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Personality & Individual Differences

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SECOND EDITION, REVISED AND UPDATED

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32 Avenue of the Americas, New York NY 10013-2473, USA

Cambridge University Press is part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning and research at the highest international levels of excellence.

www.cambridge.org
Information on this title: www.cambridge.org/9780521815697

First edition first published 1991
Second edition first published 2005

A catalogue record for this publication is available from the British Library

Library of Congress Cataloguing in Publication data
Zuckerman, Marvin.
Psychobiology of personality / Marvin Zuckerman. – 2nd ed., rev. and updated
p. cm.
Includes bibliographical references and indexes.
ISBN 0-521-81569-X (hardcover) – ISBN 0-521-01632-0 (pbk.)
1. Personality. 2. Psychobiology. I. Title.
BF698.Z825 2005
155.2 – dc22 2004020557

ISBN 978-0-521-81569-7 Hardback
ISBN 978-0-521-01632-2 Paperback

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Preface

The first edition of *Psychobiology of Personality*, published in 1991, provided a comprehensive treatment of a subject about which most psychologists have only a fragmentary knowledge, if any. Most behavior geneticists know a lot about the genetics of personality but little about its psychophysiology or psychopharmacology. Conversely, most psychopharmacologists know a lot about the psychopharmacology of personality and psychopathology but little about behavioral genetics. Most social and many personality psychologists know a lot about traits and their assessment but little about the psychobiology of traits. The first edition was based on a levels approach to personality (see Figure 7-1) that attempts to explore all levels of personality, from the genetic to the trait with stops at the neurological, biochemical, physiological, conditioning, and behavioral levels of explanation. The goal was not reductionism but a connectivism that respects the mode of explanation at each level and attempts to understand, as much as possible, the connections between phenomena at all levels. Although causation is usually assumed to work up from the more basic levels to the behavioral ones, it can work in the opposite direction. Only experimentation can decide the issues of causation; correlation cannot do this, as we patiently explain to students in introductory psychology (although clinicians sometimes forget this).

The psychobiology of personality has been explored by "top-down" and "bottom-up" approaches. The top-down approach is to identify basic personality traits in humans and then see what correlates of these traits can be found in physiology, biochemistry, neurology, and genetics. Anthropomorphic extensions may be made to behavior in other species because much of the basic knowledge about the biological bases of behavior come from experimentation that is only possible using nonhuman species. Bottom-up approaches start with biobehavioral knowledge and definitions from

work with other species and attempt to extend these to humans. Animal models for human personality traits and behavior are used. Eysenck (1967) was an exemplar of the top-down approach and Gray (1982) is one for the bottom-up approach. This book and its predecessor are based on a top-down approach. The previous edition, however, devoted many pages to exploring the viability of work and concepts developed from research with other species, whereas this volume will put more emphasis on the human psychobiology with only a few animal models included. The ones included are those in which a shared biological marker goes beyond mere analogy when identifying behavioral traits shared by humans and rats or monkeys.

The last edition included a chapter on the "consistency of personality," which discussed the research on the reliability of behavioral or personality traits over time and across situations, as well as the trait–state distinction and the question of the relative importance of person, situation, and their interactions in behavior. Although not entirely resolved, there is less preoccupation with these issues than in previous decades. The trait concept seems "alive and well," despite attacks on it during the 1970s. The trait-versus-state distinction is widely accepted, as is the idea that traits represent states aggregated across time and situations. The idea that the personality–situation interaction is basic to most kinds of behavior also is acknowledged by most of us. Although I spent many years engaged in these metapsychological controversies, I have become bored by them and I think most personality psychologists also have gone on to other things. Readers still interested in these issues should see my chapter in the first edition.

Chapter 1 discusses this general approach and then starts with definitions of the system of traits at the top level. When the first edition was written, the so-called Big-Five approach was largely confined to lexical studies of adjectives and Costa and McCrae's definition by questionnaire was limited to a three-factor model. With the publication of the revised NEO (Costa & McCrae, 1992a) with five-factor scales, including subtrait facet scores, research on the five-factor model has grown at an exponential rate. Investigators in some areas, such as behavioral genetics, have rushed to redefine their trait dimensions within the context of the Big-Five. However, psychobiological research based on three-factor models such as those of Eysenck (1967), Tellegen (1985), and Cloninger (1987), and an "Alternative-Five" model of Zuckerman and Kuhlman as well as a newer eight-factor model by Cloninger and his colleagues has continued, despite the appeal of Costa and McCrae (1992b) that all other systems should be translated into the "longitude and latitude" system of the Big-Five. Since then, many empirical comparisons have been made of these various systems, and there is

indeed some moderate to substantial correlation between the primary three components of most systems. Although there are some crucial differences in details, the subsequent chapters are grouped by these commonalities. The first chapter describes the major trait systems and research comparing them. The chapter also describes systems of temperament developed on children and possible connections between these and adult personality traits.

Chapter 2 describes the methodologies and concepts in the psychobiological areas of the book: psychophysiology, psychopharmacology, neurology of the brain, and genetics. The first edition of this book was organized by level of psychobiology. For instance, there was a chapter on psychophysiology introduced by a discussion of the methods used in this field, followed by a presentation of the theory and research in all areas of personality using psychophysiological methods. In this revised volume, all of the psychobiology methods are presented in Chapter 2, and the remaining chapters are organized by four basic personality traits. Readers who are already familiar with all or any of the psychobiological methodologies and concepts described in subsequent chapters can, of course, skip those sections. Readers may have to turn back to this chapter, at times, when reading later chapters, but I feel that this new organization will provide more continuity to the psychobiological story.

Chapters 3 to 6 each represents a basic dimension of personality. The groupings of the traits are based on the empirical findings on the relationships among factors described by different systems. Four of five basic factors are comparable, if not identical, in most of the systems: Extraversion/Sociability (Chapter 3); Neuroticism/Anxiety/Harm Avoidance (Chapter 4); Psychoticism/Unsocialized Impulsive Sensation Seeking/Novelty Seeking/Conscientiousness/Constraint (Chapter 5); Aggression-Hostility/Agreeableness/Cooperativeness (Chapter 6). The fifth factor in the Big-Five is Openness to Experience and in the Alternative-Five it is Activity. These two have no relationship to each other and are not represented in other personality systems, although activity is a trait in most temperament systems. For these reasons, and because the fifth factors are not prominent in psychobiological research with human adults, they are not included in this book; the discussion is limited to the four basic dimensions described earlier.

Psychopathology, as defined by psychiatric criteria, is discussed within each of the trait chapters in which it is most relevant, rather than in separate chapters as in the previous edition. Research and theory on anxiety disorders are treated in the chapter on neuroticism/anxiety, and research

on disinhibitory and antisocial disorders is discussed in the chapters on impulsive sensation seeking and aggression-hostility. Much of the psychobiological research using human subjects has come from the field of psychiatry. Psychologists are increasingly coming around to the idea that most forms of psychopathology, particularly the personality and anxiety and mood disorders, can be conceptualized in terms of specific patterns of personality dimensions (Widiger, 1991; Zuckerman, 1999). If this is true, then personality and psychopathology probably share certain kinds of psychobiological characteristics. Neuroticism, for instance, seems to be a predisposing trait for anxiety and depressive mood disorders, and impulsive sensation seeking and aggression are found as traits from which antisocial personality develops.

Chapter 7 will attempt to examine the entire pattern of levels from the genes to personality traits. To what extent is reductionism possible? In this chapter, I consider a field that has flourished since the first edition, evolutionary psychology. This is a field that attempts to describe broad selected patterns of behavior among the species and is only secondarily interested in individual differences within the species. However, it deals with such differences in terms of different evolved strategies for adapting to the basic challenges of survival and mating. Although evidence of such patterns may be inferred from studies of extant humans, I believe that the real evolutionary hypotheses are better tested by observations of our cousins on our branch of the evolutionary tree who differentiated from early hominids millions of years ago. Personality differences based on behavior among primates and other mammalian species are reviewed in this chapter.

The neurosciences move ahead at a much faster rate than the social sciences. Progress in the latter often consists of substituting new areas of research interest for older ones, rather than an increased depth of understanding of the earlier ones. These are not new paradigms but new fads. Scientists merely become bored with the old areas of research. In the neurosciences the models change, impelled by advances in methodology, but the area of research, such as brain function, remains constant.

Advances in research, particularly that on psychobiology of humans, have accelerated during the last decade because of new methodologies such as brain imaging. Previously, the main method for studying brain function was the EEG. Using the EEG to study the brain is like studying the ocean only from the surface depths. The PET scan and, more recently, the functional MRI, opened the entire brain to view. Unfortunately (from our perspective), the expense of this research has resulted in a funding priority to studies of psychopathology rather than personality. Methodological advances in other

areas also have occurred. In the area of psychopharmacology, assessment of receptors for neurotransmitters has become increasingly central to an understanding of the functions of specific neurotransmitter systems. Behavior genetics, based on biometric studies of twins and adoptees and family studies, has moved into the area of molecular genetics with the identification of specific genes associated with personality traits.

All of these developments in the psychobiology of personality justify this revision of the older book. Fifty-five percent of the 655 references in this edition were published since the first edition went to press (1991–2004). My intention is not to discard all of the previous theory and research described in the last volume but to build on it. This is the way of science – and of evolution itself.