TRAFFIC ACCIDENT INVESTIGATION AND PHYSICAL EVIDENCE

Mature investigative intelligence demands the ability to think and reason; to effectively utilize and expand upon a little knowledge as opposed to the improbable task of endeavoring to memorize, thus limiting ability to remembrance.

TRAFFIC ACCIDENT INVESTIGATION AND PHYSICAL EVIDENCE

By

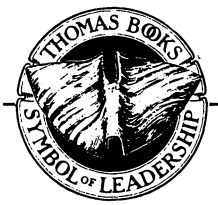
D. R. McGREW

Certified Legal Investigator
National Director
National Association of Legal Investigators

With a Foreword By

Anthony M. Golec

Past National Director
National Association of Legal Investigators



CHARLES C THOMAS • PUBLISHER
Springfield • Illinois • U.S.A.

Published and Distributed Throughout the World by
CHARLES C THOMAS • PUBLISHER
Bannerstone House
301-327 East Lawrence Avenue, Springfield, Illinois, U.S.A.

ISBN 0-398-03503-2

Library of Congress Catalog Card Number: 75-23254

With THOMAS BOOKS *careful attention is given to all details of manufacturing and design. It is the Publisher's desire to present books that are satisfactory as to their physical qualities and artistic possibilities and appropriate for their particular use.* THOMAS BOOKS *will be true to those laws of quality that assure a good name and good will.*

Printed in the United States of America
R

Library of Congress Cataloging in Publication Data

McGrew, D R
Traffic accident investigation and physical evidence

Bibliography: p.
Includes index.
1. Traffic accident investigation. I. Title.
HV8079.55.M33 363.2'33 75-23254
ISBN 0-398-03503-2

To all of those who have helped along the way, over many years.

To those who encouraged, taught, and were patient, especially:

Clifford E. Reedy
James K. Goode
Harold T. McCabe

To the NATIONAL ASSOCIATION OF LEGAL INVESTIGATORS for demanding one's best efforts.

To Dr. G. O. Arvin, an educator in the truest sense.

FOREWORD

AN often critical problem facing the traffic accident investigator is the physical evidence produced by the collision of a motor vehicle with a person, another vehicle, or object and by the events leading up to and resulting from such a collision. The problem centers around just what this physical evidence is, what to do with it, and what it can tell the investigator.

This physical evidence can be either something that astounds and perplexes the investigator or a very important tool in determining exactly what did happen and fixing liability for the occurrence. This book is intended to transform the physical evidence left by a traffic accident into such a tool for the accident investigator and to make him keenly aware of the importance of physical evidence in traffic accident investigation. It is the result of the author's many years of experience and research as both an insurance investigator and a legal investigator and his investigation of thousands of traffic accidents, in which his function has been determination of liability for the accident.

This manual fills the need that has long existed for a comprehensive and usable text on what to do with physical evidence resulting from traffic accidents; it will be a great help to investigators who are not engineers and have little or no background in engineering. It is an authoritative and easily understood text written by a very knowledgeable and experienced investigator who has been chosen by his colleagues to head their professional association. With it, he has provided a genuine service to them by giving them a valuable tool with which to effectively sort out the aftermath of what can often be a very confusing occurrence.

Anthony M. Golec, C.L.I.

INTRODUCTION

WHAT IS IT. A comprehensive training manual, reference guide, and checklist compiled and written by an investigator for investigators. It is an educational tool in the areas discussed; a concise, easily digested work directed at supplying the reader with awareness, concept, and direction. What should be obvious is purposely excluded in the interest of brevity and to stimulate thought.

WHO IS THIS BOOK FOR. Police officers, attorneys, adjustors, legal investigators, legal assistants, fleet managers, safety and traffic engineers, and teachers — any person who is more than casually concerned with traffic accidents.

The police officer, faced with adverse weather and traffic conditions, emergency duties at the scene, and whose duties and departmental instructions may not embrace making an in-depth investigation, becomes more efficient when he can readily recognize what is or is not significant and why. This enables the officer to make causal determinations and issue citations in minimal time.

Police traffic accident reports in conjunction with insurance company statistics are, frequently, the basis for traffic safety engineering changes, revised legislation, drivers education, and safer vehicles. These are good reasons for application of the best possible analysis concerning every auto accident. Side benefits include the following:

1. Better service to the taxpayer.
2. The officer will be called to testify less often. Well-investigated accidents are less prone to end in litigation.
3. When testimony in court is required, the accurate report and evaluation will be subjected to less cross-examination.
4. A higher rate of convictions on traffic violations.

The police officer has an opportunity for almost immediate evaluation of an occurrence by viewing vehicles and debris before they have been moved or further damaged and by interviewing the parties involved before excuses and substitute facts are invented.

The competent officer, besides the obvious opportunity for advancement, enjoys the opportunity or responsibility of being instrumental in prompt recompense to the deserving parties.

The attorney must be able to advise and direct his investigator and evaluate and recognize the significance of photographs, statements, and physical

evidence. Also, he must be prepared to evaluate liability, formulate interrogatories, take depositions, and challenge allegations from the adversary. Only when all possible detail is known is the most advantageous disposition effected.

Adjustors, claims examiners/agents, and legal investigators, generally regarded as the best-trained investigators, are charged with the awesome responsibility of accumulating and evaluating all possible evidence, and on the basis of this evidence, they must reach a decision frequently having profound financial and personal effect on the parties involved.

To the average lay person an auto accident means dented sheet metal, repair bills, possibly an injury or death, traffic tie-up, sirens, inconvenience, red tape, and grist for the news media.

For the investigator, questions are numerous. Answers do not come easily, for obscure detail, short-lived evidence, and conflicting testimony are present. He cannot expect to be told what occurred, but if he is, he dare not rely totally on what he is told.

Questions immediately come to mind regarding: (1) the type of accident; (2) the exact time and place; (3) weather, traffic, and road conditions; (4) contributing factors; (5) proximate cause; (6) what was the moment of perception and what was the moment of possible perception of the hazard; (7) that point of no escape, the moment of commitment when nothing can then be done to avoid an accident; and (8) the result. Answers to these questions are not determined without training, awareness, and experience; but the answers for the trained investigator are there to be read like a book.

Expense factors usually preclude the services of a specialist or the accident reconstructionist as practical only in the most serious cases, those of high exposure and large recovery potential. It is to be stressed most strongly that a large percentage of guesswork and assumptions can be eliminated by a competent investigator. *Cases can be won* through the work of a trained investigator. The following examples serve to make this point.

Example 1

A six-year-old male, going home from school, darted into the street from the sidewalk, a distance of twenty feet, into the right front fender of a passing northbound passenger car, at a point three feet to the rear of the right front headlight. Seven adult eyewitnesses were firm in their statements that, "it was all the fault of the child; the lady driver was not going in excess of ten miles per hour and stopped almost immediately." But, on both sides of the street children on the walks were numerous. The street was posted as a school zone, and the school building itself was in plain view about 300 feet north of where the driver pulled from the curb. The vehicle had started from the curb and driven northward to the point of collision, a distance of some

240 feet. During that period the child had walked south on the east sidewalk a distance of approximately thirty feet. This consumed a time of approximately sixteen to twenty seconds during which the child in question, as well as others, was in *plain view;* that is, there was no visual obstruction to the driver.

Tests made with a number of six-year-olds established the length of time for the child to dart twenty feet. This length of time was used to determine that the involved driver at ten miles per hour or fifteen feet per second, could perceive, react, and stop in a distance of twenty-two feet or at least five feet before reaching the child's path of travel. The driver was guilty of improper look out and inattention in, of all places, a school zone.

Example 2

Here, a head-on collision between two semitractor trailers on a two-lane, two-way highway with a sixty-five mile per hour speed zone occurred. Driver A was killed leaving a pregnant widow and five children, and driver B was confined to a wheelchair for life. A witness appeared at the trial (this, before the days of pretrial discovery in that state) stating that he had seen the accident from a corn field nearby, and that driver B was at fault. He turned the case. However, the only cultivated ground was one fourth of a mile west of the scene. Between the scene and the witness was a tree-covered hill totally obscuring any possible view.

The point to be made here is, of course, physical evidence. The witness could have been discredited.

Example 3

This example took place on a country, gravel road involving a Volkswagon on the wrong side of the road facing east with its left wheels at the shoulder, and a westbound Oldsmobile. Both Volkswagon occupants were killed; the driver of the Oldsmobile, the sole occupant, survived. There were no witnesses. Investigation was ordered *four years* after the accident in behalf of the driver of the Volkswagon. The collision, it was learned, occurred forty-five feet west of a hill crest, in daylight, with light snow falling. Both vehicles involved were long since junked and gone. The investigating state police officer had accurately measured and plotted the final resting position of each vehicle, located the point of collision, and identified a photographer who had been on the scene. These photographs verified the police officer's testimony.

The hill crest was plotted to determine visibility. It was established that the Volkswagon, at the point of collision, would be in view of the Oldsmobile driver for over one fourth of a mile east of the point of the collision. In

the photographs, slide marks were distinguished as well as some of the damage and metal displacement. Tracks left by the Volkswagon before, or west of the point of collision, gave no indication of sliding, severe braking, or evasive maneuvers but suggested a normal pull over and stop. The men in the Volkswagon had previously been hunting at a farm just west of the scene.

After this information was obtained a reconstructionist was consulted. He suggested the Volkswagon had been at a full stop, in plain view, and that the Oldsmobile was travelling between forty and forty-five miles per hour. The defense counsel, when confronted with this, effected settlement on the deceased driver's estate stating plaintiff's counsel had correct information. Because the reconstructionist was given something with which to work, the time he spent and his fee were minimal. The result was good.

Two of the above citations, actual cases, did not need a specialist or reconstructionist to arrive at factual accurate conclusions.

Physical evidence *will* serve to: (1) establish your case as either good, bad, or questionable; (2) give credibility to or discredit witnesses, plaintiff, or defendant; and (3) at least, establish a question of fact for the jury to decide.

D. R. McGrew

ILLUSTRATIONS

TABLES

CONTENTS

TRAFFIC ACCIDENT INVESTIGATION AND PHYSICAL EVIDENCE

CHAPTER 1

NUMERICAL PHYSICAL EVIDENCE

NUMERICAL physical evidence properly preserved, documented, and interpreted is the difference between positive knowledge and guesses, fact or fantasy, in some instances. The investigator who can read an accident scene, read a wrecked vehicle, properly photograph, measure, and diagram may quite substantially reduce the questions of what, why, where, and how. The range of probabilities can be greatly narrowed, many questions answered, and case disposition accomplished more advantageously, often in less time and at an ultimately smaller expense.

This material does not presume, or is it in any way intended, to make accident reconstructionists out of investigators. Reconstruction is the domain of the qualified engineer-physicist who is further trained and experienced in the field of accident reconstruction. However, proper application of this material by a competent investigator will provide the reconstructionist, when and if he is needed, the necessary numerical evidence with which to most fully utilize his abilities; this will allow the specialist to arrive at useful, accurate opinions in the narrowest possible range.

It falls to the well-trained investigator to find, document, and provide any and all available physical evidence and interpret and use this to the best of his ability. Then, if it becomes necessary, he should provide the reconstructionist or specialist with sufficient detail with which to work to the client's benefit.

The investigator cannot depend on the abilities of a supervisor, employer, attorney, specialist, or anyone to make something out of nothing or to compensate for a poor investigation. Too often, complaints are heard of having hired a specialist and paying him a substantial fee only to be disappointed in the generalities of the specialist's results or having *your* specialist, *paid by you,* testify adversely. There is a simple solution to this problem. *If the investigator has done the proper investigation,* he may well have determined the necessary answers without the need to consult a specialist; or the specialist, after a brief study of a competent investigation, may arrive at an "off the cuff" opinion as to whether or not he can serve your interests. This saves time, money, and possible embarrassment. Answers, as to speeds, distances, angles, position on the road, etc. whether arrived at by your own ability or by a specialist, will fall into a range either as narrow and precise or as broad and general as the information, evidence, and fact is obtained and usable.

Physical Evidence

Physical evidence (or the lack of) documented and preserved is paramount, assuming it is available. Physical evidence does not exaggerate, lie, die, move to another state, or become emotional. It is immutable and demonstrable. Photographs and measurements of tire marks, gouges, tracks, location, and identification of debris and liquids, vehicular damage, paint smears, ruptured brake lines, tire condition, *ad infinitum* supply answers.

CHAPTER 2

THE STARTING POINT AND GENERAL EQUIPMENT

THE starting point of a motor vehicle accident investigation is usually the scene. A thorough knowledge of the scene enables a better foundation for taking statements or depositions and then accurately evaluating the answers to these questions and determine witness credibility.

EQUIPMENT AT THE SCENE

Equipment should include the following:

(1) A reliable and accurate means of measuring is a 100-foot steel tape which will expand and contract no more than three fourths of an inch, or a measuring wheel.

(2) A ten-foot folding rule or steel tape for fine measurements and to use in conjunction with photographs is needed.

(3) A camera, preferably adjustable, of good enough quality to insure clear, sharp enlargements is also necessary.

(4) Auxiliary light is often needed even on sunny days to reduce the illusionary effect of shadow, to probe recesses, illuminate reflective signs, or to highlight texture in pavement. A good electronic flash is preferable to flash bulbs because the electronic flash has a vastly superior distance of illumination. It is more reliable and convenient and when using color film, gives truer color reproduction.

(5) A polarizing filter which will allow your camera to pick up markings on the road, especially tire marks, that are almost invisible to the naked eye, particularly when the sun produces pavement glare. The polarizing filter will also discern tire tracks on grass that are, here again, almost invisible to the naked eye. Polarized sun glasses, too, are an asset in examining the scene and revealing details glare might otherwise obscure. Almost any glare, except from bare metal, can be reduced, i.e. snow, water, etc.

(6) A pad of graph paper will allow you to make a rough diagram, to scale, record your measurements, and serve as a checklist to determine if anything has been missed while at the scene. It will also serve as a guide in the taking of statements to follow before completion of the final diagram, which may or may not be influenced by the further investigation.

(7) Chalk often helps to mark and highlight tire serial numbers, vehicle serial numbers, or to accent and locate marks at the scene for photographs.

(8) A tire tread depth gauge will determine if tread meets legal require-

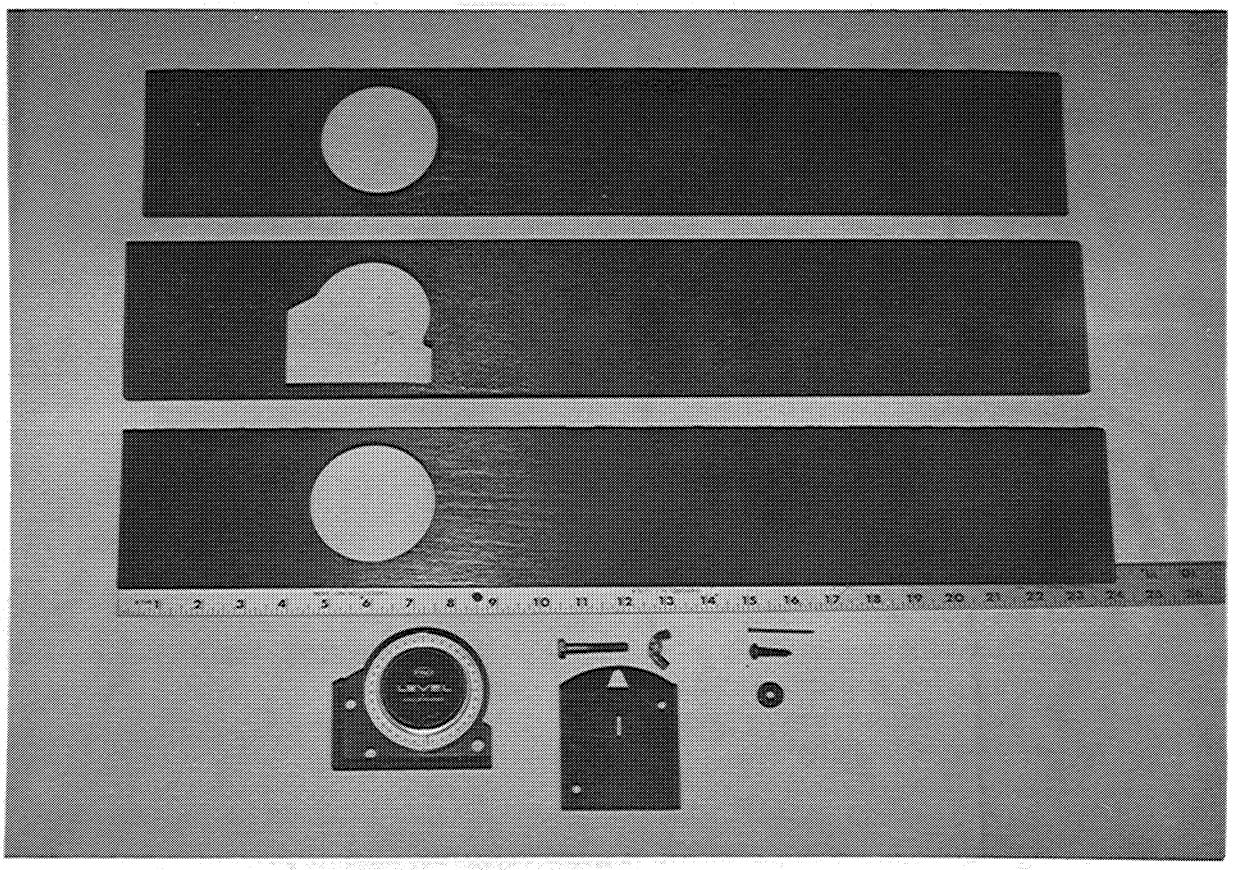


Figure 1. Making a Sighting Bar. An exploded photograph of identified material and parts is shown here. To give strength, prevent warping, and facilitate the making, three 4 X 24 inch (or 30 inch) lengths of wood were cut and laminated together. The center piece (5/8 inch thick) was cut out to accommodate the PRO Level so the level's base is exactly parallel to the top and bottom. Holes were then cut in the two outside pieces permitting visual access to the dial and chart. The PRO Level was fitted into the five eighths of an inch center piece, and the three pieces were then aligned and glued together. The rear sight, a round head, wood screw was seated in the center piece of the back end with slot parallel to the length of the sighting bar. The front site, a case nail was then driven into the center piece one half of an inch from the front end. It is *important* that the top of the nail head be the exact same height as the top of the screw head. There remains only the means of attaching the sighting bar to a tripod *so the unit will pivot and the center of the pivot is on the same axis as the line of sight.* The pivot need not be centered on the sighting bar's length. Heavy sheet metal, of at least 3/64 to 2/32 inch thick gauge, to prevent the possibility of bending or distortion, can be cut as pictured and a "keyhole" drilled as shown. The keyhole permits rapid attachment and removal to and from the tripod. A one fourth of an inch hole drilled through the vertical post of the tripod to accommodate a hex head bolt, a fiber or rubber washer, and a wing nut completes the project and allows adjustment of and locking into position of the sighting bar.