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PERSONAL APPEARANCE IDENTIFICATION

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With a Foreword by

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A series of original criminal suspect identification studies using experimental and analytic methods

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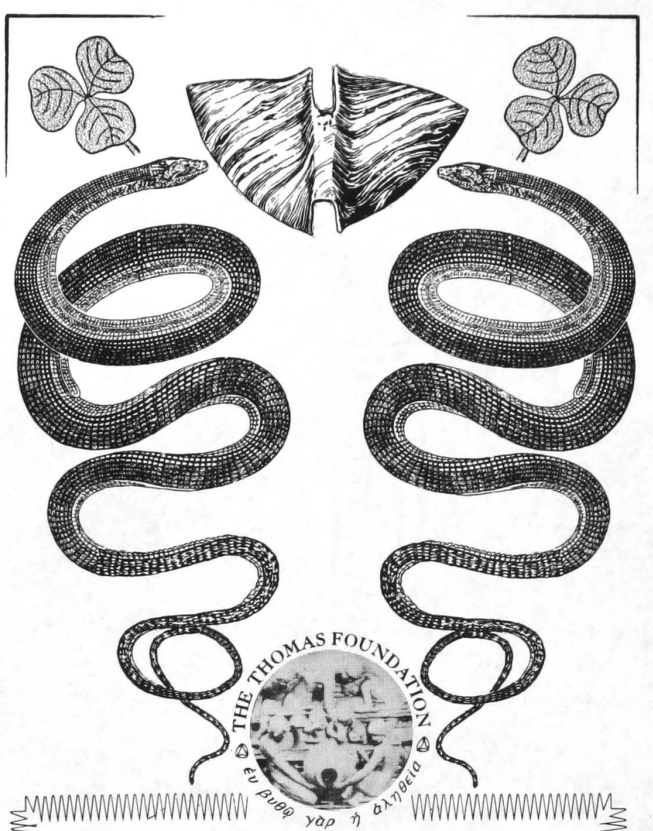

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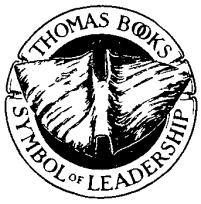

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To
Laurel
and
Evelyn

FOREWORD

PROGRESSIVE members of the criminal justice profession are those who realize that change is inevitable in modern times and who prepare not only to accept change but also prepare to make the greatest use of practical new methods, equipment and instruments. This volume demonstrates a new method in criminal justice of applying the scientific approach to problem solving. This is the first study of its kind specifically directed toward achieving an understanding of the actual recognition and identification process within the law enforcement environment. I believe the results of this study will assist immeasurably in the ultimate automation of the personal appearance identification files maintained by criminal justice agencies around the world.

The entire nation has been aroused by the appalling increase in crime, and as the problem has come into sharper focus, the public has been shocked to learn that there are an ever-increasing number of crimes which are not cleared by arrest of the perpetrators. It is no longer possible to hide the grim facts of continued reliance upon obsolete investigative methods and unscientific identification processes, while, at the same time, there has been complete rejection of research resources and the application of the scientific method.

Potentially, one of the most viable tools of criminal investigation is the identification of individuals through descriptions of their personal appearance; yet, pitifully little is known about the fundamentals of this technique. Obviously, better procedures, advanced equipment and sophisticated instrumentation depend upon thorough understanding of the basic problems of human responses in this critical area. Nowhere is rejection of the scientific method in our current criminal justice processes better illustrated than in the gap which currently exists in this most essential body of knowledge. It is the objective of the editors to close this gap, and I believe they have performed a great service to society by initiating, with this book, a chain of events which will inevitably lead to quantum improvement in personal appearance identification skills. Let us hope that the primitive methods of the past will soon be nothing more than a fascinating, historic example of cultural lag.

Crime and the witnessing of criminal acts is a shocking experience to the "average" individual, but I am convinced that a significant number of criminal cases will be cleared when we are able to obtain less distorted descriptions from victims and witnesses. Before law enforcement agencies can elicit the intelligent aid of victims and witnesses in the identification of perpetrators, it is essential for the investigators to understand the process by which people recognize and identify suspects on the basis of personal appearance. Only then is it possible to develop effective aids to help in the identification process.

The identification problem raises basic psychological questions such as differences between the identification ability of men versus women, and children versus adults. What are the factors that would influence the ability of a witness to identify a suspect? What particular techniques and facial features are used most frequently in distinguishing one face from another? Also, what terms are used by people most frequently to describe these features and techniques?

This book examines for the first time these and other questions important to law enforcement, such as the differences between the ability of people to identify suspects through the use of television versus still photography, and the ability of people to identify characteristics of those of another race. A major feature of this book is the employment of advanced statistical analyses to determine the dimensions of the facial features and the variables which limit or extend the ability to identify suspects based on personal appearance.

These and the other studies described in this pioneering book present the most comprehensive attack to date on problems of personal appearance identification, and I am certain it will be a major stimulus to law enforcement officers in the field as well as to training specialists in every law enforcement agency of the country. Those who are working intensively in United States colleges and universities in police science curricula stand to gain immeasurably from the reviews and findings which the authors and editors of this book have compiled. Departments of psychology, sociology, criminology and anthropology in the academic world will also find much of value from the scientific findings presented in this book.

I trust that this work will provide the inspiration for students and scientists to take new multidisciplinary steps in concert with the criminal justice community, not only in the area of personal appearance identification but in all areas where the scientific method cries out for application to the needs of man for freedom from fear of crime and criminals. Better personal appearance identification, just as improvements in the criminal justice process generally, serves not only to bring predators to justice but also to clear the innocent. Thus, as law enforcement becomes more efficient and effective, it protects the civil liberties of suspects at the same time as it enhances the rights of all to law and order with justice in our society.

The editors of this book, Albert Zavala and James J. Paley, deserve our collective thanks for their work and for bringing the results of that work before the public eye.

ROBERT R. J. GALLATI

PREFACE

A RECURRENT problem in criminal investigation is the identification of suspects by witnesses. It is conceivable that a significant number of criminal cases would be cleared with improved identification of suspects. Witnesses must describe the personal appearance of perpetrators, identify those who were involved in a crime, and/or indicate those who were not involved in a crime. However, witnesses too frequently are ineffective at performing any of those three tasks, so it would be of great value to develop some means of aiding witnesses in doing a better job of suspect identification.

Before any useful methods of aiding witnesses can be devised, it is necessary to have some understanding of how people recognize or identify others on the basis of personal appearance. The work described in this book is aimed at achieving that understanding and to describe the first steps toward the development of effective aids that would aid witnesses to better identify suspects. This is a first step in that direction, and we are hopeful to be able to go forward from here.

We are grateful for the help and suggestions of more people than we can name here conveniently. Some of those persons whose contributions were of great value included Mr. Adam F. D'Alessandro, Deputy Director of the New York State Identification and Intelligence System (NYSIIS), whose interest, contributions and support were significant factors in the success of the overall effort; Mr. Charles E. Robinson, Assistant Deputy Director of NYSIIS, whose original work resulted in the identification and articulation of many basic aspects of the problem. Also included are Chief A. A. Budniak of the Erie County Sheriff's Department; Detective Joseph Fliss of the Buffalo Police Department; and, Mr. J. J. Musial of the Miami Police Department. Two people from the State University College at Buffalo aided considerably. They were Dr. Irene Hulicka, Chairman of the Psychology Department, and Dr. Myron E. Lewis, Chairman of the Industrial Technology Department. We are also grateful to Miss Andrea N. Patrizio, who was patient with all our demands in the typing of the manuscript.

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NOTICE

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CONTENTS

PERSONAL APPEARANCE IDENTIFICATION

Chapter I

INTRODUCTION

James J. Paley and Albert Zavala

THE primary objective of this report is to achieve an understanding of how people recognize or identify others on the basis of personal appearance. Relevant studies and methods were reviewed and a series of experiments were conducted to explore further variables that may influence the identification process. Over nine hundred people (about 54% were women and about 46% were men) served as subjects in these studies.

Most of the real-life situations requiring personal appearance identification involve recognition rather than recall memory. Memory for images and sounds is the primary factor in this identification task. Memory for words usually is not involved.

The problem of the recognition of people based on personal appearance is a familiar one. The problem is painfully familiar to the person who has been embarassed by his failure to remember someone else who insisted they had met before. This problem is of particular significance to any law enforcement officer who has tried vainly to obtain from a witness useful information about the personal appearance of a suspect.

The ability of a witness to identify a suspect on the basis of the suspect's personal appearance is a special case of a person's ability to remember someone else. In general, psychological principles which apply to the latter, also apply to the former. In addition, there are conditions unique to the problem of identifying suspects. The usual situation that occurs in identifying a suspect is that the witness has first seen the suspect in person. Later, the witness may be required to identify that suspect from a line-up or from a gallery of mug shot photographs. Mug shot photographs, or mugs, are more frequently employed than are line-ups. This means that the witness must identify from a photograph, a person seen in real life (i.e. moving, talking, and in natural color). The detective or police officer must perform the converse of that task. He must identify in real life a person seen only on a static photograph; usually rendered in black and white photography.

The identification problem raises basic psychological questions about personal appearance identification. Some of these questions include the following: Are men better than women at identifying suspects? How long must a suspect be looked at in order to be identified later? Are some people better than others in the identification task? Are some people easier to remember than others? Which personal appearance features are easiest to remember? Which words do witnesses use to describe personal appearance features? Finally, what are the basic mechanisms by which people perform this identification?

Some of these questions have been addressed by previous research, and it will be useful to review some of these studies in an effort to better understand the factors influencing personal appearance identification. The next chapter of this book reviews the relevant previous research. The following chapter describes a study concerned with factors that would influence the ability of a witness to identify a suspect as that witness searches through the mug shots. The next two chapters describe studies regarding the format of mug shot pictures. These chapters are followed by three chapters dealing with

determining the facial features used by witnesses to identify suspects and with the classification of each of these facial features, as well as the face as a whole. These chapters are followed by three more chapters concerned with dynamic properties of personal appearance identification. These properties include speech, gait, posture, and movement. The last chapter consists of a discussion of the findings and a summary of the results.

Chapter II

LITERATURE REVIEW

Albert Zavala

THE ability to identify suspects generally involves recognition rather than recall. In recognition, the individual identifies previously seen items from among a group of similar items in which the previously seen items are interspersed. In recall, the individual attempts to describe, or reproduce, an item he has seen previously.

COGNITIVE PROCESSES AND MEMORY

When a witness attempts to reconstruct the events of a crime incident, or attempts to recognize a perpetrator from a gallery of suspects' mug shot photographs, that witness must call upon cognitive processes and memory in order to help the police. Morris (1969) has conducted an extensive review of the most recent and relevant studies performed in this area. From this work, he has synthesized a model of cognitive and memory functions.

A basic model of cognitive processes, which includes memory functions, is based on information processing concepts. The fundamental precept underlying the model is that human information processing is based on a limited channel capacity, as shown schematically in Figure II-1.

Focal attention to multidimensional stimuli that are presented for brief periods proceeds sequentially, one dimension at a time. The span of attention is limited to the material that can be processed and stored during the existence of the imagery and a second or two following cessation of the imagery. Only that material which has undergone processing by the attention mechanisms will be remembered later. The attentive process requires a finite amount of time for completion (100 msec or more for a letter). Individual sets (predisposition to respond) can influence the order in which items are encoded and stored, that is, the order in which they are processed. Cognitive

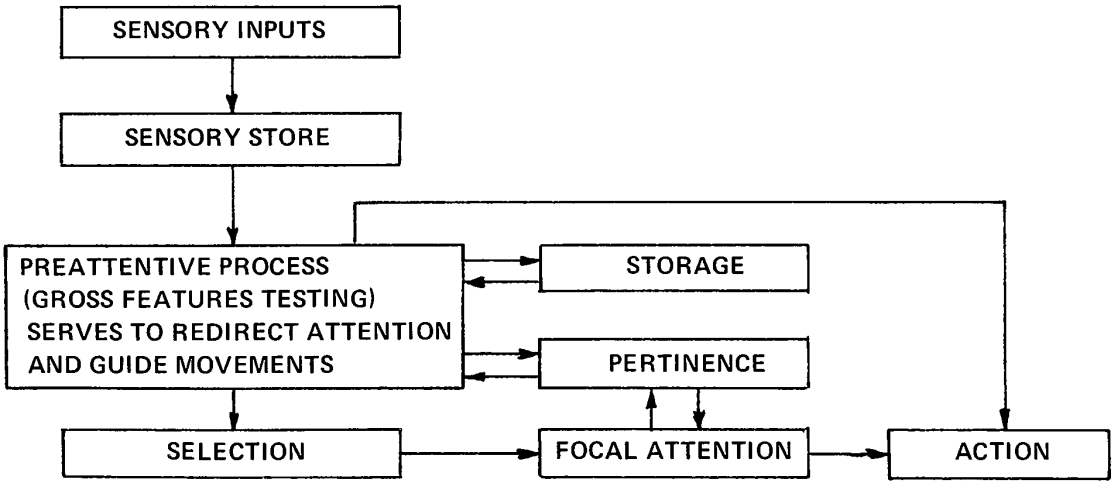

Figure II-1. A model of cognitive and memory functions.

processing models also take other psychological factors into account, including recognition, instructions, motivation, vigilance, noise, and reaction time (Broadbent, 1963; Haber, 1966; Neisser, 1967; and Norman, 1969).

While all the cognitive processes play a critical role in mental activity, those associated with memory are of particular interest in the present instance. The ability to identify something as having previously been seen (recognition memory) is most important.* Shepard and Teghtsoonian (1961) and Shepard and Chang (1963) studied this issue. They found that the probability of correctly identifying a three-digit number as having previously been seen goes from about 1.00 when immediately previous, to about .56 when sixty numbers intervened. Wickelgren and Norman (1966) showed that the strength of a memory image in short-term memory decays exponentially with the number of subsequently presented items. It has also been repeatedly demonstrated that memory decays exponentially with time (Postman and Egan, 1949).

Most of the work on cognitive processes and memory have employed verbal material, words, as a focus of study. The problem facing the witness, however, most frequently involves pictorial imagery; particularly pictures of faces in mug shot galleries. The sections that follow consider the progression of research going from studies of verbal material, as discussed briefly in this section, to studies of memory for words versus pictures, to studies of memory for pictures and finally, to studies of memory for faces. These sections are followed by a review of studies of inverted faces.

THE RECOGNITION OF WORDS VERSUS PICTURES

In a review of cognitive functions, Zavala (1967) reported several studies which found that memory and cognitive ability were both factorially complex. For example, the ability to manipulate numbers is not highly related to the ability to manipulate words, although both can be thought of as involving symbol manipulation. As indicated above, there are at least two well-documented methods of measuring memory, the recognition method and the recall method of which more will be discussed later. These two methods have consistently yielded results suggesting that two separate memory functions may exist. Likewise, there appears to be a difference between memory for words on the one hand and memory for images on the other. Memory for images is of particular interest in the use of a personal appearance system. However, memory studies have used words more frequently than pictures as stimulus materials. Therefore, studies of memory for words versus memory for pictures are of importance in determining what differences there may be between the two types of memory. Such studies should aid in revealing which principles of memory apply to both words and pictures.

Ducharme and Fraisse (1965) presented a list of pictures of objects and a list of written words designating the same objects to children and to adults. Results showed that the children (7 years, 9 months, and 8 years, 9 months) performed better at memorizing the words than the pictures, while the adults (20 years, 5 months) did the opposite. Also, the last pictures of the series were more easily memorized than the first (called the recency effect), but with the words, the first of the series were more easily memorized (called the primacy effect).

The findings of Ducharme and Fraisse are consistent with those of Paivio, Rogers, and Smythe (1968) in that pictures show a greater recency effect than do words. The results

*Other factors influencing memory (e.g. rehearsal and certain interference effects) are not discussed here.