

Emotional design donald norman PDF

emotional design donald norman is a fundamental concept in the realm of user experience and product design that emphasizes the importance of creating products that evoke positive emotional responses from users. Developed by renowned cognitive scientist and design theorist Donald Norman, this approach shifts the focus from solely functional and ergonomic considerations to include the emotional impact a product has on its users. In today's competitive market, where countless products serve similar purposes, emotional design plays a crucial role in differentiating one product from another and fostering brand loyalty. Understanding Norman's principles helps designers craft experiences that are not only usable but also enjoyable, meaningful, and memorable.

Understanding Emotional Design

Emotional design is rooted in the idea that users' feelings towards a product significantly influence their overall experience and satisfaction. Donald Norman introduced this concept as part of his broader theory of user-centered design, emphasizing that humans are emotional as well as rational beings. When users interact with a product, their emotional responses can range from delight and trust to frustration and disappointment. Therefore, designing for emotion involves considering how a product makes the user feel at every touchpoint.

Three Levels of Emotional Design

Norman describes emotional design through three interconnected levels:

- **Visceral Level:** This is the immediate, instinctive response to a product's appearance, feel, and aesthetics. It involves subconscious reactions based on visual appeal and sensory experience.
- **Behavioral Level:** This pertains to the usability and function of the product. It encompasses how well the product performs and how satisfying the interaction is.
- **Reflective Level:** This is the highest level, involving conscious thought, personal meaning, and the overall impression a product leaves on the user. It influences long-term satisfaction, brand perception, and emotional attachment.

By addressing all three levels, designers can create holistic experiences that resonate emotionally on multiple fronts.

The Role of Aesthetics in Emotional Design

Aesthetics are central to the visceral level of emotional design. An attractive product immediately captures attention and can evoke feelings of delight, trust, and desirability. Norman argues that aesthetic appeal is not superficial; it influences the way users perceive the quality and value of a product.

Why Aesthetics Matter

- **First Impressions:** A visually appealing product grabs users' attention instantly.
- **Perceived Quality:** Good aesthetics can lead users to believe that the product is well-made and reliable.
- **Emotional Connection:** Beautiful design can evoke feelings of joy, pride, or nostalgia.

Design Elements That Enhance Aesthetic Appeal

- **Color:** Use of harmonious and meaningful colors to evoke specific emotions.
- **Form and Shape:** Smooth, balanced, and pleasing shapes enhance visual comfort.
- **Material and Texture:** Tactile qualities that invite touch and interaction.
- **Visual Hierarchy:** Clear organization guiding the user's attention effortlessly.

Great aesthetic design does not only serve beauty but also supports usability and emotional engagement.

Designing for Functionality and Usability

While aesthetics are vital, Norman emphasizes that the behavioral level—how a product functions—is equally important for emotional design.

Usability as Emotional Satisfaction

A well-designed product that performs seamlessly fosters feelings of competence, confidence, and trust. Conversely, frustration caused by confusing interfaces or malfunctioning features leads to negative emotions and potential abandonment.

Key Principles for Functional Design

- **Consistency:** Uniform design elements reduce cognitive load and increase predictability.
- **Feedback:** Immediate responses to user actions reassure and guide behavior.
- **Affordances:** Clear cues about how to use a product minimize errors and frustration.

- Simplicity: Avoid unnecessary complexity to make interactions straightforward and satisfying.

Designing for usability enhances the behavioral experience, which in turn supports positive emotional responses.

The Reflective Level: Meaning and Personal Connection

The highest level of emotional design involves the reflective aspect, where users consider the broader significance of a product.

Creating Meaningful Experiences

Products that resonate on a personal level can foster loyalty and emotional attachment. This involves:

- Brand Storytelling: Sharing the company's values and story through design.
- Personalization: Allowing users to customize or adapt products to their preferences.
- Symbolism: Incorporating elements that evoke cultural or personal significance.

Impact on Brand Loyalty

When users feel a deep connection with a product, they are more likely to become advocates and repeat customers. Successful emotional design thus becomes a strategic asset for brands seeking long-term engagement.

Practical Applications of Norman's Emotional Design Principles

The principles of emotional design are applicable across various industries and product types, from consumer electronics to websites and services.

Examples in Real-World Products

- **Apple iPhone:** Combines sleek aesthetics with intuitive usability, creating a sense of elegance and reliability that appeals emotionally.
- **Tesla Vehicles:** Design elements evoke innovation and sustainability, fostering pride and trust among owners.
- **Duolingo App:** Uses playful visuals and encouraging feedback to make language learning enjoyable and motivating.

Design Strategies to Incorporate Emotional Elements

- Storytelling: Use narratives to create emotional contexts around the product.
- Gamification: Incorporate game-like features to increase engagement and enjoyment.
- Humor and Delight: Small surprises, playful animations, or witty copy can evoke positive feelings.
- User-Centered Testing: Gather emotional feedback during user testing to refine the experience.

Challenges and Considerations in Emotional Design

While emotional design offers many benefits, it also presents challenges that designers must navigate.

Balancing Aesthetics and Functionality

Overemphasizing visual appeal at the expense of usability can lead to frustration. Conversely, focusing solely on function may result in a dull experience. Striking the right balance is essential.

Cultural Sensitivity and Diversity

Emotional responses are influenced by cultural backgrounds. Designing universally appealing products requires understanding diverse user perspectives.

Authenticity and Ethical Considerations

Manipulative or superficial emotional triggers can backfire. Authenticity in design fosters genuine positive emotions.

Conclusion: Embracing Emotional Design for Better User Experiences

Donald Norman's concept of emotional design underscores the importance of human feelings in shaping user interactions. By paying attention to aesthetics, usability, and meaning, designers can create products that do more than just function—they inspire, delight, and forge lasting emotional bonds. As technology advances and user expectations evolve, integrating emotional design principles will become increasingly vital for creating memorable, engaging, and successful products. Embracing this holistic approach not only enhances user satisfaction but also fosters brand loyalty and differentiation in a crowded marketplace. Ultimately, emotional design bridges the gap between rational utility and human experience, making technology more human-centered and emotionally resonant.

Emotional Design Donald Norman has revolutionized the way designers, developers, and businesses think about user experience. Rooted in the intersection of psychology, design, and engineering, Norman's approach emphasizes the importance of emotional responses in shaping how users perceive and interact with products. His work underscores that beyond functionality and usability, the aesthetic and emotional appeal of a product are crucial for fostering satisfaction, loyalty, and positive engagement. This article explores the core principles of emotional design as articulated by Donald Norman, delves into its practical applications, and evaluates its strengths and limitations.

Understanding Emotional Design

What is Emotional Design?

Emotional design refers to crafting products that evoke appropriate emotional responses, thereby creating a deeper connection between the user and the product. Donald Norman introduced this concept as a complement to traditional usability-focused design, emphasizing that users' feelings and perceptions significantly influence their overall experience.

According to Norman, emotional responses are often more influential than cognitive evaluations because they occur rapidly and can determine whether a user feels satisfied or frustrated. Emotional design, therefore, aims to make products not only functional but also delightful, engaging, and meaningful.

The Three Levels of Emotional Design

Norman breaks down emotional design into three levels, each contributing uniquely to the overall user experience:

- Visceral Level: This is the immediate, instinctive reaction to a product's appearance. It involves aesthetics, colors, shapes, and tactile qualities that trigger initial feelings—whether of attraction or repulsion.

- Behavioral Level: Focused on usability and function, this level pertains to the pleasure or frustration derived from using the product. It encompasses ease of use, responsiveness, and the intuitiveness of interactions.

- Reflective Level: The highest level, involving conscious thought and personal meaning. It

encompasses how users interpret the product's symbolism, identity, and the emotional value they associate with it.

Norman advocates designing products that appeal positively at all three levels, creating a harmonious experience that resonates emotionally and functionally.

Key Principles of Norman's Emotional Design

Visceral Design

The visceral level is about initial impressions. Norman suggests that attractive products tend to be perceived as better, more valuable, and easier to use, even before actual interaction. This is supported by research indicating that users often judge products based on aesthetics within milliseconds.

Features of visceral design:

- Use of appealing colors, shapes, and materials
- Attention to detail and craftsmanship
- Ergonomic considerations for tactile comfort

Pros:

- Creates immediate positive impressions
- Can influence perceptions of quality and reliability
- Enhances desirability and emotional attachment

Cons:

- Overemphasis on aesthetics can overshadow functionality
- May lead to superficial judgments if not balanced with usability

Behavioral Design

This level is about how the product performs during use. Norman highlights that usability, efficiency, and pleasure during interaction are vital for emotional satisfaction.

Features of behavioral design:

- Intuitive interfaces
- Responsive feedback
- Seamless interactions

Pros:

- Improves user efficiency and satisfaction
- Reduces frustration and errors
- Builds trust and confidence

Cons:

- Can be challenging to perfect across diverse user groups
- Over-simplification may limit advanced features

Reflective Design

Reflective design involves the meaning and personal significance attached to a product. It influences long-term attachment, brand loyalty, and the product's place in users' identities.

Features of reflective design:

- Symbolism and storytelling
- Personalization options
- Cultural considerations

Pros:

- Fosters emotional bonds and loyalty
- Adds depth and value beyond functionality
- Encourages pride of ownership

Cons:

- Difficult to measure or predict emotional impact
- Cultural differences may affect interpretation

Applications of Emotional Design

Norman's principles have broad applications across various industries:

- Consumer Electronics: Apple's products exemplify visceral and behavioral design by combining sleek aesthetics with intuitive interfaces.
- Automotive Industry: Car interiors and interfaces are crafted for emotional appeal, balancing comfort, aesthetics, and ease of use.
- Web and App Design: Engaging visuals, micro-interactions, and personalized experiences enhance emotional connection.
- Healthcare Devices: User-friendly and comforting designs reduce anxiety and improve adherence to treatments.

Case Studies and Examples

Apple's Product Ecosystem

Apple's consistent focus on visceral and behavioral design has been pivotal. Devices feature minimalist aesthetics and premium materials, appealing visually (visceral) and performing seamlessly (behavioral). The reflective aspect is fostered through branding, storytelling, and user pride.

Strengths:

- High emotional appeal leading to brand loyalty
- Seamless user experience

Limitations:

- Higher price points may limit accessibility
- Aesthetic choices may sacrifice some functional flexibility

Design of the Nest Thermostat

The Nest thermostat exemplifies emotional design by combining sleek aesthetics with intuitive controls, making it appealing to homeowners. Its reflective appeal is reinforced through branding as an innovative, eco-friendly product.

Strengths:

- Attractive and modern appearance
- Easy to install and operate

Limitations:

- Limited tactile feedback
- Advanced features may overwhelm some users

Critiques and Limitations of Norman's Emotional Design

While Norman's approach provides a compelling framework, it is not without criticisms:

- **Subjectivity:** Emotional responses are highly individual; what appeals to one user may not to another.
- **Cultural Variance:** Aesthetic and symbolic meanings vary across cultures, complicating universal design principles.
- **Balancing Function and Form:** Excessive focus on aesthetics can compromise usability, leading to superficial design.
- **Measurement Challenges:** Quantifying emotional responses remains difficult, making it hard to evaluate success objectively.

Integrating Emotional Design into Practice

To effectively apply Norman's principles, designers should:

- Conduct user research to understand emotional triggers.
- Prioritize aesthetics that complement usability.
- Incorporate storytelling and symbolism to deepen emotional meaning.
- Test prototypes with real users to gauge emotional reactions.
- Maintain a balance across all three levels—visceral, behavioral, and reflective.

Conclusion

Emotional Design Donald Norman offers a holistic approach to creating products that resonate deeply with users. By recognizing that emotions significantly influence perception, Norman

encourages designers to craft experiences that are not only functional but also meaningful and delightful. While challenges exist—such as subjectivity and cultural diversity—the benefits of fostering emotional connections are substantial, leading to more engaging, loyal, and satisfying user experiences. As technology and design continue to evolve, Norman's insights remain vital, reminding us that at the heart of every great product lies an emotional connection that transforms usability into joy.

QuestionAnswer What is emotional design according to Donald Norman? Emotional design, as described by Donald Norman, focuses on creating products that evoke positive emotions and connect with users on a psychological level, enhancing overall user experience beyond mere functionality. How does emotional design impact user satisfaction? Emotional design increases user satisfaction by making products more appealing, enjoyable, and meaningful, which encourages user engagement and loyalty. What are the three levels of emotional design in Norman's framework? The three levels are visceral (initial reactions and aesthetic appeal), behavioral (usability and function), and reflective (personal meaning and self-image). Why is aesthetic important in emotional design? Aesthetic appeal triggers positive visceral reactions, making users more likely to feel good about using a product and fostering an emotional connection. How can designers apply emotional design principles in digital products? Designers can incorporate appealing visuals, intuitive interactions, and meaningful feedback to evoke positive emotions and create memorable user experiences. What role does emotional design play in product success? Emotional design can differentiate a product in a crowded market, foster brand loyalty, and enhance overall user engagement by creating a deep emotional connection. How does Norman suggest balancing function and emotion in design? Norman emphasizes that both usability and emotional appeal are essential; a well-designed product should be both functional and emotionally resonant. Can emotional design influence user behavior? Yes, emotional design can influence user behavior by increasing satisfaction, trust, and attachment, leading to repeated use and positive word-of-mouth. What are some examples of emotional design in everyday products? Examples include Apple products with sleek aesthetics, user-friendly interfaces that evoke joy, and packaging that creates a sense of delight upon opening. How has Donald Norman's concept of emotional design evolved over time? Norman's concept has expanded from focusing solely on aesthetics to a holistic approach that considers the entire emotional journey of the user across all interaction levels.

Related keywords: user experience, user-centered design, usability, aesthetics, emotional impact, cognitive psychology, design principles, human-centered design, user engagement, product emotion

CHARLOTTE AND PETER FIELL

Charlotte and Peter Fiell are renowned figures in the world of design, architecture, and

contemporary visual culture. Their collaborative work as authors, researchers, and curators has significantly influenced how we perceive design history and its impact on modern society. With a keen eye for detail and a passion for uncovering the stories behind iconic objects and movements, Charlotte and Peter Fiell have established themselves as authoritative voices in the field. This article delves into their backgrounds, contributions, notable publications, and their lasting influence on design scholarship.

Who Are Charlotte and Peter Fiell?

Background and Career Overview

Charlotte and Peter Fiell are British design historians and authors celebrated for their extensive work on design history and contemporary design trends. Their collaborative efforts have resulted in numerous influential publications that are widely used by students, professionals, and enthusiasts alike.

Charlotte Fiell's academic background is rooted in art and design history, which she has combined with her keen interest in the cultural aspects of design. Peter Fiell, on the other hand, is recognized for his expertise in design criticism and his ability to contextualize design within broader social and cultural frameworks.

Together, they have spent decades researching, writing, and curating exhibitions that highlight the evolution of design from the early modern period to the present day.

Major Contributions to Design Literature

Key Publications

The Fiells are perhaps best known for their comprehensive and visually engaging books that explore various facets of design. Some of their most influential publications include:

- **Design of the 20th Century** ? A definitive guide that chronicles the development of design over the last hundred years, covering everything from industrial design to graphic arts.
- **1000 Lights** ? An extensive survey of lighting design, showcasing innovations and iconic fixtures from around the world.
- **Furniture Design** ? An in-depth look at the evolution of furniture, highlighting key designers and movements that shaped modern interiors.
- **Design Culture: An Anthology** ? A collection of essays and case studies that examine the cultural significance of design across different eras and regions.

Their books are characterized by their rich visual content, combining high-quality photographs, detailed illustrations, and insightful analysis, making them invaluable resources for understanding the history and significance of design.

Curatorial and Exhibition Work

Beyond their publications, Charlotte and Peter Fiell have curated numerous exhibitions that have traveled worldwide. These exhibitions often serve as visual narratives that bring their written work to life, engaging audiences with immersive experiences.

Some notable exhibitions include:

- Modern Masters: Design in the 20th Century ? Showcasing key works from influential designers.
- Lighting the Future ? Exploring innovations in lighting technology and design.
- Furniture of the 21st Century ? Highlighting contemporary trends and emerging designers.

Their curatorial work emphasizes the importance of storytelling in design and underscores the social, cultural, and technological factors that influence creative practices.

Their Approach to Design History

Interdisciplinary Perspective

Charlotte and Peter Fiell advocate for an interdisciplinary approach to understanding design. They believe that design cannot be studied in isolation but must be contextualized within cultural, political, and technological frameworks.

This perspective allows their work to:

- Connect design movements with historical events.
- Analyze the societal impact of technological innovations.
- Explore the ways design reflects cultural identities.

Visual Emphasis

A hallmark of their publications is the emphasis on visual content. They understand that design is a highly visual discipline, and their books are often praised for their stunning imagery that complements scholarly analysis.

This visual focus:

- Enhances reader engagement.
- Provides a comprehensive understanding of design objects.
- Inspires designers and enthusiasts alike.

Influence and Legacy

Educational Impact

Charlotte and Peter Fiell's work has become standard reading in design education worldwide. Their books are frequently cited in university courses on design history, industrial design, and visual culture.

Their clear explanations and rich visuals make complex subject matter accessible to students and newcomers to the field.

Inspiring Contemporary Designers

Many modern designers cite the Fiells' publications as sources of inspiration. Their detailed case studies and historical insights help emerging designers appreciate the roots of their craft and the evolution of design principles.

Promoting Design Awareness

Through their exhibitions and writings, the Fiells have helped raise public awareness about the importance of design in everyday life. They emphasize that good design is not only functional but also culturally meaningful and aesthetically compelling.

Notable Awards and Recognitions

Over the years, Charlotte and Peter Fiell have received numerous accolades for their contributions to design scholarship and publishing, including:

- Design awards from major institutions.
- Recognition for their influence in curatorial practices.
- Honorary mentions for promoting design literacy worldwide.

Conclusion

Charlotte and Peter Fiell are pivotal figures in the understanding and appreciation of design. Their work bridges scholarly research and popular engagement, making complex design histories accessible and compelling. Whether through their meticulously researched books, inspiring exhibitions, or educational initiatives, they continue to shape the discourse around design's role in culture and society. For anyone interested in the evolution of design or seeking to deepen their appreciation of creative innovation, exploring the work of Charlotte and Peter Fiell offers valuable insights and inspiration.

Keywords: Charlotte and Peter Fiell, design history, design books, design exhibitions, influential designers, contemporary design, visual culture, design education, industrial design, furniture design, lighting design

Charlotte and Peter Fiell are renowned names in the world of design, architecture, and contemporary culture. Their collaborative work as authors, curators, and commentators has significantly shaped how audiences engage with design history and innovation. This dynamic duo's influence extends across numerous publications, exhibitions, and educational initiatives, making them pivotal figures for anyone interested in the evolution of design and its cultural implications. In this guide, we'll explore their backgrounds, key contributions, notable publications, and the enduring impact they have had on the field of design.

Who Are Charlotte and Peter Fiell?

Charlotte and Peter Fiell are a married couple with a shared passion for design. Their combined expertise spans decades, during which they have authored influential books, curated exhibitions, and contributed to scholarly discussions on design's role in society. Their work often blurs the lines between academic analysis and accessible storytelling, making complex topics approachable for both specialists and general readers.

Backgrounds and Expertise

- Charlotte Fiell: Charlotte has a background rooted in design history and cultural studies. Her focus often emphasizes contemporary design movements and their socio-cultural contexts.

- Peter Fiell: With a robust background in industrial design and architecture, Peter's insights frequently delve into design innovation, craftsmanship, and technological advancements.

Together, their complementary skills allow them to craft comprehensive narratives that contextualize design within broader historical, technological, and cultural frameworks.

Major Contributions and Notable Works

Influential Publications

The Fiell couple has authored and edited numerous books that have become staples in the fields of design and architecture. Some of their most notable publications include:

- "1000 Chairs" (2002): An exhaustive survey of chair design, exploring its evolution from functional object to icon of style and artistic expression.
- "Design of the 20th Century" (1999): A comprehensive overview of the century's most influential designers, movements, and innovations.
- "The Story of Design" (2012): A richly illustrated narrative tracing the history of design from prehistory to the digital age.
- "Fashion Design": Exploring the trajectory of fashion as an integral aspect of cultural expression and innovation.
- "The FIELL Collection": A series highlighting iconic design pieces, offering insights into their creation and significance.

Curatorial and Exhibition Work

Beyond their writing, Charlotte and Peter Fiell have curated numerous exhibitions showcasing design history and contemporary innovation. Their curatorial approach often emphasizes storytelling, contextualizing objects within cultural and societal shifts.

Educational Impact

Their work has been influential in academic settings, inspiring curricula, lectures, and seminars that introduce students and professionals alike to the richness of design history.

The Fiell Approach to Design

The Fiell duo's methodology combines rigorous research with engaging storytelling. They aim to:

- **Make Design Accessible:** Simplify complex concepts without sacrificing depth, making design history approachable for a broad audience.

- **Highlight Cultural Contexts:** Emphasize how design reflects, influences, and responds to societal changes.

- **Showcase Innovation:** Celebrate the creative process behind iconic objects, emphasizing craftsmanship, technology, and artistic vision.

- **Foster Appreciation for Craftsmanship:** Recognize the skill and artistry involved in design, encouraging respect for both historical and contemporary designers.

Key Themes in Their Work

- **The Evolution of Design**

Charlotte and Peter Fiell trace how design has evolved over centuries, influenced by technological advancements, cultural shifts, and economic factors. From early craftsmanship to mass production and digital design, they highlight pivotal moments and figures.

- **The Intersection of Art and Function**

Their work often explores how functional objects become symbols of aesthetic movement, reflecting societal values and individual identity.

- **Sustainability and Future Trends**

Recent writings emphasize the importance of sustainable design and innovation in addressing global challenges, positioning the Fiell couple as forward-thinking commentators.

- **Design as a Cultural Phenomenon**

They argue that design is not merely about objects but is deeply intertwined with cultural narratives, politics, and social change.

Influence and Legacy

Charlotte and Peter Fiell have played a crucial role in elevating the discourse around design, blending scholarly rigor with popular appeal. Their publications are widely used in academic courses, while their exhibitions and public talks inspire a broader appreciation for design's role in shaping human experience.

Key Contributions to the Field

- Bridging Academic and Popular Audiences: Their work makes scholarly insights accessible, fostering a wider appreciation.
- Documenting Design History: Their comprehensive catalogs serve as essential references.
- Encouraging Critical Engagement: They challenge audiences to consider design's impact on society and the environment.

Conclusion: The Enduring Impact of Charlotte and Peter Fiell

In sum, Charlotte and Peter Fiell have established themselves as influential voices in the study and celebration of design. Their collaborative efforts have produced a body of work that is both academically rigorous and broadly accessible, shaping how we understand the history, present, and future of design. Whether through their books, exhibitions, or lectures, they continue to inspire new generations of designers, historians, and enthusiasts to appreciate the artistry, innovation, and cultural significance of design objects and movements.

Their legacy underscores the idea that design is not just about aesthetics but a vital part of human culture—an ongoing dialogue between function, form, and society. As the world faces new challenges and opportunities, the insights and enthusiasm of Charlotte and Peter Fiell remain vital sources of inspiration and knowledge in the ever-evolving landscape of design.

Question Who are Charlotte and Peter Fiell in the design world? Charlotte and Peter Fiell are renowned design historians, authors, and curators known for their influential books and contributions to design education and appreciation. What are some notable works by Charlotte and Peter Fiell? Their notable works include 'Design of the 20th Century', 'Furniture Design', and 'The Story of Graphic Design', which are widely regarded as essential references in the field. How have Charlotte and Peter Fiell influenced design history? Through their comprehensive publications and exhibitions, they have significantly shaped the understanding and appreciation of modern and

contemporary design worldwide. Are Charlotte and Peter Fiell involved in any design exhibitions? Yes, they have curated numerous exhibitions on design topics, showcasing their expertise and promoting design awareness in museums and galleries globally. What is the focus of Charlotte and Peter Fiell's writing? Their writing primarily focuses on the history, evolution, and cultural impact of design, covering areas like furniture, graphic design, and industrial design. Have Charlotte and Peter Fiell received any awards for their work? Yes, they have received several awards and honors recognizing their contributions to design scholarship and publishing. Are Charlotte and Peter Fiell involved in teaching or academic work? While primarily known as authors and curators, they have also contributed to academic programs and lectures related to design history. Where can I find the works of Charlotte and Peter Fiell? Their books are available in major bookstores, online retailers, and libraries, and their exhibitions have been held at prominent museums worldwide. What impact have Charlotte and Peter Fiell had on design education? They have influenced design education by providing comprehensive resources and inspiring new generations of designers and historians. Are Charlotte and Peter Fiell still active in the design community? As of the latest information, they continue to contribute through writing, curating, and participating in design discussions and events.

Related keywords: design, architecture, interior design, furniture, lighting, visual inspiration, design authors, modern design, Scandinavian design, design books

Read the full article online: [Charlotte and peter fiell](#)