderships' views on bureaucratization had some effect on the nature of the managerial conflict and resistance, they apparently had their greatest impact on how the two organizations responded to conflict and resistance. Although both Sun and DuPont felt that managerial conflict and resistance had beneficial outcomes, they also believed in limiting their occurrence. Due to HEOD's embrace of bureaucratic practices, the department tended to use such formal conflict and resistance control mechanisms as standing conferences and committees, inspection programs, and bonus schemes. In contrast, the Pew family's aversion to bureaucracy meant that Sun refineries continued to rely upon informal means in which the prevailing attitude was "handle as you see fit."

These findings clearly contradict the views of such leading structuralists as Alfred Chandler and cultural theorists as Thomas Cochran who depict bureaucratization as a largely consensual process among managers [Chandler, 1977, Cochran, 1985]. They also clearly challenge the arguments raised by the structural historian, JoAnne Yates, and the cultural historian, Olivier Zunz, who both treat managerial conflict and resistance as isolated events within the bureaucratization process [Yates, 1989, Zunz, 1990]. While conflict and resistance are key themes for labor historians such as David Montgomery, their reliance on a class-conflict model propels them to focus almost solely on the conflict and resistance that occurred between labor and management [Montgomery, 1982]. Although technological historians such as Monte Calvert, David Hounshell, and John Kenly Smith offer some insight into managerial conflict and resistance, their focus remains on scientists and engineers and their debates over what constituted best practice [Calvert, 1967, Hounshell and Smith, 1988].

The Effect of Bureaucratization on Prevailing Notions Regarding Gender Roles and Attributes

A number of the views regarding gender roles and attributes that emerged in HEOD and Sun refineries during the early decades of the twentieth century also arose within newly bureaucratized corporate offices during the same time period. Yet because oil refining and explosives manufacturing were science-based activities and encompassed a number of highly unpleasant and dangerous processes, some of the characteristics associated with manhood and masculinity underwent subtle but critical changes that were not evident within office settings.

Just as white middle- and upper-class notions of womanhood determined women's roles in corporate offices, they shaped women's roles within the production areas of HEOD and Sun refineries [women's roles in corporate offices in Strom, 1992; Kessler-Harris, 1982; Kantor, 1977; Kwolek-Folland, 1994]. Thus, the temporary nature of their employment, their job segregation, their assignment to such tasks as shell sorting, box packing, and oil canning, and even their work attire were shaped by male managers' assumptions regarding their moral superiority to men, their physical weakness in comparison to men, their "natural" role as wives, mothers, and caretakers of the home, and their superiority over men in activities requiring repetition and dexterity.

In contrast, male refinery and explosives workers experienced the subtle but critical redefining of their manhood. As in the modern corporate office, the male traits of autonomy and reliance on personal judgment fell largely by the wayside [Kwolek-Folland, 1994]. Now compliance and cooperation, once feminine attributes, became masculinized in the form of competitive corporate teamwork. Moreover, while men could still display their inherent assertiveness, aggressiveness, and competitiveness, it had to be within the bureaucratic context of employee suggestion schemes, bonus plans, and employee sales contests. Unlike within corporate offices, however, bureaucratic practices such as formal safety rules and procedures limited male workers' exposure to danger and thereby their opportunity to demonstrate their inherent traits of strength, fortitude, and bravery. Yet, they did not have to feel less masculine. The rise of plant safety committees and the managerial expectation that one made sure that one's associates followed the rules brought new importance to the masculine roles of acting as policemen and protectors. The imposition of formal specifications, operating procedures, and particularly production performance reporting mechanisms led male supervisory personnel to base their decisions more on data than on experience. Thus, empirical/scientific rationalism became more important than experience-based rationalism.

Concluding Thoughts

As the above discussion clearly illustrates, returning once again to the well-trodden topic of business bureaucratization and examining in depth how firms' production facilities operated on a daily basis prior to and during

bureaucratization offers historians a richer, deeper, and more nuanced understanding of this complex and multi-dimensional process that has come to affect not just businesses, large and small, but much of twentieth century everyday life.

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