



UNIVERSITY OF  
ILLINOIS LIBRARY  
AT URBANA-CHAMPAIGN  
BOOKSTACKS

Digitized by the Internet Archive  
in 2011 with funding from  
University of Illinois Urbana-Champaign

<http://www.archive.org/details/managementaccoun842silh>



330  
B385  
no. 826  
cop 2

20-129



# BEBR

FACULTY WORKING  
PAPER NO. 826

Government vs. Private Financing of the Railroad Industry  
*John F. Due*

JAN  
UNIVERSITY OF ILLINOIS  
AT URBANA-CHAMPAIGN

LIBRARY U. OF I. URBANA-CHAMPAIGN

College of Commerce and Business Administration  
Bureau of Economic and Business Research  
University of Illinois, Urbana-Champaign



12385  
no. 842  
copy 2



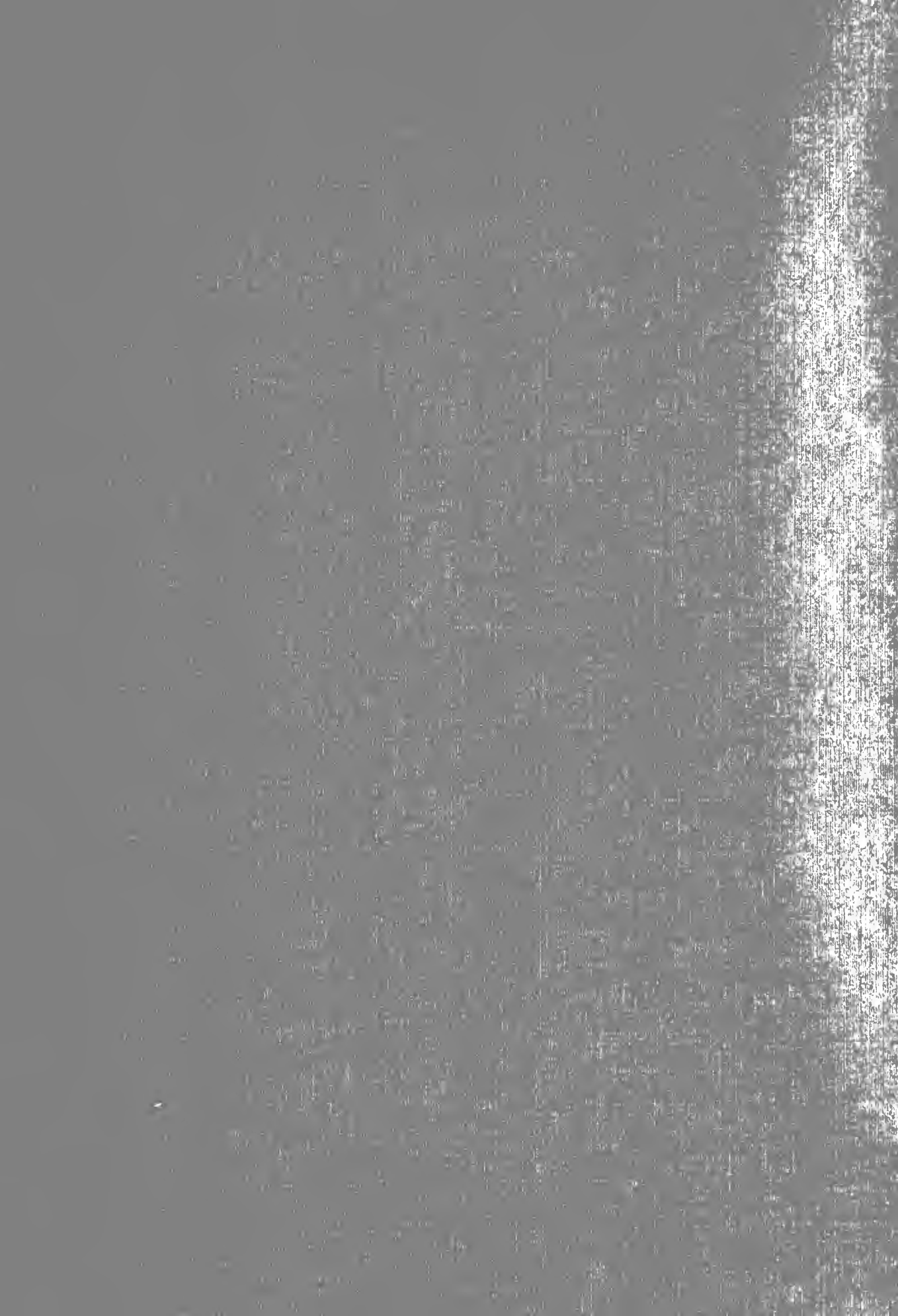
# BEBR

FACULTY WORKING  
PAPER NO. 842

THE LIBRARY OF THE  
UNIVERSITY OF ILLINOIS  
AT URBANA-CHAMPAIGN  
MAR 01 1982

Management Accounting is Research  
*Peter A. Silhan*

College of Commerce and Business Administration  
Bureau of Economic and Business Research  
University of Illinois, Urbana-Champaign





# **BEBR**

FACULTY WORKING PAPER NO. 842

College of Commerce and Business Administration

University of Illinois at Urbana-Champaign

January 1982

Management Accounting Is Research

Peter A. Silhan, Assistant Professor  
Department of Accountancy



## Abstract\*

As a decision science, management accounting provides information for management decisions. To view management accounting as research provides insight into the nature of these decision support activities. It is interesting to find academics and practitioners at odds over the role of research in management accounting, especially when both groups routinely engage in various types of research.

\*To be classified in the General category.



## Management Accounting Is Research

It is interesting to find academics and practitioners at odds over the proper role of research in management accounting, especially when both groups routinely engage in various types of research. As a decision science, management accounting is designed to provide financial information for management decisions. It is distinguished from other areas of accounting by its emphasis on the decision-making aspects of internal accounting information.

Unfortunately, various applications-oriented descriptions of management accounting often fail to capture the essence of these decision support activities. When asked to describe what the management accountant actually does, one is sometimes pressed for an answer. While the management accountant could be described very simply as one who accounts, this would naturally be of no help to those unfamiliar with the diverse activities of accounting. Moreover, it would fail to highlight the fact that management accounting is a process by which accountants perform research for managers. In essence, then, management accounting is research.

### A Process-Oriented View

To view management accounting as research provides insight into the nature of these support activities. Instead of focusing on decisions and decision models, which represent applications of financial information, we focus on the knowledge-generating aspects of the process. This could help unify the diverse activities of management accounting under a single framework. It would avoid some of the problems of frameworks that are applications-oriented. Given the wide variety of applications, it is not surprising that applications-oriented frameworks provide little opportunity for unifying the discipline. In a way, a process-oriented view of management accounting would parallel the process-oriented view of management that appears in the management literature.<sup>1</sup>

### The Elements of Research

In many ways, research is formalized common sense, and scientific inquiry has both formal and informal aspects. Since certain aspects can be controlled while others cannot, there are gradations of inquiry.<sup>2</sup>

Because scientific inquiry generates knowledge, it could be referred to as knowledge work in its generic form. The tools of the process range from mathematical symbols to computers,

microscopes, thermometers, and other instruments. By this same definition, tools of the management accountant include ledgers and subledgers.

On another level, techniques are ways of using tools. They are courses of action by which scientific objectives can be accomplished. In contrast, methods represent ways in which techniques are selected. They are the rules of choice whereas techniques are the choices themselves. In accounting, for instance, we could view criteria for selecting a sampling plan as method, while viewing the sampling plan itself as technique.

Interestingly, if asked what the scientist does, one would also be pressed for an answer. Perhaps, paralleling our accounting reply, we might answer rather simply that the scientist is one who conducts science. Again, this would reflect the diversity inherent in such activities, since research involves a variety of approaches in a variety of situations.

### Research Categories

Researchers obtain information in order to define and solve various problems. In essence, research is problem solving. While academics usually engage in pure research, practitioners usually engage in applied research. The process, however, is basically the same for both groups--only the objectives differ.

Pure Research. Activities which generate knowledge for its own sake are often characterized as pure research. This research is conducted for the sake of science without immediately considering practical applications. While the results of such activities are not expected to be useful outside the domain of science, they often become useful later as nonscientific applications.

In general, academics conduct pure research which tends to be more abstract and less problem-oriented than applied research, but such research often evolves from observing various aspects of the environment. Pure research does not always precede applied research. Practical problems sometimes generate interest in finding better solutions to general problems.

Applied Research. Activities which generate knowledge for solving specific problems are characterized as applied research. While pure research tends to answer questions, applied research tends to solve problems. Intentions of the researcher must be considered in distinguishing between pure and applied research. Applied research in one context could very well be pure research in another. This distinction, however, is often difficult to make because pure research and applied research represent ranges on a scale.



### The Research Process

Research is conducted to identify, investigate, and solve various problems. Since the essence of management and management accounting is problem solving, an understanding of research activities can provide new insights into the nature of managing and accounting. This relationship is depicted in Figure 1.

Regardless of context, the research process remains basically the same. It begins by determining and defining the problem. Here the researcher relies on past experiences and previous observations to isolate problems needing attention. This involves analyzing the environment with some objective in mind. Each problem is formulated in terms of finding a course of action that yields an outcome perceived as most favorable in light of the research objectives.

Formulating the problem, however, is not always straightforward. Complications can occur. Conflicting objectives could affect the same problem; the number of action-outcome combinations may be large; the decision might be made by a diverse group of individuals; the decision might be implemented by others or affect others who, in turn, affect the efficiency of the decision. Such complications would make defining a problem very difficult. Furthermore, they could influence the overall research effort, since

problem definition in many cases is crucial to effective research. Even so, this step is often underestimated and given too little attention.

After the problem has been formulated, alternative hypotheses are identified and quantified. Each problem is then modeled so that alternatives can be evaluated. These alternatives are compared within a framework incorporating the decision criteria of the researcher.

Next, the researcher selects the alternative deemed best. An obvious choice, however, may not always be revealed when using a formal model. If leading alternatives are close, the decision may actually depend heavily on subjective criteria.

On selecting the best alternative, the researcher applies and tests the derived solution. If the results are satisfactory, given the predicted results, the selected alternative is retained. If not, the process continues by reformulating the problem and devising new alternatives. In effect, then, research is an iterative process that continues to formulate, test, and evaluate competing hypotheses which represent alternative courses of action. This process is depicted in Figure 2.

### Scientific Management

Research activities help guide an organization to success. Researchers, who generate corporate knowledge, support managers

and contribute to scientific management, an approach to managing that views problems and solutions in terms of quantifiable inputs and outputs. The purpose of this approach is to structure decisions in a way that promotes consistent and effective goal attainment. Since management accounting provides quantitative information for management decisions, it is linked to this management approach. The process of gathering and presenting accounting information is derived from many of the decision-making activities of the firm. This process is depicted in Figure 2.

Because scientific management parallels the research process, the first step is to analyze the environment. At this point, existing knowledge is used to establish corporate objectives. Setting goals, however, involves more than fact finding, and considerable judgment is required. Managers must decide, in general terms, where the organization should be heading. In the process, they should ask questions about what the questions should be.<sup>3</sup> This questioning is crucial to the success of any organization, since management perspectives and objectives are reflected in the way problems are perceived. Setting corporate goals involves learning from the past and understanding the present. After objectives are identified, decisions to gather data can be made. Although objectives are sometimes very difficult to identify, they

must be identified in some manner before scientific management can proceed to identify appropriate actions. Broad objectives provide general guidance for choosing and solving business problems.

Next, the problem is defined in terms of specific objectives. Using knowledge generated from the environment, the decision maker selects potential problem areas. These are investigated further until specific problems have been defined in terms of inputs and outputs. Decision inputs are variables affecting the outcome. Within this framework, both financial and nonfinancial aspects of the problem are discussed so that data can be collected and analyzed with respect to the defined problem and its potential solution.

Each problem, then, should be stated in terms of basic inputs and a desired objective. In addition, the outcome must entail a course of action that is not obvious. Problems arise only when several close alternatives need to be evaluated. In this vein, certain government mandated actions would be problematic only if they were accomplishable in a variety of ways.

After the problem has been formulated, a decision model is developed to assist the manager. Decision models are representations of systems that can be used to evaluate alternatives. They represent various states, objects, and events that are related to

the objectives of the decision maker. Different aspects of reality are reflected in such models. They help explain the past, predict the future, and control the present.

Because models are simplified representations of reality, model building involves more than technical ability. Besides technique, the task of transforming perceptions into a model involves judgment. Insights into the nature of a problem are needed to abstract from reality. Intuition augments technique.

Since decision models vary in complexity and detail, it is important to strike a balance between realism and manageability. Models having too many variables can become unmanageable. Moreover, the solutions derived from such models may become very difficult to implement. Simplicity and parsimony are important design considerations.

In general, the amount of analysis needed to build a model is related to its manageability. Therefore, the model building process should be carefully planned to avoid unnecessary complications. All participants in the decision process should be involved in some way with model building. In this way, the goals of the organization can be reflected properly in the criteria used to evaluate alternative actions.

The components of a decision model depend on context. In some cases, the model may be highly specified, reflecting a

problem that is highly quantifiable. In others, it may have few components, reflecting a problem that is highly subjective. In all cases, though, the model never decides. It simply provides additional, perhaps convincing, evidence.

The decision maker should be aware of the limitations of each decision model so that decision quality can be improved. Since models reflect somewhat idealized conditions, divergences from such conditions should be noted. To accomplish this, sensitivity analysis might be used to assess the effects of varied conditions on alternative solutions. Models that are robust with respect to such variations could be considered more reliable than models that are less robust. In cases where the model is overly sensitive to estimates of functions, parameters, and constraints, the decision maker might want to rely more heavily on alternative sources of information. In such cases, the qualitative aspects of the decision are stressed.

Once the model has been specified, data can be gathered to derive the solution to the problem. The decision maker then chooses an action set offering the most desirable outcome.

Next, the decision maker implements the decision and observes the events associated with it. Feedback may be used to reanalyze the environment, redefine the problem, and reapply a decision

model if necessary. Similar to the research process, the management process is iterative and involves adjustments as events take place and the environment changes.

### Management Accounting

Management accounting provides information for management decisions. While it is linked to the management process, it, as a problem-solving process, also has a cycle of its own. Accountants select and evaluate accounting alternatives in much the same way that managers select and evaluate other alternatives. Figure 2 depicts the relationship between the management process and the accounting process. It shows that these processes parallel the research process in general.

The relationship between scientific management, which represents a structured approach to decision making, and management accounting is one of interdependence. Managers cannot formulate complex problems without having baseline financial data. These data are provided by the accounting subsystem. On the other hand, management accountants cannot provide baseline data without a thorough understanding of the decision environment. Accounting decisions involve inputs from other subsystems of the organization.

The first step in the management accounting process is to review the financial situation of the organization. At this

point, previous results are reviewed and other information from nonaccounting sources is analyzed. The purpose of this review is to develop a financial perspective of the environment. This perspective naturally entails nonfinancial aspects as well. These eventually could have an impact on the financial condition of the firm. Managers use this understanding to help formulate problems requiring corporate action.

Next, the management accountant receives information more specific to the problem. Using insights gained from analyzing the environment, the accountant plans to gather data relating to the defined problem. Since needed data may not be available currently, a decision to collect new data might be necessary.

The financial implications of problems can serve as initial screening criteria. Alternatives not meeting certain financial criteria would be excluded from further consideration, while alternatives meeting such criteria would be investigated further. As Figure 2 indicates, the management activities of defining the problem and applying the decision model run parallel to the accounting activities of determining financial implications. The objectives of management accounting generally coincide with the objectives of scientific management. The financial aspects of problems usually affect the way that problems are screened.



Problems are sometimes redefined as financial data are gathered. Decision models not only provide guidance for data gathering, but data gathering also provides guidance for model building. This is why management accountants participate in decision modeling.

After management selects a course of action the accountant prepares a corresponding budget. The budget represents the financial implications of the chosen set of actions. It provides guidance to those implementing the decision and is a means of evaluating corporate performance.

Finally, the management accounting process becomes involved in measuring the financial consequences of the events affecting the firm, including events that were not the result of corporate actions. In this regard, responsibility reporting would be instrumental in partitioning the results of the firm into controllable and noncontrollable events. As results are determined they are reported to management and become part of the financial history of the firm. These reports, in various ways, are used to reevaluate the financial condition of the firm. They are then used to reanalyze the decision environment and reformulate problems.

Both the management process and the management accounting process represent iterative processes. Problems are determined and

solved on a continuous basis. Management accounting is also a research process, since it, too, involves a search for solutions to corporate problems.

### Effective Planning and Control

Research activities, including management accounting, contribute to corporate success by enhancing the planning and control process. Effective planning and control require knowledge beyond casual observation. Searching for corporate improvements involves more than product and process developments; organizing factors of production involves more than intuition. Research activities thus provide essential planning and control information.

Pure and applied research can mean the difference between success and failure. Corporate knowledge first affects the planning process, but it also affects the control process. Knowledge-generating processes enhance planning and control. Added knowledge helps facilitate revisions to plans and corrections to actions. Accounting systems are an important source of corporate knowledge.

### Pure and Applied Accounting Research

As researchers, management accountants are always searching for better ways to generate and present financial information to

managers. Such activities represent, for the most part, applied research. While the purposes of management accounting are pragmatic, and the essence of these activities is problem solving, there are elements of pure research represented as well.

Academics in management accounting search for improved approaches to scientific management. Attempts to integrate the decision sciences with accounting are part of this searching. Practitioners, however, also engage in pure research. Understanding the accounting environment entails more than understanding immediate problems. Adaptive organizations routinely scan the environment for new opportunities.

In summary, the management accountant should be aware of the results of both pure and applied accounting research. On a daily basis, the accountant should view management accounting as research.

Footnotes

<sup>1</sup>See, for example, Miner, J. B. The Management Process, Macmillan, New York, 1978.

<sup>2</sup>See Ackoff, R. L., Scientific Method, John Wiley, New York, 1962, for a thorough discussion of scientific inquiry and the research process.

<sup>3</sup>Drucker, Peter F., Management, Harper & Row, New York, 1974, pp. 465-480.

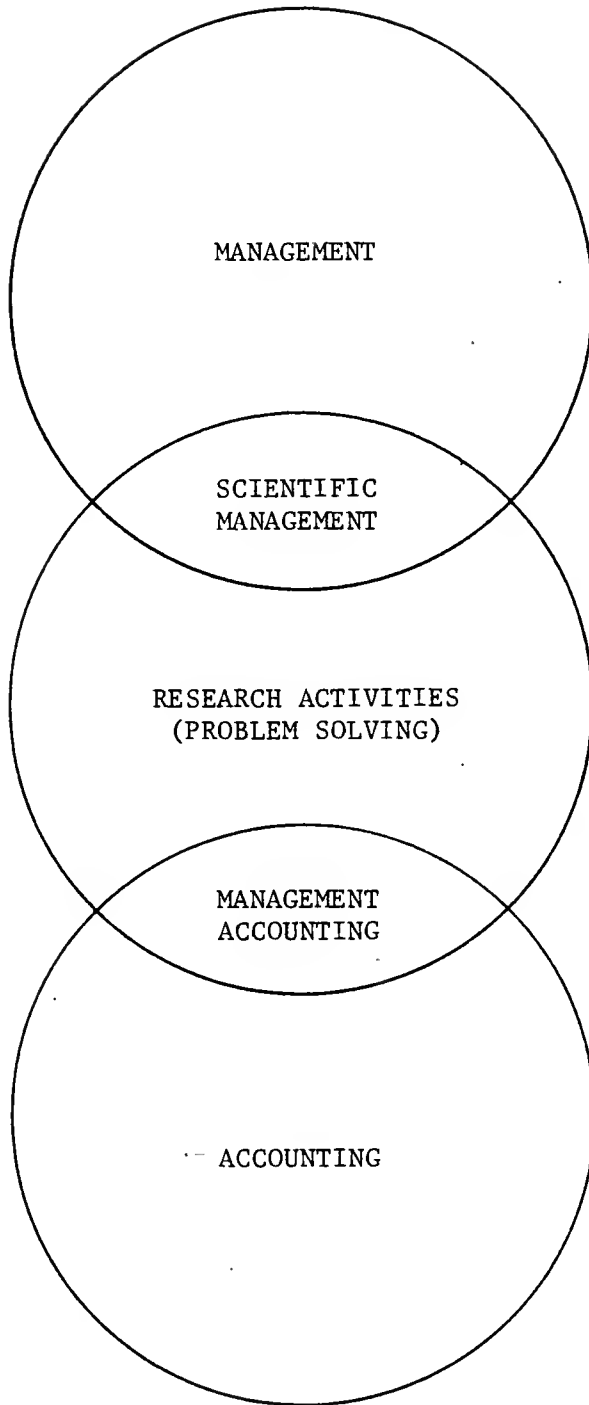


Figure 1

PROBLEM-SOLVING PROCESSES

RESEARCH

SCIENTIFIC  
MANAGEMENT

MANAGEMENT  
ACCOUNTING

P  
L  
A  
N  
N  
I  
N  
G

C  
O  
N  
T  
R  
O  
L

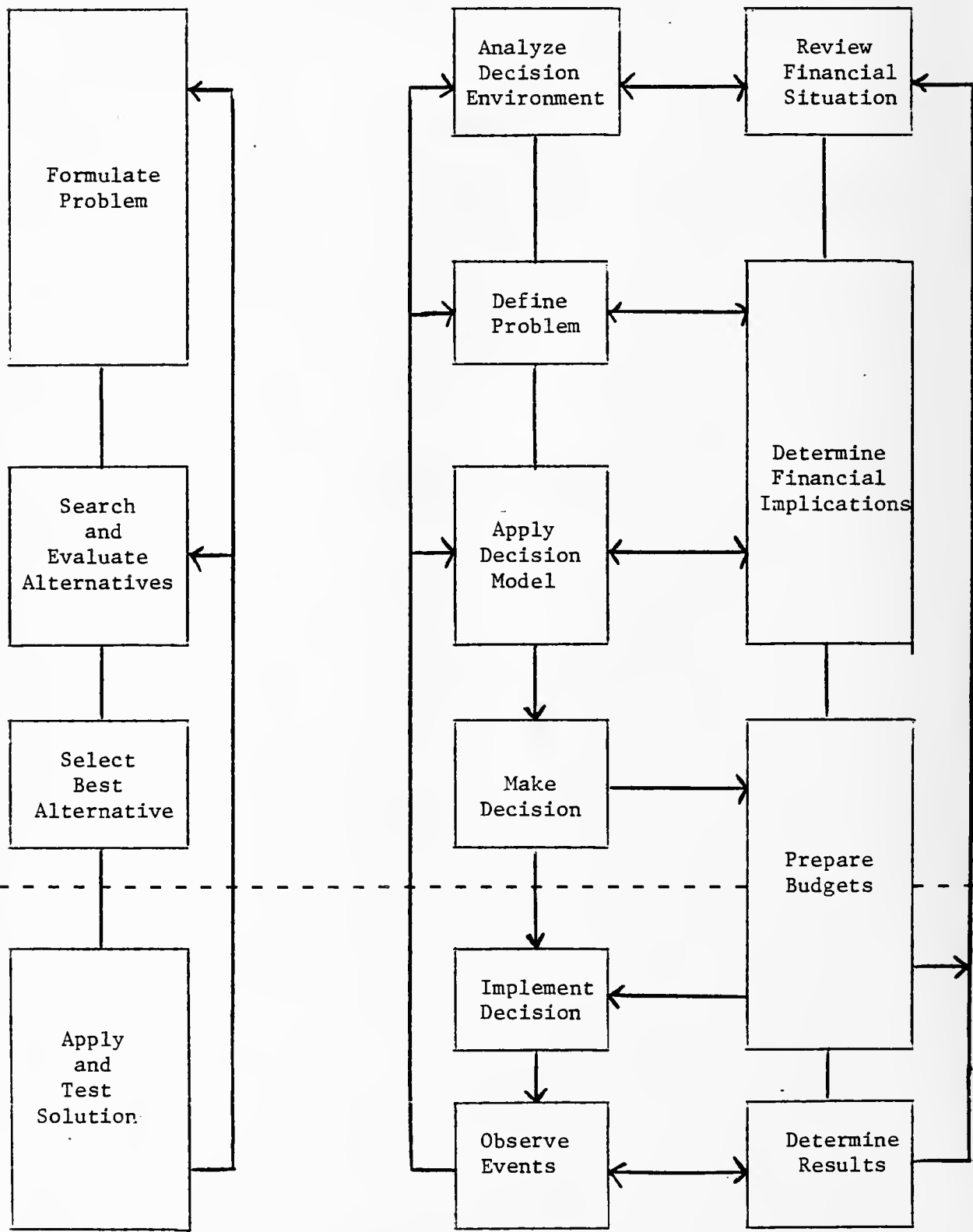
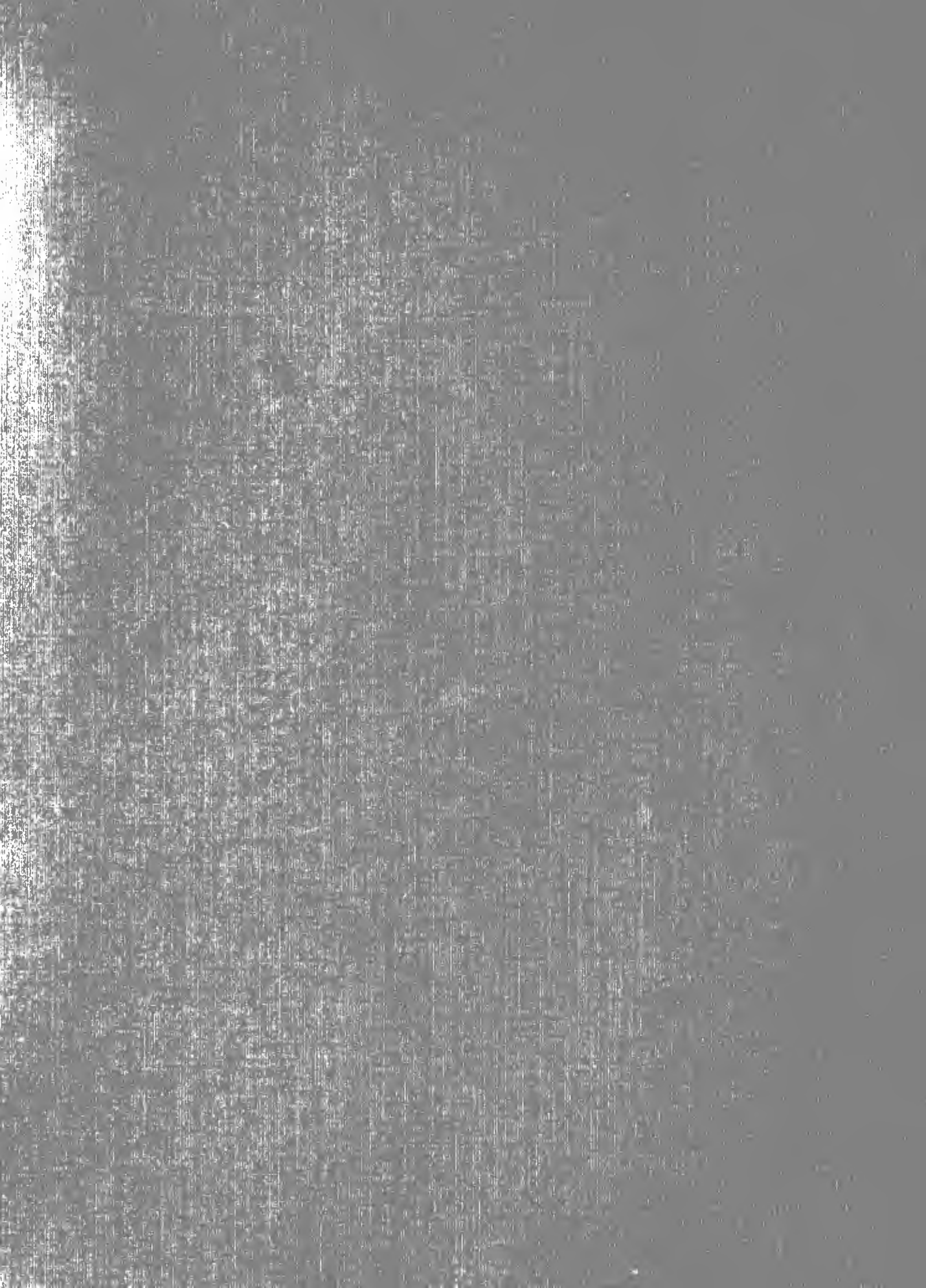
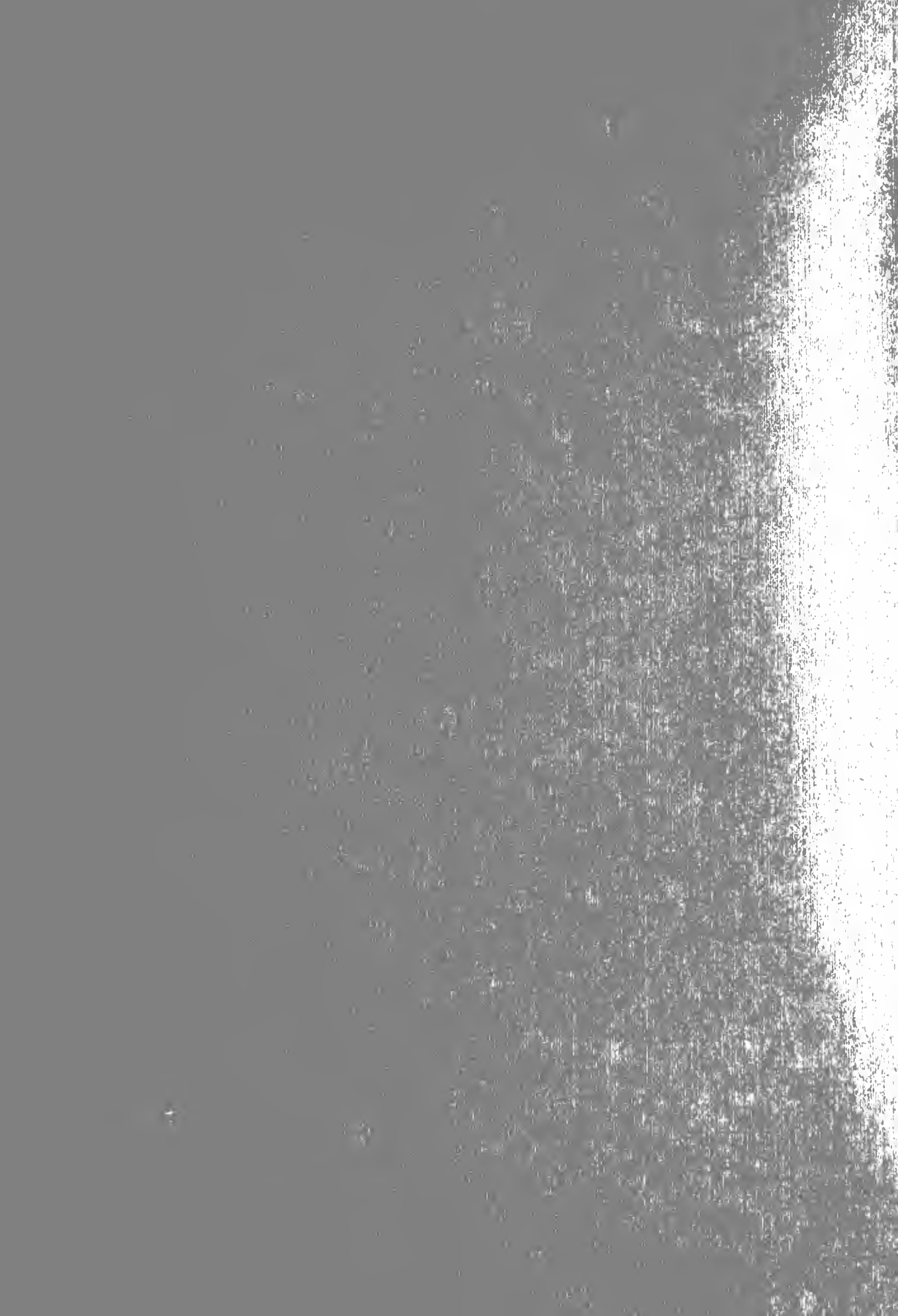


Figure 2











HECKMAN  
INDERY INC.



**JUN 95**

nd -to -Pitts.® N. MANCHESTER,  
INDIANA 46962

UNIVERSITY OF ILLINOIS-URBANA



3 0112 060296180