

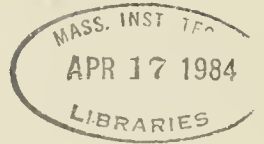
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ALFRED P. SLOAN SCHOOL OF MANAGEMENT

INTERNAL COMMUNICATION SYSTEMS IN AMERICAN BUSINESS
STRUCTURES: A FRAMEWORK TO AID APPRAISAL

by JoAnne Yates

WP 1525-84

February 1984

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I come to the issue of appraisal not as an archivist, but as a user of records. My interests, however, are closely related to those of archivists, as my participation in the Bentley Library's Research Seminar in the Appraisal of Modern Historical Documentation suggests.¹ As a specialist in business communication, I am studying the evolution of internal communication, especially written communication, in American businesses during the late nineteenth and early twentieth centuries. Thus most of the documents an archivist appraises in late nineteenth and early twentieth century business collections are the physical manifestations of the system I am studying. Archivists' interests, then, frequently coincide with mine. Moreover, my study provides a typology of organizational structures and their communication systems that can serve as a framework to aid appraisal of modern business records as well as earlier ones. Before introducing that typology, let me describe some assumptions behind my research.

Internal communication may be viewed as a dynamic system with three interrelated components: organizational structure, communication technology, and the communications (written or oral) themselves. The communication in an organization both reflects and embodies the organizational structure. Lines of authority are usually lines of communication, as well. In large modern organizations, information, requests, opinions, orders, and analyses flow up, down, and laterally through the organization to enable managers to coordinate and control the organization's

activities. These communication flows serve as the infrastructure of the organization. Communication is also shaped by the technologies, from telephone and typewriter to filing system, involved in creating, transmitting, and storing it for future reference. These technologies set the limits or constraints on communication, and when they evolve, they change the potential functions of communication. Finally, the individual communications themselves are at the heart of the system. They facilitate (or even make possible) the organization's activities. The written documents (on which I focus) have senders, receivers, formats, and purposes. Collectively, these documents make up flows of written communication. Internal communication, then, is the product of these three components, a dynamic network at the heart of an organization.

Furthermore, as I shall show in more detail later in this paper, these three factors have evolved over time, with changes in organizational structure providing the driving force. In the late nineteenth century, businesses first grew from small family enterprises into large companies performing multiple functions and governed by managerial hierarchies. This change in organizational structure and a concomitant change in managerial methods required a fundamental change in the nature of the internal communication system. Moreover, this change in the uses of internal communication spurred change in the technologies of written communication. Thus the communication system evolved through history, with the major period of change in the late nineteenth

and early twentieth century.

Finally, the communication system in any single organization changes over time. A small modern business in a fast growing industry could, in ten years, evolve through all of the major phases of organizational structure that developed historically over a long period. Another business might change less dramatically over time, stabilizing at a certain stage.

My model of the internal communication system, then, is dynamic on three different levels: 1) at a particular period in time the system in a given business is a dynamic network of communication flows shaped by organization structure and mediated by communication technology; 2) historically, the communication system has developed from a simple, primarily oral system to a complex system depending heavily on written communication as organizational structure and communication technology evolved; and 3) in any given business the communication system evolves over time as organizational structure changes. Viewing written records as part of a dynamic communication system sheds some light on their function and role.

This model of documents as part of a dynamic communication system contrasts with archival models of records primarily as sources of information. Apparently the first and still one of the most extensive treatments of appraisal of business records is in Ralph H. Hower's 1937 pamphlet, "The Preservation of Business Records."² He suggests that "The governing principle in selecting and preserving business records for historical purposes

is to choose material which will yield accurate and reasonably complete information about every phase of the business -- production, distribution, management, finances, personnel, accounting, and plant."³ Thus he views documents primarily in terms of their information about each function of the business. Although he suggests that the archivist should document changes in organizational structure and business methods in a company, in part by documenting changes in documents used, he does not develop this thought. Moreover, he says that the archivist should be familiar with the administrative history of the company, but he does not give any framework for understanding how this administrative history relates to the documents generated by a company.

The best known general treatments of appraisal, T. R. Schellenberg's classic 1956 Bulletin on appraisal criteria at the National Archives and his Modern Archives,⁴ provide a slightly more complex model of the role of records in organizations (here in government rather than in business), but still focus more on documents as sources of information than on documents as part of a dynamic system. Documents of evidential value, he says, contain evidence of the "organization and functioning of the Government body that produced them."⁵ Thus Schellenberg acknowledges the importance of capturing the functioning of the organization, as well as the facts about it, but still, I think, does not focus on the functioning of the documents themselves. In reaffirming the principle of provenance,

he acknowledges that the documents created in a functioning organization have an essential relationship with each other, but does not necessarily see the documents as forming a coherent and dynamic system.

Furthermore, by his definition of evidential value, every document an organization creates, receives, or stores has some evidential value. Thus the definition provides little help in appraisal. His exposition of how to apply this definition helps more, but is sufficiently vague to be interpreted in very different ways. He, like Hower, asks the archivist to know the administrative history of the organization, but provides little help in understanding that history or its relationship to the records.

While my approach will not make appraisal decisions easy, it should help to make them more informed by revealing crucial relationships between business structure and communication flows. In recent years, the bulk of business (and governmental) records has grown enormously, and archivists have been forced to appraise much more selectively. Choices -- tough and informed choices -- have to be made if useful and usable records of business are to be retained. Neither Hower nor Schellenberg provides sufficient help in making those choices. My approach to written internal documents as part of a dynamic communication system varying over time and according to business structure offers a framework of analysis that archivists may find useful in appraising records of a given company. While my approach will not make appraisal

decisions easy, it should help to make them more informed by revealing crucial relationships between business structure and communication flows.

This framework, as the final section of this paper will show, suggests that common appraisal practices may need rethinking. Large collections of business records are often reduced by retaining records only from the top levels of the corporate hierarchy and discarding the rest -- saving only what we might call the tip of the iceberg. This retention policy ignores the dynamic communication system and distorts the real functioning of the company and of the documents. Occasionally executive-level records are supplemented by systematic samples of lowest level documents. Even this technique leaves much activity and documentation in between unrepresented. In the final section, then, I will examine these practices more closely and suggest ways that archivists can appraise business collections to make them better represent the dynamic communication system of the company.

Before examining how the communication system relates to business structure and what the relationship implies for appraisal, let's start by looking at the evolution of the key factor in the communication system, business structure. As Chandler has traced it in his seminal studies Strategy and Structure: Chapters in the History of the American Industrial Enterprise and The Visible Hand: The Managerial Revolution in American Business,⁶ the predominant form of business enterprise in America changed dramatically in the late nineteenth and early

twentieth centuries.

The traditional business form up to the mid-nineteenth century was the small, family or partnership enterprise carrying on basically a single function such as manufacturing or marketing. In it, authority for most general policy making was centralized in the hands of one or two owners. After the extension of telegraph and railroad networks throughout the country and technological breakthroughs in production methods, many businesses expanded rapidly and, in the 1880s, began to take on additional functions. They usually established functional departments (i.e. a purchasing department, a production department, a sales department, and so on) and a hierarchy of managers to run them, with the executives in the central office coordinating the departments. The new techniques of systematic and scientific management helped these managers control and coordinate the expanded enterprises. When additional expansion and diversification of product lines by the 1920s made the centralized, functionally departmentalized structure ineffective for the largest companies, so the decentralized, multidivisional structure evolved. In this structure, each division, based on a product line or geographical region, had its own functional departments and was an independent profit center.

As Francis X. Blouin, Jr. has pointed out in his perceptive review of The Visible Hand, these changes demanded fundamentally new and expanded roles for records.⁷ My research shows that both the amount and nature of internal written communication

changed enormously during this evolution of organizational structures and managerial methods. The new managers needed a new communication system to enable them to operate their organizational structures efficiently. The modern internal communication system evolved during this period, with the greatest evolution occurring in the transition from the small, owner-managed company to the functionally departmentalized company.

Although the structures developed in a certain order historically, since the 1920s all three structures have coexisted: (1) the small, owner-managed business concentrating on a single function; (2) the larger, functionally departmentalized but centralized business; and (3) the decentralized, multidivisional company organized by product lines or industries. Each of these three structures, then, has certain characteristic communication patterns, although trends in management thought and communication technology have changed some aspects of these patterns over time.

In the next three sections I will describe the typical internal communication systems in each, using evidence and examples from various stages of the late nineteenth and early twentieth century evolution of the three companies whose archives I have studied: Scovill Manufacturing Company, the Illinois Central Railroad, and E. I. du Pont de Nemours & Co.⁸ Because I have studied only manufacturing and transportation enterprises, my generalizations will be limited to those sectors. Furthermore, the documentation structures I have seen have already been shaped,

to a greater or lesser extent, by time and by appraisal decisions. Nevertheless, this typology of organizational structures and communication systems should provide a useful framework to aid appraisal. In the final section I will address some of the typology's implications for appraisal.

Communication in the Small, Owner-managed Company

The small owner-managed company (usually under 100 employees) was the standard form of American business enterprise before 1880 and is still with us now. In it, the owner or owners (partnerships are common) manage all of the firm's workings. A manufacturing firm of this form generally concentrates on manufacturing, accomplishing purchasing and marketing, to the extent possible, through outside agents. In enterprises like nineteenth century Scovill and Du Pont, one partner periodically traveled to see agents or others on matters of purchasing and sales while the other oversaw the production process at home. The partner at home directed the workers himself, or with the help of skilled artisans or foremen who oversaw workers. Whether the owners had foremen or not, they were in daily contact with the workers and oversaw all aspects of the firm's operation.

In a small company of this type, then or now, almost all internal communication can be handled orally. The owner or foreman can collect operating information (such as the production schedule and problems with machinery), make decisions, and give orders in person. Written flows of communication are not needed.

In this type of business, then, written communication within a company is usually limited to accounting documentation and correspondence between partners when one of them is on the road. Since agents often become very closely associated with the companies they represent, we could also stretch the point to include correspondence between the owners and an agent.

The accounting records in very small companies, especially those of the nineteenth century or earlier, do not flow to anyone, and thus are less communication than documentation of financial transactions for future reference. The accounts are simple descriptive records of monetary transactions, originally kept in large bound books that rarely moved out of the office, though since the turn of the century kept in looseleaf form.⁹ They enable the owner or bookkeeper to see how much money is on hand, how an account with a particular customer or agent stands, and, when balanced, what total profits and losses have been in a given period. They do not give the owner any information on costs per unit produced or percent monetary return on total investment. The accounts of a modern small business include some new types of data such as depreciation of equipment, an area ignored by earlier accounting methods, but now built into the tax system. If a modern owner-manager has business training, he or she may convert some of the simple accounting information into forms more useful for judging the company's efficiency. For earlier periods and for many small companies of more recent origins, however, the accounting information will be primarily unanalyzed, descriptive

data.

The other category of internal written communication is correspondence, either between partners when one is on the road or between the company and a closely associated agent. Both of these types of correspondence in the traditional firm differ from types of written internal communication characteristic of the other two business structures in being less restricted in subject and purpose. Because such correspondence is not part of a coherent and well developed written communication system with defined flows of information, analyses, requests, and orders, it does not perform a narrowly specified function that requires certain predictable types of content.

In this type of structure, the owners carry on a wide variety of activities and functions. When both (or all) partners are at home, they will talk to each other rather than writing. For example, at Du Pont in the 1880s when the company was still a small producer of explosives, the partners used to meet in the office every afternoon to talk over all business matters.¹⁰ Thus written correspondence between partners in a small firm usually occurs only when one is on the road. It covers anything from complaints about drunken workers to discussions of markets and competitive strategy. The amount and variety of such correspondence has, however, no doubt declined since the middle of the twentieth century, as long distance telephone service became universally available and relatively inexpensive.

Correspondence with agents closely associated with the

company is slightly more predictable, but still at least in the nineteenth century, as evidenced by correspondence in the Du Pont and Scovill collections, widely varied. The agents, independent individuals or small companies who handled the manufacturing company's sales at a distance, were often taken into the company confidence in order to increase their usefulness. Their primary function was to market the firm's products. On their own initiative or in response to questions, they relayed unstructured information about markets and prices to the owners and frequently recommended courses of action based on their local knowledge of a competitive situation. In addition, however, they corresponded on a wide range of subjects of interest to the owners and received frequent commissions from them to perform other services. While the agent system used by small, owner-managed manufacturing companies in the nineteenth century has undoubtedly changed in the twentieth century, external marketing agents must still exist in some form. As with correspondence between partners at a distance, however, the telephone has undoubtedly reduced the variety of information flowing through written channels. The written correspondence with agents is likely to document more routine financial transactions.

Thus in the small, owner-managed firm there is very little internal written communication structure at all. The minimal and static accounting records are primarily descriptive and documentary; correspondence between partners occurs only when they

are apart; and correspondence between agent and owner is frequent but unstructured. Internal communication in a modern small, owner-managed business will probably be somewhat more extensive because of legal requirements. Personnel records, for example, will be more than payroll records because modern laws require more extensive records. But communication and records probably fulfill a relatively limited role in the modern small business, as well. As the next section will show, written communication plays a far greater role in the functionally departmentalized company.

Communication in a Functionally Departmentalized Company

In the late nineteenth and early twentieth centuries, a combination of factors led to the expansion of transportation and manufacturing enterprises and their development into functionally departmentalized companies. Alfred Chandler has traced the reasons for this development in some detail in The Visible Hand, but let me summarize the factors briefly before showing how communication and record keeping changed in this type of business.

The explosive growth of railroads and the telegraph during the middle of the nineteenth century set off a chain reaction of events. These developments sped the transportation of raw materials from a distance and enlarged potential markets for finished and semi-finished goods. Meanwhile, the development of new energy sources and advancements in technology enabled the traditional small manufacturing enterprise to evolve into the first small factories with expanded output and diversified product

lines. Further technological and organizational developments around the turn of the century led to increased specialization on the factory floor. With the production function itself essentially departmentalized, layers of management were created to coordinate the various segments of it.

Meanwhile, in the 1880s changes began to occur in the office as well as on the factory floor of some companies. Increased production required increased purchasing, so purchasing soon evolved from a minor function that took a small portion of an owner's time to a major function requiring its own department. Furthermore, the agent system of selling goods could not keep up with increased output in many cases. Soon many growing manufacturing businesses took on the marketing function themselves, starting another department and subdividing it to handle different products when necessary. Other smaller functional departments were formed to handle such special areas as legal matters, payroll, and equipment. Some of these departments, called staff departments as opposed to line departments, gave advice or established standards for certain functions (research, for example), but did not have line authority to give orders to employees doing the same or related work in production departments. More small hierarchies grew up to manage these staff departments, and the central office had more and more functions to coordinate. Thus Chandler traces the structural developments of the period before and immediately after the turn of the century.

As my own research shows, this structural development was

accompanied by profound changes in managerial methods, which in turn contributed to changes in internal communication. In a search for efficiency, the managers turned from traditional, unstructured and primarily oral methods of management to the new techniques of systematic and scientific management. These techniques, which depended heavily on structured written communication, were developed to help managers curb the powers of relatively autonomous foremen and coordinate activities to create an efficient system. Scientific management, championed by Frederick Taylor, concentrated on making workers on the factory floor more efficient. The broader systematic management movement explored ways to direct and control all aspects of a company more effectively and efficiently.¹¹ It emphasized creating an organizational, not individual, memory and establishing control mechanisms. This task required creating routines, procedures, and forms for repetitive tasks, and developing accounting tools for upper management to coordinate and control the efforts of those beneath them.

These developing management techniques demanded changes in the nature, as well as the quantity, of written communication and records. To systematize routine tasks, establish procedures, and coordinate lower level managers, middle and upper level managers developed new, more structured forms and flows of downward communication as well as new documentary records such as books of policies and procedures. Day to day coordination between departments soon demanded increasing lateral flows of

communication. To collect the information necessary for coordinating and evaluating the efforts of lower level managers and foremen, middle and upper level managers established an upward flow of communication, carrying information and analysis.

In fact, in some ways the new, more structured kinds of written communication and their uses were the very heart of the innovations. Only with a steady flow of information could upper and middle management hope to control what went on below them. As Blouin points out, "Record keeping thus shifted from serving a descriptive function to serving as an analytical tool."¹² By examining the downward, upward, and lateral flows, as well as the documentary records that do not really flow at all, we will see how drastically communication has changed in this form of company.

Downward communication was probably the first major form of internal communication to develop in most growing and departmentalizing businesses. Before 1850 the need to switch from oral to written communication of policies and orders became clear in the railroads, geographically dispersed enterprises that were the first to suffer the growing pains of the transition from small business to larger, multifunctional businesses. In them, the requirements of geographical dispersion and safety as well as efficiency in coordinating the new functional departments demanded that rules and procedures be written down.¹³ They used both printed rule books and the circular letter to systematize downward communication. Rule books were issued and updated periodically to codify rules. Circular letters (as far as I can tell, the first

form of internal correspondence in American businesses to be differentiated from external correspondence in name and handling) were issued by top or middle level managers to large groups of conductors, stationmasters, and others to inform them of new or altered rules and changes in management.¹⁴ Since printing was the only way of producing more than one or two copies of a document at that time, they were printed.

Manufacturing companies began to develop functional departments somewhat later, around the 1880s. Lacking both the geographical dispersion and the paramount need to avoid collisions, manufacturing firms did not turn to the expensive printing process as quickly as did the railroads. A few rules might be printed up and posted, but workers were generally governed by the oral orders of foremen. The constant stream of downward communication awaited better technologies of reproduction, which began to evolve in the 1880s. The discovery that carbon paper could be used to make a small number of copies on a typewriter and the development of the mimeograph and other methods of duplicating larger numbers of copies¹⁵ soon enabled manufacturing firms to establish routine downward flows of circular letters or general orders to the entire workforce more economically than by printing.

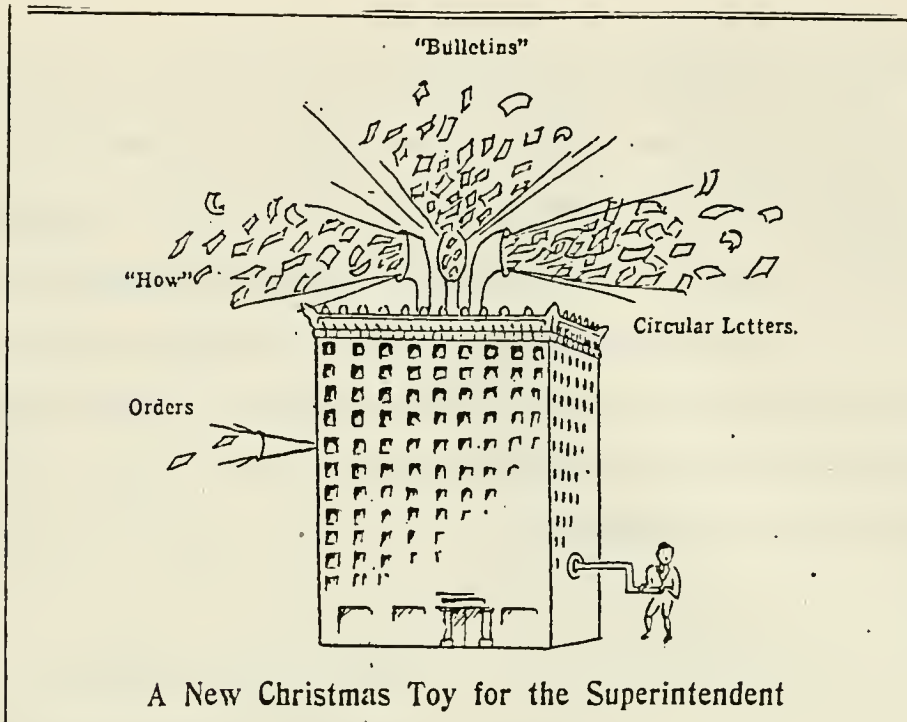
From the turn of the century onward, downward communication of policies, procedures, and information has formed a major part of the communication system of departmentalized companies. Top managers in the central office are not the only ones to issue

orders and policies; on various subjects managers from various departments and levels issue them. Only the most general policies or announcements are likely to come from the very top management. (Extremely hierarchical and authoritarian companies are sometimes an exception. Because of the safety requirements of railroads, for example, circulars from the head of a functional department were countersigned by the general superintendent of the whole road.) In most companies, anything having to do with a particular function or product would come from the departmental level or, in a large department handling many processes or products, even lower levels. Such downward communication might also go from a staff department to employees in a different, line department. The treasurer's department of a company might issue rules or guidelines on accounting procedures to all employees in other departments, for example.

This downward flow of communication is intended to allow managers to control and coordinate organizational efforts in the interests of efficiency. Those on the receiving end of such communication sometimes see it otherwise, however. They may resent the instructions, perceiving them as either a waste of their time or a usurpation of their power. Two cartoons from a humorous newsletter issued by plant superintendents in Du Pont's High Explosives Operating Department (H. E. O. D.), one of three sections within the functional Production Department, illustrate such attitudes (see illustration).¹⁶ Du Pont had consolidated most of the U. S. explosives industry between 1902 and 1904, so

superintendents of once nearly independent high explosives plants now were part of a large organization under the jurisdiction of the H. E. O. D. Superintendent in the main office. "A New Christmas Toy for the Superintendent" illustrates their image of the H. E. O. D. Superintendent endlessly cranking out downward communications from the main office. "A Study in Expression" shows a local plant superintendent frustrated at the circular letters that seem to inundate him and perhaps to constrain his ability to do his job -- fulfilling orders.

Circulars and other forms of internal mass downward communication are not, of course, the only form of downward written communication -- just the largest. Two other types of documents contribute to the downward communication flow: downward orders or requests to a single person or small group of people, and newsletters. While a circular letter or general order gives directions to large numbers of people, a memorandum (generally called a letter until well into the twentieth century, when memorandum took on its current meaning as an item of internal correspondence) often gives an order to or makes a request of one person or a small number of persons (a note from the president to the heads of the major departments, for example). Such communication would once have been entirely oral, but in the era of systematic management it frequently took on written form. As a 1905 textbook entitled Systematizing said, "As to the form that an order should take, the only satisfactory form is the written order."¹⁷ The written document both communicated and documented



A New Christmas Toy for the Superintendent

A STUDY IN EXPRESSION
The Super at His Morning's Mail



Ha!
An Order



Hump!
A Circular Letter



D—
Another
Circular Letter



H—!
What!
Another



Still Coming!
What's the Use?

ILLUSTRATIONS

the order.

The newsletter or house magazine is at the opposite extreme from the individual order. It goes to a wider audience than the circular letter. Although it may be used to get across specific instructions, it is generally used more to improve morale and create -- or rather, recreate -- a company spirit. In the growth from small, family dominated businesses into large, departmentalized companies, personal relations between workers and owners/managers had been lost. Newsletters attempted to recreate a sense of family loyalty to the company.¹⁸

Just as the amount of written information flowing down the organizational hierarchy is much greater in the departmentalized company than in the small, owner-managed company, the amount flowing up is far greater, also. The farther away from the primary activity managers are, the more they need information to control what goes on below. As a result of the systematic management movement around the turn of the century, much information that is collected orally, when it is collected at all, in the traditional firm has come to be systematically collected in writing in larger, more complex firms. Moreover, the information is designed not just to describe activity, but, as Blouin commented in his review, to serve as an analytic tool for judging the financial and operational performance of segments of the company. Managers at various levels of the departmentalized company no longer decide on strategies just on the basis of a hands-on familiarity with the production process and a personal

knowledge of workers and supervisors; they use information flowing up through the system, as well.

The documents that make up this upward flow may all be called reports, though they differ in form, content, and purpose. Reports are either routine or specialized. Routine reports are sent up through the hierarchy on a regular schedule, which could be hourly, daily, weekly, monthly, yearly, and so forth. The format for these reports is usually prescribed, though it may be anything from a printed form to be filled out to a graph of data to a long prose report punctuated with tables and figures. In fact, a study of how exactly the formats of such routine reports are developed would be interesting. These reports, which are at the heart of efforts to systematize business, provide the routine inputs to managerial decisions designed to coordinate, evaluate, and control the efforts of workers and foremen. A 1920 list of the routine reports sent to the general superintendent at Scovill includes 167 separate reports, some sent as frequently as daily and others sent as infrequently as yearly.¹⁹

Special reports are, by definition, nonroutine. They are generally requested to deal with a specific problem or opportunity that has arisen and may or may not have a consistent format. Staff departments such as research departments produce many special reports. The research departments at Scovill and Du Pont wrote special reports on everything from formulas for types of metals or powders to the company mail system and efficiency in writing internal correspondence. Sometimes these special reports

include the results of investigating business procedures or technical processes at other companies. These special reports must create their own context, so they frequently provide history of the problem or issue as well as the current analysis. They form part of the upward flow of communication (as well as traveling laterally to others at the same level), but they also serve a documentary function, recording facts and analyses for future reference.

The subject matter of routine or specialized reports may be financial, operational, or technical, or even a combination of these types. The descriptive accounting of the small firm generally gives way to a much more complex system in large, departmentalized companies. The single set of bound books is replaced by the myriad forms that flow upward towards the treasurer's or comptroller's office. Moreover, in the late nineteenth and early twentieth centuries cost accounting was developed as a way of using financial data to judge operational performance. The railroads, for example, developed a procedure for calculating cost per ton mile of freight carried to help high level operating managers judge the relative effectiveness of a single railroad division over time, or of one division in comparison to another.²⁰ Similarly, manufacturing companies developed ways of calculating unit costs of producing their goods to give them a yardstick for measuring production efficiency. The raw data, both financial and operational, and related analyses form part of the communication flows up through the various

operating departments. Operational reports unrelated to cost accounting are also used by middle and upper managers to coordinate the flows of materials and products horizontally through the system. Technical data may be used in conjunction with operational data, or in a purer form in research department reports.

The term "vertical flow" may suggest that the information collected at any level progresses all the way to the top of the hierarchy, thus creating an ever-widening stream of communication progressing up a narrowing hierarchy. In fact, the flow is increasingly constricted and siphoned off as it progresses. The board of directors that frequently replaces the owner in the larger, departmentalized business needs and wants only enough communication to make the most general policy decisions about executive personnel, finances, products, and markets.²¹ Only a limited amount of communication reaches them, containing information already highly summarized and analyzed. They do not receive information about day-to-day operations at all. All of the vertical flow does not reach the next level, that of the president and executive committee, either, though some information and analysis (what the executives think is most important and the lower level managers are willing to give) from each department is communicated. Certain types of information pool at certain levels in the communication flow, and progress upwards in very different forms, if at all. Accounting figures progress all of the way up, but in increasingly summarized forms. Some operational and cost

accounting information never reaches the top in any form unless something goes wrong; instead, it stops at the level at which it is used for decision-making. Much technical data on processes and machinery never even gets to the top of the department if the department is large and has multiple subunits.

This screening process is necessary, though it has potentially negative side effects, as well. If all that information went all the way to the top, information overload among executives would be even worse than it is. In the early years of systematic management, companies sometimes went too far in setting up routine reports on everything, and sending them up the ladder. Soon it became clear that that policy was counterproductive.²² On the negative side, this screening process means that top executives may not learn about something important until it has become a serious problem. Department heads, for example, may intentionally prevent certain types of information from reaching the top. Nevertheless, a certain amount of screening is necessary to efficiency and is built into the system.

Thus this upward flow of information and analysis replaced word-of-mouth methods of controlling manufacturing companies. The descriptive reports at the lower levels and the increasingly more analytic reports at the higher levels are the chief tools of management in the functionally departmentalized company. Their pervasiveness as a tool of control is evidenced by the fact that the plant-level superintendents in Du Pont's High Explosives

Operating Department resented them and protested, both directly and indirectly, against them. In the same humorous newsletter containing the cartoons about downward communication appears the following item satirizing the upward reporting system:

The Chemical Division is just about to distribute new forms known as the Hourly Operating Reports. Every plant operation is covered from the Nitration Process to tool sharpening and belt lacing. Each form contains about 600 spaces to be filled in and the reports are to be forwarded to the Wilmington Office hourly by special messenger, where they will be carefully filed for the benefit of Posterity.²³

These plant superintendents clearly see the reports as a nuisance. The effectiveness of the reporting system can only be judged indirectly, by results: between 1902 (when Du Pont began to consolidate most of the powder industry) and World War I, a large group of virtually or wholly autonomous plants coalesced into a unified, efficient department. I would speculate that the reporting system was crucial to the transformation and that any inconveniences it imposed were ultimately outweighed by its contributions.

Not all information flows vertically in the departmentalized company. Lateral communication also emerged as companies grew and departmentalized. As an expert wrote in 1909, when the larger, more complex companies were relatively new:

Of considerable importance in every large organization is the interdepartment correspondence--the notes from one department head to another. Every department head finds it necessary at times to request information from other departments. Even with an intercommunicating telephone system with which every large office and plant should be equipped, many of these requests are of a nature that, to guard against misunderstandings, demand written communications.²⁴

In the files of a mills foreman at Scovill, interdepartmental

correspondence considerably exceeds vertical (upward or downward) correspondence.²⁵ It was not restricted to department heads, however. The largest component of his correspondence traveled between him and comparable lower-level managers in the Research Department. Thus the lateral flows of communication in a functionally departmentalized company should not be ignored. In these companies -- larger, generally more physically dispersed, and with several layers of management -- coordination between departments, as well as between segments within departments, is critical. This communication takes a written form in part to bridge distances and in part, as the above quotation suggests, to document transactions. The functionally departmentalized company is likely to contain multiple constituencies and the desire to protect oneself by documenting transactions spread from external relations to internal ones.

Although much of this interdepartmental correspondence, especially that below the level of the department heads, consists of minor requests, complaints, and transfers of information, it often reflects and reveals interdepartmental dynamics. The correspondence between the mills foreman and members of the Research Department, for example, highlights the struggle involved in the shift of power away from the traditionally autonomous foreman to the more scientific Research Department. It also contains information about the technology and machinery of production not present in the upward flows that reach the top.

I have discussed the upward, downward, and lateral flows of

information in the larger, departmentalized company. The category of written internal communication that remains to be discussed I will call, for lack of a better term, documentary. While many items in the communication flows discussed above also document their subjects for possible future reference, their primary ostensible function is to communicate with someone. Documentary records serve primarily to document issues or facts for future reference. We could even view them as flows of communication through time.

The best example of this category is minutes of meetings. In companies with many departments handling different functions, committees work on every level from board of directors on down to establish policy and coordinate various activities. Frequently they involved people from more than one department. The minutes from these meetings go primarily to those who were at the meeting to serve as a record of decisions and agreements and to be referred to later to mediate disputes. They also help a new manager coming into a company or department understand crucial things about the background of issues and events. Secondly, they may travel to individuals not present at the meeting to inform them of the outcome of the meeting. Documentary records, like upward, downward, and lateral flows, increase in bulk as organizational structure becomes more complex.

One issue of communication technology plays an integral role in the development of these flows of internal communication. At about the same time that manufacturing firms began evolving from

the traditional partnerships into functionally departmentalized companies, the technology of reproducing and storing documents changed radically, in part in response to the expanded internal communication of the evolving firms. Bound books for accounts and correspondence were replaced by loose leaf accounting and vertical files for correspondence, a change that also required new methods of reproducing copies on individual sheets, such as carbon paper and mimeograph, rather than in the bound press books. These developments allowed new flexibility in arranging loose copies according to the most useful scheme.²⁶

When bound books were used for all but incoming correspondence, files were, of necessity, centralized. With the new flexibility of multiple carbon copies and vertical files, files suddenly multiplied. While most textbooks on vertical filing systems recommended centralized vertical filing, many companies had multiple sets of files, with duplicate copies of many documents. A single document might appear in the mills foreman's files, his boss's files (the Mills Department files), and the General Manager's files. While this system makes it quicker and easier for the mills foreman to get at a given document, it also means that more total file space is used, and that no file will have everything. Thus the documents that make up the communication flows end up in various sets of files. The influence of this decentralization of files on appraisal strategies deserves archivists' consideration and further research.

This discussion of the various flows of communication in functionally departmentalized companies should show what a critical role structured written communication plays in these large and complex companies. Almost all of the types of written communication we now use were developed when companies first grew and departmentalized in the late nineteenth and early twentieth centuries. As the next section will show, essentially the same types of communication flows, documents, and communication technologies are present in the decentralized, multidivisional corporation. The contrast between the communication systems of these two organizational structures is generally limited, as the next section will show, to what happens to the communication flows at the top level of the corporation.

The Decentralized, Multidivisional Corporation

As companies continued to grow after World War I, and tried to find uses for their profits from the war and the twenties, they frequently diversified into wholly new businesses. Du Pont, for example, started the war as an explosives company; by a few years after the war, it was a huge, diversified chemical company with product lines of paints, plastics, dyes, and fabrics. For them, and later for many other companies, the centralized, departmentalized structure no longer worked to control so large a company with such diverse product lines. In 1921 they adopted a new, divisional system based on product lines rather than functions.²⁷ While the centralized, departmentalized company

had had separate departments for the various functions -- purchasing, manufacturing, legal, sales, and so on -- the new structure was made up of product-based divisions. Each of the divisions had functional departments within it; moreover, each was a separate profit center, that is, each was judged individually on the return on investment it achieved. In other words, each of the divisions was almost like a separate company, sharing only a few central office staff departments, such as the legal department. For the most part, each division had within it all line and staff functions necessary for producing and selling their products. Communication between divisions was apparently minimal.

This new structure at Du Pont had implications for communication flows at the top of the structure, though as far as I can tell from incomplete evidence it did not seem to affect the flows lower down. (It may, however, have affected specific types of information and analysis in those flows; this issue deserves further study.) The head of each division monitored and evaluated the activities of the various functional departments under him, and their reporting path stopped with him. He played the same role in the multidivisional form as the president did in the functionally departmentalized form. The downward flow of policies and procedures generally started at the division level, too, though some policies might be corporation wide. The executive committee and president of the whole corporation were concerned mainly with the financial success of the division as a whole. Only if problems arose would they look beyond that. They

restricted their own policy making to issues such as major investments in new product lines or major strategies of overseas investment.

To reinforce this divisional structure, the Du Pont executive committee developed analytic and presentational tools for evaluating the performance of the various divisions without involving the committee members in the operations of the divisions. The analytic tool was the return on investment formula, which could be applied to any profit center either over time or in comparison to other profit centers, no matter how dissimilar their products. The presentational mechanism was its chart room, where charts monitoring the major determinants of return on investment were created for each division. The graphs in this room were the major form in which information on the divisions reached the executive committee, unless they requested further reports to explain some significant change in the monitored return on investment formula.²⁸ The formula and its mode of presentation combined to keep the executive committee out of the operations of the divisions unless a problem arose. Thus the flow was broken and information was significantly reduced and reanalyzed between the divisions and the central office.

This decentralized, multidivisional form is common for very big companies today, though it may be based on geographic regions, rather than product lines. In this structure, then, each division operates as an autonomous unit, almost a business in itself, normally reporting to the central office only in terms of return

on investment and budget matters and sharing only a few functional staff offices such as a legal department.

Implications for Appraisal

This survey of internal communication systems shows that the system varies significantly by type of business structure and, within a given structural type, somewhat by era. In the small, owner-managed business most internal communication needed to control and coordinate activities is handled orally. Historically, the evolution of the larger, functionally departmentalized company and the methods of systematic management developed to control it required the evolution of the complex and structured flows of communication up, down, and laterally through the company, as well as the expansion of documentary records. This complex system is characteristic of the large, functionally departmentalized company. The decentralized, multidivisional structure includes many of the same flows, but is organized by product lines or geographical divisions rather than functions. Each division operates almost as a separate functionally departmentalized company with seemingly very little lateral communication between them. The flows of information break between division and corporate headquarters and are reshaped into a different form.

This typology of communication systems suggests some implications for appraisal of business records.²⁹ First, my analysis suggests that appraisal strategies should be designed to retain documents that reveal, to the extent possible, the

structure of the communication system. Moreover, it suggests that different appraisal strategies be used for the records of companies of different basic structures. Appraisal methods for small, traditional firms are fairly well established, and I will not consider those here. Appraisal strategies for the two types of larger firms, however, need to be reassessed. These implications will be clearer if we look first at current appraisal practices for the records of large organizations, whether business or government.

In my talks with archivists who visited or took part in the seminar at the Bentley Historical Library this summer, I learned that many respond to the dilemma of the increasing bulk of business records and the inadequate guidance provided by archival theorists by taking a "tip-of-the-iceberg" approach to appraising institutional records. They retain sets of files almost exclusively from offices and individuals at the top of the organizational chart. Some archivists may supplement these files with systematic samples of homogeneous runs of low level documents. Both processes ignore the dynamics of communication, which operates as a coherent system of flows, in favor of looking for static information about the organization. Let us look at each of these practices, beginning with the seemingly more common top-heavy approach.

Tip-of-the-iceberg appraisal is based on a simple hierarchical model of organizations and their information flows. In this model, most information ultimately reaches the top, at

least in summary form, and all important decisions and policies are made at the top; lower levels simply implement the decisions. The files of top officials in the organization, according to this strictly hierarchical model, should contain all significant information about the organization.

Although Schellenberg's own works do not assume so simple a model and even advocate saving some documents from almost all levels of the organization, this model is probably derived in part from the application and adaptation of Schellenberg's principles in dealing with government agencies over the years. It is somewhat more appropriate in appraising government records than in appraising business records. In government, where legislation establishes the most general level of policy and empowers agency heads and their staffs to flesh out that policy, such a model has some validity. Theoretically, at least, all policy is made at the top of the agency on the basis of legislation and comprehensive information; it is then implemented at lower levels. Even so, surely much high-level policy changes or is elaborated on in significant ways at lower levels, and not all potentially significant information about operations reaches the top. In business, where policy doesn't have the force of law, the model, as we have seen, is even less generally valid. Theoretically, authority to make decisions is delegated to the level where they can be made best and most efficiently, thus maximizing profits.

On a less theoretical level, the typology of communication systems presented above should illustrate the shortcomings of the

tip-of-the-iceberg appraisal method. My analysis of the communication system with its flows suggests that in all structures more complex than the small, owner-managed company (for which appraisal is not a real problem anyway, since its records are not very extensive or bulky) the strictly hierarchical view is an oversimplification. The information at the top is only one piece of the organic system of flows that controls and coordinates activities. Information is collected, analyzed, and acted upon at various levels for various issues in the two more complex structures. Adequate documentation of business structure and functioning are particularly important now when business history has shifted emphasis from company histories, which tend to focus on the decisions of particular owners or top managers in newly emerging companies and industries, to studies of business structures and functions.³⁰

To illustrate the shortcomings of tip-of-the-iceberg appraisal, let us assume that only the central office files were saved for a functionally departmentalized company and for a decentralized multidivisional company, and that a researcher is interested in tracing the evolution and managerial methods of a certain business function (marketing or accounting, for example). In the functionally departmentalized company in which departments kept their own files, the main office files would contain general information reported from the department to the central office, aggregate statistics on the results of its operation and major changes in approach, but very little about the way in which that

function is actually controlled or managed and only the most general information about changes in it. If files from the departmental level were also retained, the results would be better. In a large and segmented department, however, reports to the department office and orders from it would still be relatively general and would not reflect the full communication flow controlling and coordinating the function.

In the decentralized multifunctional corporation, the researcher would have even worse luck. The corporate office files would have virtually no information on a particular function, since the functional departments are within divisions and divisions report only in terms of a general comparative measure such as return on investment. The corporate office might have a staff office setting general guidelines for that function, but the records of that staff office would have only the most general information about that function. To get any specific information at all, the researcher would have to have records from two levels farther down, the department within the division.

My analysis points to a closely related problem with the way archivists often view routine, especially very structured, documents. Regular short reports and forms, I found from talking to archivists this summer, are often considered "routine" (used in a pejorative sense) and unimportant. As we have seen, however, they play a significant role in collecting the information that is analyzed and used to control activities. They are part of the context in which the highly summarized information reaching top

levels in the hierarchy must be understood. The facts may be summarized, but the process is not.

Some such routine documents may be saved in the form of a random or systematic sample. Reflecting historical interest in quantitative data, as well as the necessity of reducing bulk, some archivists have used sampling techniques for retaining a limited number of lowest level documents containing raw data.³¹ The two cases I know where this technique was applied to business records both deal with predominantly nineteenth century records of companies that are, by modern standards, relatively small and have very shallow hierarchies. Though they exceed most traditional firms in size, they have not really reached the next stage of growth and functional departmentalization. With this type of firm, such a sample can help capture a sense of the communication flow. If a sampling of low-level homogeneous documents were used to supplement executive-level files in larger, functionally departmentalized companies, the total collection would leave a large gap in communication flow between the top and the bottom. While certain types of information would exist in their rawest form as well as their most summarized form, the process by which the data was collected and evolved as it flowed through the company, the communication flows that transmitted and transformed it, would not be represented.

I do not mean to suggest by this analysis that archivists must keep everything. Clearly, the farther down the hierarchy an archivist goes, the more rapidly the bulk of records increases. I

would suggest, however, that the archivist consider both the structure of the company and the flows of information in it, in conjunction with the repository's collecting policy, before appraising. In a decentralized, multidivisional company, for example, documenting a single division and the central office makes more sense, given the communication flows, than cutting off a horizontal layer.

Within a division or in a functionally departmentalized company, I would suggest that archivists try to capture the structure of the communication system by saving strategic vertical selections, what we might call core samples, to use a geological metaphor, as well as horizontal layers of documents at the top of the hierarchy or the bottom. For a particular period, they could retain the communication at all levels dealing with a single branch sales office, for example. These core samples cannot really be statistical samples, since whole communication flows are not likely to be homogeneous. Without being truly representative, however, they can at least illustrate the flows and help compensate for the distortion of emphasizing the top of the hierarchy. The finding aid should explain the appraisal choices made as clearly as possible without taking excessive time and space. This documentation will help the researcher understand how the retained records relate to those not retained.

To reduce bulk in the vast system of regular reports at lower levels, in a core sample or elsewhere, an archivist might look for nodes of change in a function (major changes in the accounting or

marketing system, for example) to document more heavily; once a reporting system in a functional area has stabilized, the archivist can reduce bulk drastically by systematic sampling, for example. The structure of the documents themselves will provide clues to these points of change, without requiring the archivist to know the history of every segment of the company. Since the communication system becomes the primary mechanism of control and coordination in larger companies, changes in it reveal changes in functions and in managerial methods. A shift from occasional letters to regular forms in upward correspondence between a lower level manager and a middle level manager reveals a significant change in managerial methods, for example, and may be worth documenting. The major appraisal decisions and the reasons behind them, again, should be briefly explained in the finding aid.

Finally, all businesses need not be documented. An archivist will probably help researchers more by documenting fairly thoroughly a few companies with good sets of records than by documenting just the top offices and figures of many companies. Cooperation among repositories might assure that some industries or business structures are not vastly better documented than others. Scarce archival resources may be better used through such cooperation.

The implications I have drawn from my analysis may differ from the implications a given archivist will draw from it. I hope, however, that my discussion of the communication system and its dynamics will help archivists approach the difficult task of

appraising large groups of business records with more knowledge of how the documents actually functioned in the business. Much more, of course, remains to be learned. Archivists can find research opportunities in studying such issues as how filing systems and other communication technologies affect records, how routine report formulae develop, and to what extent divisions in a multidivisional company communicate. Such research will contribute further to the knowledge of how the documents they appraise were created and can tell us now. This knowledge becomes increasingly important as archivists struggle with the accelerating growth of post-World War II collections.

NOTES

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²Bulletin of the Business Historical Society 9, nos. 3-4 (October 1937).

³Ibid, p. 43.

⁴"Appraisal of Modern Public Records," Bulletins of the National Archives #8, October 1956; and Modern Archives: Principles and Techniques (University of Chicago Press, 1956).

⁵Bulletin, p. 6. I am not concerned with Schellenberg's informational value, which he defines as concerning events and people outside of the agency creating the records. For business historians, the primary but not sole users of business archives, evidence about the business's organization and functioning is generally more important than information about persons, things, and trends outside the organization.

⁶Cambridge: MIT Press, 1962; and Cambridge: The Belknap Press of Harvard University Press, 1977.

⁷"A New Perspective on the Appraisal of Business Records: A Review," The American Archivist 42 (July 1979), 312-320.

⁸Courtesy of, respectively, Baker Library, Harvard Business School; the Newberry Library, Chicago; and Eleutherian Mills Historical Library, Wilmington, Delaware. The research on these three companies and on the issues summarized earlier in this introduction will culminate in a book, with a tentative, working title of Forms and Functions: The Development of Internal Communication Systems in American Business, 1850-1920s. Many of the points I touch on in the following pages will appear in amplified form in the book, and a few have already appeared in articles (referenced where appropriate).

⁹For descriptions of the accounting books commonly used in the nineteenth and early twentieth centuries in the United States, along with discussions of their uses and archival value, see Christopher Densmore, "Understanding and Using Early Nineteenth Century Account Books," The Midwestern Archivist 5:1 (1980), 5-19; and Dennis E. Meissner, "The Evaluation of Modern Business

Accounting Records," The Midwestern Archivist 5:2 (1981), 75-100.

¹⁰John W. Macklem to Pierre S. du Pont, September 18, 1944, in appendix to report by P. C. Welsh, "The Old Stone Office Building: 1837-1891," at Eleutherian Mills Historical Library.

¹¹For a discussion of the broader movement see Joseph A. Litterer, "Systematic Management: The Search for Order and Integration," Business History Review 35 (1962), 461-476.

¹²Review, p. 318.

¹³See Stephen Salsbury, The State, the Investor, and the Railroad (Cambridge: Harvard University Press, 1967), pp. 186-187, for an illustration of why downward written communication was so crucial to railroad safety.

¹⁴Such circulars are found, for example, in the Illinois Central Railroad records, 2.8, Circulars, 1858-1906.

¹⁵Maygene Daniels points out that although carbon paper was developed early in the nineteenth century, its use was limited until the development of the typewriter, since it could not successfully be used with quill or steel pens. (American Archivist 43 (Summer 1980), 322.) Thomas Edison patented a predecessor to the mimeograph, "autographic printing" with the "electrical pen," in 1876 (Patent No. 180,857). Within a few years the mimeograph had taken a form very similar to that still in use in some places.

¹⁶The H.E.O.D. Knocker, Vol. 1, no. 1, Jan. 28, 1909, catalogued item at Eleutherian Mills Historical Library.

¹⁷James B. Griffith, ed., published by The International Accountants' Society, Inc. (Detroit: The Book-Keeper Press, 1905).

¹⁸For discussion of the role of house magazines, see the series on "The Shop Paper as an Aid to Management" in Factory magazine, starting in Jan. 1918 (Vol.20) and continuing through Sept. 1919 (Vol. 23).

¹⁹Scovill II, Case 26, file "Reports to General Superintendent."

²⁰See Chandler, Visible Hand, pp. 115-117.

²¹The stockholders could also be considered the top, but are not really within the organization. I have ignored the annual report for that reason, considering it more external than internal.

²²In the Scovill archives, for example, there are several notes from J. H. Goss, General Manager, to lower-level managers saying that certain routine reports should be eliminated to save time and clerical work. Only if something went wrong should he be notified. See March 8, 1920, J. H. Goss to A. J. Wolff, for example.

²³H.E.O.D. Knocker. Direct protests appear in the minutes of H. E. O. D. Superintendents' meetings from this period, as well.

²⁴James Griffith, Correspondence and Filing, Instruction Paper, American School of Correspondence (Chicago, 1909), p. 7.

²⁵Monagan files, Scovill collection. I inventory these files in "The Development of Internal Correspondence in American business: A Case Study," Proceedings, 1982 ABCA International Convention, pp. 167-168.

²⁶I describe this change and its effects in "From Press Book and Pigeonhole to Vertical Filing: Revolution in Storage and Access for Correspondence," Journal of Business Communication 19 (Summer 1982), 5-26. Schellenberg also discusses filing in Modern Archives, Chpt. 9.

²⁷For a discussion of this shift in Du Pont, see Chandler, Strategy and Structure, pp. 52-113. Elsewhere in the book he discusses the whole issue of the multidivisional, decentralized structure.

²⁸I have discussed the evolving use of charts and graphs at Du Pont, culminating in the chart room itself, in "Graphs as a Tool of Communication, Analysis, and Control at Du Pont in the First Half of the Twentieth Century," submitted for publication, but available in draft form at the Bentley Historical Library.

²⁹My comments here apply primarily to independent archival institutions, not to corporate archives, where circumstances may dictate other priorities.

³⁰Alfred Chandler referred to this growing historical emphasis on business structure and function in his talk to the Seminar on Modern Historical Documentation on July 27, 1983.

³¹See Paul Lewinson, "Archival Sampling," American Archivist 20 (October 1957), 291-312; and Frank Boles, "Sampling in Archives," American Archivist 44 (Spring 1981), 125-130, for discussions of sampling in archives. The two applications mentioned are in Robert W. Lovett, "The Appraisal of Older Business Records," American Archivist 15 (April 1952), 231-239; and Larry Steck and Francis Blouin, "Hannah Lay and Company: Sampling the Records of a Century of Lumbering in Michigan"

American Archivist 39 (Jan. 1976), 15-20.

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