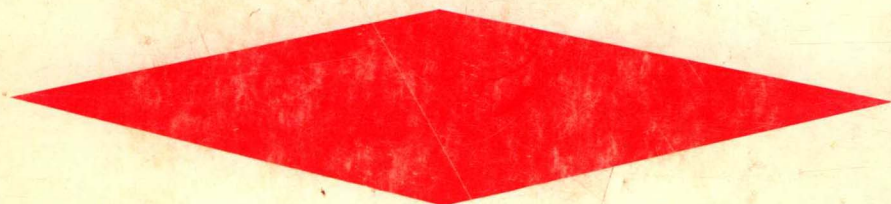



ELEMENTS OF ACCIDENT INVESTIGATION



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Los Angeles, California*



This book provides the basic knowledge necessary to carry out any type of accident investigation from initiation to completion, including the writing of final reports. Intended for anyone who may at some time be faced with investigating an accident, the book focuses on basic concepts, fundamental principles, and elementary and intermediate techniques of investigation. Intentionally non-technical and reasonably brief, it allows the novice investigator to be easily prepared while enabling the experienced investigator to make simple reference to the subjects which will aid him in his work. This unique text fills a long-standing gap in the safety literature.

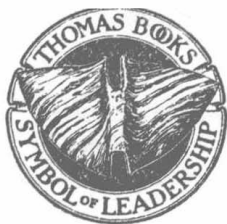
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By

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**ELEMENTS OF
ACCIDENT INVESTIGATION**

PREFACE

THIS BOOK IS a result of two situations:

1. At the time of its conception, no text was available from which to teach general accident investigation. Available investigation texts specialized in traffic, aircraft, or some other area, and investigative techniques had to be gleaned from a great variety of sources.

The chapters or sections on accident investigation in different safety texts were by necessity superficial, dealing only with a broad subject.

2. The majority of accident investigations in business, industry, and government are carried out by parties who do not possess investigation expertise. This book is intended for the occasional accident investigator who must quickly assume his duties with a minimum of preparation.

It is recognized that accident investigation is a skill involving the interaction of many disciplines. For those with that skill, backed up by investigative experience, the several highly specialized texts or schools are recommended for further enlightenment.

T. S. F.

INTRODUCTION

THE PURPOSE OF the book is to provide a basic knowledge of accident investigation—to furnish enough information to carry out an accident investigation from initial actions to the completed report.

The book is purposely kept brief and general. It is intended for the person who may suddenly be tasked with being the sole investigator of an accident or with being the member of an investigative body (board, group, inquiry committee).

The basic concepts, fundamental principles, and elementary and intermediate techniques are furnished. Advanced investigation is a subject beyond the scope of this text.

The professional investigator will supplement this book with detailed information that applies to his speciality.

Chapters cover material generally and could become specialized books in themselves. An entire book could be written on many of the subjects discussed in only a paragraph.

The book will furnish, in an evening's reading, the knowledge needed to proceed on an accident investigation without in-depth expertise. The investigator, quite often a busy supervisor, is sometimes tasked with going quickly to an accident scene and proceeding with the investigation. The book will be available to check action taken and to assist in planning further activity.

A staff member or intermediate manager will usually review investigation activities. The book will enable that person to methodically review the investigation for appropriate action, determine completeness of the accident report, and suggest further avenues of investigation. It will serve as a guide to corrective action and follow-through.

For the experienced investigator, the book will serve as a review of principles and a checklist of his actions.

As a basic text, the book has valuable use for schools and agencies teaching specialized accident investigation. Serious accidents, by virtue of their consequences, require detailed and in-depth pursuit beyond the scope of this book. This is not to say that lesser accidents deserve less attention, only that the financial, managerial, and legal consequences of a serious accident often mandate in-depth investigation beyond the practical limitations of more common accidents.

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T. S. F.

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**ELEMENTS OF
ACCIDENT INVESTIGATION**

Chapter I

THE NEED FOR ACCIDENT INVESTIGATION

Purpose of Accident Investigation

ACCIDENT INVESTIGATION is a key to the prevention of future accidents. Every accident cause factor uncovered in an investigation should be corrected if feasible.

Accident investigation is sometimes divided into two main types: that type used for prevention purposes and the remaining category for all other purposes. The first type is for prevention of future accidents. The second would cover all other reasons, including property damage assessment, liability determination, establishment of responsibility, enforcement actions, and insurance and claims information. These second types are sometimes lumped together as collateral investigations, inferring a legal basis. This book does not make a distinction between investigation for prevention or collateral reasons.

Costs

Nearly all of our resources have some value. Most are subject to accidental loss. As humans, our lives, limbs, and processes are all subject to accidental loss. Our homes, businesses, farmlands, mines, trees, and industries are subject to accidental loss. Material possessions such as machines, cars, trucks, and household goods are also subject to loss by accident.

Accidents are costly and result in higher production

expenses and less income. There is no return for the money spent on accidents. Even when the insurance takes care of accidental losses, the organization pays for it through higher insurance rates. The hidden or indirect costs of accidents can easily be several times the amount of the direct costs. For example, an unattended fork lift truck can run off the end of a loading dock without anyone being injured. However, there can be many indirect costs, such as the costs involved with repairing the truck, the costs of disruption of loading and unloading, and the delay in filling orders or in getting raw materials to the production line. While there is no lost time due to injury, possibly thousands of dollars or hundreds of hours are lost because of the accident.

When an auto on a busy highway in the morning for some reason swerves into a telephone pole, the direct cost may be quite small; damage to a fender and bumper and perhaps even damage to the pole itself. The driver, however, may go to the hospital, and traffic can be backed up for miles. The indirect costs of such a mishap can far exceed the cost of repairing the car (\$350) and the cost of the pole (\$300). Consider the following:

- Cost of going to the hospital for emergency treatment
- Cost of hospital treatment itself
- Cost of ambulance
- Lost work time of the driver
- Lost wages of the driver
- Cost of police direction and investigation
- Cost of insurance investigation and claim payments, etc.
- Broken appointments and late deliveries

The factors that could be included in the true cost of accidents are endless.

Efficiency

Accidents not only reduce operational efficiency but infer,

since operations are interrupted, that something is wrong with the way the business is conducted. The day of reckoning comes when the accident report is filled out and the investigator finds that management could have prevented the accident through better operation. This contribution to more efficient operation is one of the most beneficial contributions the investigator can make.

Morale

Accidents are demoralizing. When an accident happens, everyone gets nervous, distracted, even fearful. It affects the confidence and performance of the employees. Production suffers, and there are likely to be more accidents.

Public Opinion

Various public groups may become concerned, alarmed, even antagonistic.

What Is to Be Investigated?

Obviously, serious injuries and death are cases for investigation. The near-accident or incident may be just as important from the causation viewpoint and should be investigated where resources permit. An additional reason for investigating near-accidents is that they indicate something wrong with the system that needs correcting. The investigation would bring out these problems. Thorough investigation will bring out contributory causes of supervision and management as well. It is imperative that the investigator(s) feel free to pinpoint all contributions to an accident or incident.

A rash of minor injuries or seemingly insignificant incidents may also provide an indication of the possibility of more serious accidents. Quick action on the incidents may prevent the serious occurrence.

Who Investigates Accidents?

In a broad sense, everyone needs to have an understanding of accident investigation. The housewife, burned at the kitchen stove, needs to avoid getting burned again. The production supervisor whose production line is shut down by an accident, the businessman who finds workmen's compensation costs soaring, or the industrialist who finds that legal suits over the safety of his product is threatening ruin; there is hardly a person who in some way does not have an interest in accident investigation and keeping accidents from being repeated. Most people can solve their accident investigation problems with common sense or through study of the misfortune of others. Many people will investigate accidents as a function of their job.

The Supervisor/Foreman

The supervisor/foreman is the person who most often investigates accidents and makes reports. Both duties take considerable time but are not generally planned or accounted for in the supervisor/foreman's schedule. The time he must spend on investigation and reporting is taken away from "production" time. Therefore, production suffers.

The supervisor/foreman has a special and personal interest in every accident in his department. This is true whether he investigates or not and whether or not there is injury. His people are involved, and his reputation is on the line. He needs to know the reason for the accident to prevent recurrence and to ensure efficient operations. He can probably communicate most effectively with his workers. Very importantly, he can take the most immediate action to prevent recurrence.

The Safety Professional

A representative of the safety department nearly always verifies the findings of the supervisor or foreman and should also investigate every important accident for his own infor-

mation. In an important accident, he may make the investigation instead of the supervisor/foreman. He has special analytical skills and experience that enable him to make a more thorough investigation and analysis than the supervisor/foreman. He ordinarily has no special interest in the accident and can assess facts and information free from bias or prejudice. His main interest is to prevent other accidents.

Special Investigative Committees

Committees are often used on serious accidents and are particularly important where fellow workers or supervisory aspects enter into the accident causes. Committees composed of fellow workers sometimes find that the worker did commit an unsafe act, and when the fact is publicized, it is likely to receive a better reception than if an outside party made the finding. This procedure has the disadvantage of taking workers away from their work and of placing fellow workers on the spot. Some feel that the committee system forces them to do an unpleasant task.

General Safety Committees

Sometimes accident investigation is the task of the general safety committee in a smaller organization. It has several advantages. One advantage is that the committee may be of several months' standing, a situation which lends itself to preparatory training in investigation that can be used when the time comes.

Government Agencies

Sometimes an accident has legal or regulatory aspects that will require consultation with or investigation by federal, state, or local agencies. Examples would be accidents involving the jurisdiction of OSHA agencies, Bureau of Mines, or the Coast Guard.

Other Investigators

The possibilities of other accident investigation partici-

pants are endless; representatives of the insurance carrier or labor unions are frequent possibilities. The investigator should not overlook the possibility of expert assistance within the resources of his own organization. To name only a few, these include the health and medical specialists, engineering personnel, management experts, the safety department, organizational laboratories, fleet supervisor, security, legal departments, and fire and training personnel. All can provide valuable assistance in completing an investigation.