

Cambridge University Press

978-1-107-01393-3 - The Psychological Significance of the Blush

Edited by W. Ray Crozier and Peter J. de Jong

Frontmatter

[More information](#)

---

## The Psychological Significance of the Blush

The blush is a ubiquitous yet little understood phenomenon which can be triggered by a number of self-conscious emotions such as shame, embarrassment, shyness, pride and guilt. The field of psychology has seen a recent surge in the research of such emotions, yet blushing remains a relatively neglected area. This unique volume brings together leading researchers from a variety of disciplines to review emerging research on the blush, discussing in depth issues that have arisen and stimulating new theorizing to indicate future directions for research. Topics covered include: the psychophysiology of the blush; developmental aspects; measurement issues; its evolutionary significance and the role of similar colour signals in the social life of other species; its relation to embarrassment, shame and social anxiety; and the rationale for, and clinical trials of, interventions to help people suffering from blushing phobia.

W. RAY CROZIER is Honorary Professor in the School of Social Sciences at Cardiff University.

PETER J. DE JONG is Professor of Experimental Psychopathology and Chair of Clinical Psychology at the University of Groningen, the Netherlands.

Cambridge University Press

978-1-107-01393-3 - The Psychological Significance of the Blush

Edited by W. Ray Crozier and Peter J. de Jong

Frontmatter

[More information](#)

---

Cambridge University Press

978-1-107-01393-3 - The Psychological Significance of the Blush

Edited by W. Ray Crozier and Peter J. de Jong

Frontmatter

[More information](#)

---

# The Psychological Significance of the Blush

---

*Edited by*

W. Ray Crozier and Peter J. de Jong



**CAMBRIDGE**  
UNIVERSITY PRESS

Cambridge University Press

978-1-107-01393-3 - The Psychological Significance of the Blush

Edited by W. Ray Crozier and Peter J. de Jong

Frontmatter

[More information](#)

CAMBRIDGE UNIVERSITY PRESS

Cambridge, New York, Melbourne, Madrid, Cape Town,  
Singapore, São Paulo, Delhi, Mexico City

Cambridge University Press

The Edinburgh Building, Cambridge CB2 8RU, UK

Published in the United States of America by

Cambridge University Press, New York

[www.cambridge.org](http://www.cambridge.org)

Information on this title: [www.cambridge.org/9781107013933](http://www.cambridge.org/9781107013933)

© Cambridge University Press 2013

This publication is in copyright. Subject to statutory exception  
and to the provisions of relevant collective licensing agreements,  
no reproduction of any part may take place without  
the written permission of Cambridge University Press.

First published 2013

Printed and bound in the United Kingdom by the MPG Books Group

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

*Library of Congress Cataloguing-in-Publication Data*

The psychological significance of the blush / edited by  
W. Ray Crozier, Peter J. de Jong.

p. cm.

ISBN 978-1-107-01393-3 (Hardback)

1. Blushing. 2. Psychophysiology. I. Crozier, W. Ray, 1945–

II. Jong, P. J. de (Peter J.)

QP401.P83 2012

612.8–dc23

2012025563

ISBN 978-1-107-01393-3 Hardback

Cambridge University Press has no responsibility for the persistence or  
accuracy of URLs for external or third-party internet websites referred to  
in this publication, and does not guarantee that any content on such  
websites is, or will remain, accurate or appropriate.

Cambridge University Press

978-1-107-01393-3 - The Psychological Significance of the Blush

Edited by W. Ray Crozier and Peter J. de Jong

Frontmatter

[More information](#)

## Contents

---

<i>List of figures</i>	<i>page</i> vii
<i>List of tables</i>	viii
<i>List of contributors</i>	ix
<i>Foreword by Frans B. M. de Waal</i>	xi
<i>Acknowledgments</i>	xiii
1 The study of the blush: Darwin and after W. RAY CROZIER AND PETER J. DE JONG	1
<b>Part I The nature of the blush</b>	<b>13</b>
2 Psychophysiology of the blush PETER D. DRUMMOND	15
3 Measurement of the blush RUTH COOPER AND ALEXANDER L. GERLACH	39
<b>Part II Theoretical perspectives on the blush</b>	<b>61</b>
4 Psychological theories of blushing MARK R. LEARY AND KAITLIN TONER	63
5 Colours of the face: a comparative glance JAN A. R. A. M. VAN HOOFF	77
6 Self-conscious emotional development HEDY STEGGE	100
7 A biosocial perspective on embarrassment RYAN S. DARBY AND CHRISTINE R. HARRIS	120
8 The affective neuroscience of human social anxiety VLADIMIR MISKOVIC AND LOUIS A. SCHMIDT	147

Cambridge University Press

978-1-107-01393-3 - The Psychological Significance of the Blush

Edited by W. Ray Crozier and Peter J. de Jong

Frontmatter

[More information](#)

vi	Contents	
	<b>Part III The blush in social interaction</b>	<b>183</b>
9	The interactive origins and outcomes of embarrassment ROWLAND S. MILLER	185
10	Performing the blush: a dramaturgical perspective SUSIE SCOTT	203
11	Blushing and the private self W. RAY CROZIER	222
12	Signal value and interpersonal implications of the blush PETER J. DE JONG AND CORINE DIJK	242
	<b>Part IV Blushing problems: processes and interventions</b>	<b>265</b>
13	Red, hot and scared: mechanisms underlying fear of blushing CORINE DIJK AND PETER J. DE JONG	267
14	Psychological interventions for fear of blushing MICHELLE C. CAPOZZOLI, IMKE J. J. VONK, SUSAN M. BÖGELS AND STEFAN G. HOFMANN	286
15	Psychophysiological aspects of rosacea PETER D. DRUMMOND AND DAPHNE SU	308
16	Conclusions, what we don't know and future directions for research W. RAY CROZIER AND PETER J. DE JONG	327
	<i>Index</i>	345

Cambridge University Press

978-1-107-01393-3 - The Psychological Significance of the Blush

Edited by W. Ray Crozier and Peter J. de Jong

Frontmatter

[More information](#)

## Figures

---

2.1 Making a mistake evokes blushing	<i>page</i> 16
2.2 Distribution of parasympathetic vasodilatation, sympathetic vasoconstriction and active sympathetic vasodilatation in the face	17
2.3 Effect of an injury to the sympathetic pathway to the face on facial flushing	18
2.4 Cognitive model of fear of blushing	30
3.1 Photoplethysmogram	41
7.1 Embarrassment and delay or avoidance of medical care	135
8.1 Midsagittal (a) and coronal (b) sections of the human brain	150
15.1 Hypothesized link between psychological factors and symptoms of rosacea	318

Cambridge University Press

978-1-107-01393-3 - The Psychological Significance of the Blush

Edited by W. Ray Crozier and Peter J. de Jong

Frontmatter

[More information](#)

## Tables

---

8.1 A selected summary of studies on the neural correlates of social anxiety	<i>page</i> 155
9.1 The sources of embarrassment in social life	187
9.2 Actors' primary responses to their embarrassment	196
11.1 Categories in content analysis	227
11.2 Blushing episodes categorized as shame occasions	228
11.3 Distributions of numbers of categories coded within individual protocols (percentage data)	228
14.1 Summary of treatment studies for fear of blushing	288



Cambridge University Press

978-1-107-01393-3 - The Psychological Significance of the Blush

Edited by W. Ray Crozier and Peter J. de Jong

Frontmatter

[More information](#)

## Contributors

---

SUSAN M. BÖGELS Department of Developmental Psychopathology,  
University of Amsterdam, the Netherlands

MICHELLE C. CAPOZZOLI Department of Psychology, University of  
Nebraska-Lincoln, USA

RUTH COOPER Department of Clinical Psychology and Psychotherapy,  
University of Cologne, Germany

W. RAY CROZIER School of Social Sciences, Cardiff University, UK

RYAN S. DARBY Department of Psychology, University of California,  
San Diego, USA

PETER J. DE JONG Department of Psychology, University of Groningen,  
the Netherlands

FRANS B. M. DE WAAL Department of Psychology, Emory University,  
USA

CORINE DIJK Department of Clinical Psychology, University of Amsterdam,  
the Netherlands

PETER D. DRUMMOND School of Psychology, Murdoch University,  
Australia

ALEXANDER L. GERLACH Department of Clinical Psychology and  
Psychotherapy, University of Cologne, Germany

CHRISTINE R. HARRIS Department of Psychology, University of  
California, San Diego, USA

STEFAN G. HOFMANN Department of Psychology, Boston University,  
USA

MARK R. LEARY Department of Psychology and Neuroscience, Duke  
University, USA

Cambridge University Press

978-1-107-01393-3 - The Psychological Significance of the Blush

Edited by W. Ray Crozier and Peter J. de Jong

Frontmatter

[More information](#)

---

x List of contributors

ROWLAND S. MILLER Department of Psychology and Philosophy, Sam Houston State University, USA

VLADIMIR MISKOVIC McMaster Integrative Neuroscience and Discovery Graduate Program, Faculties of Science and Health Sciences, McMaster University, Canada

LOUIS A. SCHMIDT Child Emotion Laboratory, Department of Psychology, Neuroscience and Behaviour, McMaster University, Canada

SUSIE SCOTT Department of Sociology, University of Sussex, UK

HEDY STEGGE Division of Developmental Psychology, Free University of Amsterdam, the Netherlands

DAPHNE SU Clinical Psychologist, Department of Health, Western Australia

KAITLIN TONER Department of Psychology and Neuroscience, Duke University, USA

JAN A. R. A. M. VAN HOOFF Faculty of Biology, University of Utrecht, the Netherlands

IMKE J. J. VONK Department of Psychology, Boston University, USA

Cambridge University Press

978-1-107-01393-3 - The Psychological Significance of the Blush

Edited by W. Ray Crozier and Peter J. de Jong

Frontmatter

[More information](#)

## Foreword

---

Blushing is remarkable for two reasons. First, it is the only expression for which there is no equivalent in any other animal. All of our facial expressions and many of our gestures can be found in our fellow primates. The way we frown, bare our teeth in a smile, or beg with open hand is all basic primate communication, yet the blush is not. I do not know of any instant face-reddening in monkeys or apes. Second, blushing is highly communicative yet involuntary. Even tears can be faked more easily than the blush. We are dealing with a signal, therefore, over which we lack control. We are unable to produce it on command, and unable to suppress it if we wish it to go away. In fact, the more aware we are that we are blushing the harder it is to make it disappear.

There was a time in which biologists held heated debates about whether communication is essentially cooperative (sharing of information) or manipulative (making others act to your advantage). Blushing never came up in this debate, however. It would have thoroughly upset those who advocated that all communication serves selfish ends. If this were true, would we not be far better off without blood uncontrollably rushing to our cheeks and neck, where the change in skin colour stands out like a lightning rod? Such a signal makes no sense for a born manipulator. Charles Darwin was so puzzled that he wrote letters to colonial administrators and missionaries all over the world to see if all members of our species blushed. He speculated about the effect of skin colour (with face-reddening standing out more against a lighter background), and the role of shame and moral standing. He did so long before blushing became the respected topic of study that it now is. His main conclusion was that shame was an innate, universal reaction in our species, and that blushing evolved to broadcast it to our surroundings.

Why would a species need a shame signal that other primates apparently do not need, and why did nature not grant us more control? The most likely framework to explain this trait is that we are a species that relies on cooperation and obedience to moral rules. Nothing is more telling than how we react to transgressions. We lower our face, avoid the

Cambridge University Press

978-1-107-01393-3 - The Psychological Significance of the Blush

Edited by W. Ray Crozier and Peter J. de Jong

Frontmatter

[More information](#)

## xii Foreword

gaze of others, slump our shoulders, bend our knees, and generally look diminished in stature. Our mouth droops and our eyebrows arch outward in a distinctly unthreatening expression. We feel ashamed, and hide our face behind our hands or 'want to sink into the ground'. This desire for invisibility is reminiscent of submissive displays in many animals. Chimpanzees crawl in the dust for their leader, lower their body so as to look up at him or turn their rump towards him to appear unthreatening. Dominant apes, in contrast, make themselves look larger and literally run or walk over a subordinate, who ducks into a fetal position. Daniel Fessler, an anthropologist who has studied shame in human cultures, compares its universal shrinking appearance with that of a subordinate facing an angry dominant. Shame reflects awareness that one has upset others, who need to be appeased. Whatever self-conscious feelings go with it, they are secondary to the much older hierarchical template.

But we add blushing to it, which is more than appeasement or subordination. It communicates to others that we are aware how our actions affect them. This fosters trust. We prefer people whose emotions we can read from their faces over those who never show the slightest hint of shame or guilt. We have another unique characteristic that fits this idea, which is the white sclera around the eyes. They make our eye movements stand out much more than those of, say, a chimpanzee, whose eyes are all dark, and recessed in the shade of a prominent eyebrow ridge. There is no way to tell where a chimp is looking from the eyes alone (even though I always feel that apes themselves are better at this than we humans), whereas humans have trouble obscuring their gaze direction or hiding a restless gaze. Also here, we have been self-handicapped in the domain of manipulation, which must mean that evolution has favoured honest communication. Probably, trustworthiness became such a premium during human evolution that we lost deceptive capacities in order to become more attractive as cooperation partners.

The present volume addresses a critically important topic, therefore, by delving more deeply into what at first sight looks like a very simple trait. It is one that has very complex ramifications if looked at from an evolutionary perspective, however. Blushing may be part of the same evolutionary package that gave us morality.

Frans B. M. de Waal

Cambridge University Press

978-1-107-01393-3 - The Psychological Significance of the Blush

Edited by W. Ray Crozier and Peter J. de Jong

Frontmatter

[More information](#)

---

## Acknowledgments

---

We are grateful to the following colleagues for their help in planning and preparing this volume: Susan Bögels, Sandra Bonney, Hans Coveliers, Sandra Crozier, Robert Edelmann, Anja Eller, Agneta Fisher, Myra Hunter, Peter Marshall, Sandra Mulkens, Xueni Pan, Brian Parkinson, Gerrod Parrott, Louis Schmidt, Don Shearn, Lance Workman and Dan Zahavi.

We are grateful to all who read and commented upon draft chapters, including colleagues who preferred to remain anonymous. Thanks also to the School of Social Sciences, Cardiff University, the School of Social Work and Psychology, University of East Anglia, and the Department of Psychology, University of Groningen, for their support. Finally, we are grateful to Hetty Marx and her colleagues at Cambridge University Press for their advice and support.

Cambridge University Press

978-1-107-01393-3 - The Psychological Significance of the Blush

Edited by W. Ray Crozier and Peter J. de Jong

Frontmatter

[More information](#)

---