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Laboratory, Studio: Dispersing Sites of Production Peter Galison and Caroline A. Jones Index Descriptive content provided by Syndetics"! a Bowker service. Engages with the impact of modern technology on experimental physicists. This study reveals how the increasing scale and complexity of apparatus has distanced physicists from the very science which drew them into experimenting, and has fragmented microphysics into different technical traditions. No one better represents the plight and the conduct of German intellectuals under Hitler than Werner Heisenberg, whose task it was to build an atomic bomb for Nazi Germany. The controversy surrounding Heisenberg still rages, because of the nature of his work and the regime for which it was undertaken. What precisely did Heisenberg know about the physics of the atomic bomb? How deep was his loyalty to the German government during the Third Reich? Assuming that he had been able to build a bomb, would he have been willing? These questions, the moral and the scientific, are answered by Paul Lawrence Rose with greater accuracy and breadth of documentation than any other historian has yet achieved. Digging deep into the archival record among formerly secret technical reports, Rose establishes that Heisenberg never overcame certain misconceptions about nuclear fission, and as a result the German leaders never pushed for atomic weapons. In fact, Heisenberg never had to face

the moral problem of whether he should design a bomb for the Nazi regime. Only when he and his colleagues were interned in England and heard about Hiroshima did Heisenberg realize that his calculations were wrong. He began at once to construct an image of himself as a "pure" scientist who could have built a bomb but chose to work on reactor design instead. This was fiction, as Rose demonstrates: in reality, Heisenberg blindly supported and justified the cause of German victory. The question of why he did, and why he misrepresented himself afterwards, is answered through Rose's subtle analysis of German mentality and the scientists' problems of delusion and self-delusion. This fascinating study is a profound effort to understand one of the twentieth century's great enigmas. Mature sciences have been long been characterized in terms of the "successfulness", "reliability" or "trustworthiness" of their theoretical, experimental or technical accomplishments. Today many philosophers of science talk of "robustness", often without specifying in a precise way the meaning of this term. This lack of clarity is the cause of frequent misunderstandings, since all these notions, and that of robustness in particular, are connected to fundamental issues, which concern nothing less than the very nature of science and its specificity with respect to other human practices, the nature of rationality and of scientific

progress; and science's claim to be a truth-conducive activity. This book offers for the first time a comprehensive analysis of the problem of robustness, and in general, that of the reliability of science, based on several detailed case studies and on philosophical essays inspired by the so-called practical turn in philosophy of science. Traces the true birth of modern twentieth-century science through the groundbreaking work of German theoretical physicist Albert Einstein and Henri Poincarê, a mathematician responsible for mapping time coordinates across continents. Galison's Cool Cats Magnetic Bookmarks feature a delightful collection of whimsically illustrated feline friends. The six die-cut magnetic clips hold your place and add decoration to any book or magazine page. - 6 die-cut magnetic bookmark clips, 6 designs - Packaged in polybag - Package: 2.75 x 7.75" - Bookmarks: (approx.) 1 x 2" This timely and engaging book addresses communicative issues that arise when science and technology travel across socio-cultural boundaries. The authors discuss interactions between different scientific communities; scientists and policy-makers; science and the public; scientists and artists; and other situations where science clashes with other socio-cultural domains. The volume includes theoretical proposals of how to deal with intercultural communication related to science and technology, as well as rich case studies that illustrate the challenges and strategies

deployed in these situations. Individual studies explore Europe, Latin America, and Africa, thus including diverse Global North and South contexts. "More than a history of science; it is a tour de force in the genre."—New York Times Book Review A dramatic new account of the parallel quests to harness time that culminated in the revolutionary science of relativity, Einstein's Clocks, Poincaré's Maps is "part history, part science, part adventure, part biography, part meditation on the meaning of modernity....In Galison's telling of science, the meters and wires and epoxy and solder come alive as characters, along with physicists, engineers, technicians and others....Galison has unearthed fascinating material" (New York Times). Clocks and trains, telegraphs and colonial conquest: the challenges of the late nineteenth century were an indispensable real-world background to the enormous theoretical breakthrough of relativity. And two giants at the foundations of modern science were converging, step-by-step, on the answer: Albert Einstein, an young, obscure German physicist experimenting with measuring time using telegraph networks and with the coordination of clocks at train stations; and the renowned mathematician Henri Poincaré, president of the French Bureau of Longitude, mapping time coordinates across continents. Each found that to understand the newly global world, he had to determine whether there existed a pure time in which

simultaneity was absolute or whether time was relative. Esteemed historian of science Peter Galison has culled new information from rarely seen photographs, forgotten patents, and unexplored archives to tell the fascinating story of two scientists whose concrete, professional preoccupations engaged them in a silent race toward a theory that would conquer the empire of time. Why did science emerge in the West and how did scientific values come to be regarded as the yardstick for all other forms of knowledge? Stephen Gaukroger shows just how bitterly the cognitive and cultural standing of science was contested in its early development. Rejecting the traditional picture of secularization, he argues that science in the seventeenth century emerged not in opposition to religion but rather was in many respects driven by it. Moreover, science did not present a unified picture of nature but was an unstable field of different, often locally successful but just as often incompatible, programmes. To complicate matters, much depended on attempts to reshape the persona of the natural philosopher, and distinctive new notions of objectivity and impartiality were imported into natural philosophy, changing its character radically by redefining the qualities of its practitioners. The West's sense of itself, its relation to its past, and its sense of its future, have been profoundly altered since the seventeenth century, as cognitive values generally have

gradually come to be shaped around scientific ones. Science has not merely brought a new set of such values to the task of understanding the world and our place in it, but rather has completely transformed the task, redefining the goals of enquiry. This distinctive feature of the development of a scientific culture in the West marks it out from other scientifically productive cultures. In *The Emergence of a Scientific Culture*, Stephen Gaukroger offers a detailed and comprehensive account of the formative stages of this development—and one which challenges the received wisdom that science was seen to be self-evidently the correct path to knowledge and that the benefits of science were immediately obvious to the disinterested observer. A Harvard scholar argues that mathematical models can provide solutions to current economic challenges, explaining that the economic meltdown of 2008 was based on a misunderstanding of scientific models rather than on the models themselves. More than fifty years after his death, Albert Einstein's vital engagement with the world continues to inspire others, spurring conversations, projects, and research, in the sciences as well as the humanities. Einstein for the 21st Century shows us why he remains a figure of fascination. In this wide-ranging collection, eminent artists, historians, scientists, and social scientists describe Einstein's influence on their work, and consider his relevance for the future.

Scientists discuss how Einstein's vision continues to motivate them, whether in their quest for a fundamental description of nature or in their investigations in chaos theory; art scholars and artists explore his ties to modern aesthetics; a music historian probes Einstein's musical tastes and relates them to his outlook in science; historians explore the interconnections between Einstein's politics, physics, and philosophy; and other contributors examine his impact on the innovations of our time. Uniquely cross-disciplinary, *Einstein for the 21st Century* serves as a testament to his legacy and speaks to everyone with an interest in his work. The contributors are Leon Botstein, Lorraine Daston, E. L. Doctorow, Yehuda Elkana, Yaron Ezrahi, Michael L. Friedman, Jürg Fröhlich, Peter L. Galison, David Gross, Hanoach Gutfreund, Linda D. Henderson, Dudley Herschbach, Gerald Holton, Caroline Jones, Susan Neiman, Lisa Randall, Jürgen Renn, Matthew Ritchie, Silvan S. Schweber, and A. Douglas Stone. For much of the twentieth century scientists sought to explain objects and processes by reducing them to their components—nuclei into protons and neutrons, proteins into amino acids, and so on—but over the past forty years there has been a marked turn toward explaining phenomena by building them up rather than breaking them down. This collection reflects on the history and significance of this turn toward “growing

explanations” from the bottom up. The essays show how this strategy—based on a widespread appreciation for complexity even in apparently simple processes and on the capacity of computers to simulate such complexity—has played out in a broad array of sciences. They describe how scientists are reordering knowledge to emphasize growth, change, and contingency and, in so doing, are revealing even phenomena long considered elementary—like particles and genes—as emergent properties of dynamic processes. Written by leading historians and philosophers of science, these essays examine the range of subjects, people, and goals involved in changing the character of scientific analysis over the last several decades. They highlight the alternatives that fields as diverse as string theory, fuzzy logic, artificial life, and immunology bring to the forms of explanation that have traditionally defined scientific modernity. A number of the essays deal with the mathematical and physical sciences, addressing concerns with hybridity and the materials of the everyday world. Other essays focus on the life sciences, where questions such as “What is life?” and “What is an organism?” are undergoing radical re-evaluation. Together these essays mark the contours of an ongoing revolution in scientific explanation. Contributors. David Aubin, Amy Dahan Dalmedico, Richard Doyle, Claus Emmeche, Peter Galison, Stefan Helmreich, Ann

Johnson, Evelyn Fox Keller, Ilana Löwy, Claude Rosental, Alfred Tauber What is the origin of music? In the last few decades this centuries-old puzzle has been reinvigorated by new archaeological evidence and developments in the fields of cognitive science, linguistics, and evolutionary theory. Starting at a period of human prehistory long before Homo sapiens or music existed, Tomlinson describes the incremental attainments that, by changing the communication and society of prehuman species, laid the foundation for musical behaviors in more recent times. He traces in Neandertals and early sapiens the accumulation and development of these capacities, and he details their coalescence into modern musical behavior across the last hundred millennia The books that we choose to keep -- let alone read -- can say a lot about who we are and how we see ourselves. In My Ideal Bookshelf, dozens of leading cultural figures share the books that matter to them most; books that define their dreams and ambitions and in many cases helped them find their way in the world. Contributors include Malcolm Gladwell, Thomas Keller, Michael Chabon, Alice Waters, James Patterson, Maira Kalman, Judd Apatow, Chuck Klosterman, Miranda July, Alex Ross, Nancy Pearl, David Chang, Patti Smith, Jennifer Egan, and Dave Eggers, among many others. With colorful and endearingly hand-rendered images of book spines by Jane Mount, and first-person commentary from all

the contributors, this is a perfect gift for avid readers, writers, and all who have known the influence of a great book. Die Reihe widmet sich zentralen neueren Konzepten und Methoden im Feld der kulturwissenschaftlichen Grundlagenforschung und inhaltlichen Fragestellungen. Sie zielt darauf, die gegenwärtige Diskussion in den Kulturwissenschaften weiter zu profilieren und sie zugleich für die Arbeit in den Disziplinen fruchtbar zu machen: durch die Ausarbeitung interdisziplinärer Schlüsselkonzepte und die Entwicklung einer transkulturellen study of culture. Die Bände gehen überwiegend aus den Literatur-, Geschichts- und Kulturwissenschaften hervor, aber auch aus der Politikwissenschaft, der Soziologie und den Medienwissenschaften. The evolution of a discipline at the intersection of physics, chemistry, and mathematics. Quantum chemistry—a discipline that is not quite physics, not quite chemistry, and not quite applied mathematics—emerged as a field of study in the 1920s. It was referred to by such terms as mathematical chemistry, subatomic theoretical chemistry, molecular quantum mechanics, and chemical physics until the community agreed on the designation of quantum chemistry. In Neither Physics Nor Chemistry, Kostas Gavroglu and Ana Simões examine the evolution of quantum chemistry into an autonomous discipline, tracing

its development from the publication of early papers in the 1920s to the dramatic changes brought about by the use of computers in the 1970s. The authors focus on the culture that emerged from the creative synthesis of the various traditions of chemistry, physics, and mathematics. They examine the concepts, practices, languages, and institutions of this new culture as well as the people who established it, from such pioneers as Walter Heitler and Fritz London, Linus Pauling, and Robert Sanderson Mulliken, to later figures including Charles Alfred Coulson, Raymond Daudel, and Per-Olov Löwdin. Throughout, the authors emphasize six themes: epistemic aspects and the dilemmas caused by multiple approaches; social issues, including academic politics, the impact of textbooks, and the forging of alliances; the contingencies that arose at every stage of the developments in quantum chemistry; the changes in the field when computers were available to perform the extraordinarily cumbersome calculations required; issues in the philosophy of science; and different styles of reasoning. Physicists, historians, and anthropologists examine the transition of research in the physical sciences from the individuals or small groups after World War II, to the huge projects that now involve hundreds of scientists. The 13 papers, from a 1988 workshop at Stanford University, consider the American, European, and Japanese

experience. Annotation copyrighted by Book News, Inc., Portland, OR The author presents his personal drawings and narrative of his experiences during World War Two including his participation in the 1942 Doolittle raid over Tokyo, twenty-seven missions in North Africa, capture, and time as a POW in Barth, Germany. Since the seventeenth century our ideas of scientific authorship have expanded and changed dramatically. In this ambitious volume of new work, Mario Biagioli and Peter Galison have brought together historians of science, literary historians, and historians of the book. Together they track the changing nature and identity of the author in science, both historically and conceptually, from the emergence of scientific academies in the age of Galileo to concerns with large-scale multiauthorship and intellectual property rights in the age of cloning labs and pharmaceutical giants. How, for example, do we decide whether a chemical compound is discovered or invented? What does it mean to patent genetic material? Documenting the emergence of authorship in the late medieval period, authorship's limits and its fragmentation, Scientific Authorship offers a collective history of a complex relationship. It's the trip of a lifetime—a textile-based tour of colorful Rajasthan, India featuring more than 200 lush photographs depicting everyday life in one of the most vibrant regions in the world. "Get lost in the beauty of the

photographs in Patterns of India, a striking journey through the colorful Indian state of Rajasthan."—BuzzFeed Patterns of India is a visual experience that offers intimate insights into the diverse and richly hued Western Indian culture. Color is the thread that binds the vast country together, defining every aspect of life from religion and politics to food and dress. Organized by the five dominant colors royal blue, sandstone, marigold, ivory, and rose, this book explores how deeply color and pattern exist in a symbiotic relationship and are woven into every part of the culture. For instance, the fuchsia found in the draping fabric of a sari is matched by the vibrant chains of roses offered at temple, and the burnt orange spices in the marketplaces are reflected in the henna tattoos given to brides and wedding guests. While every color is imbued with meaning, it is often within the details of patterns that the full story comes to light. Photographer and writer Christine Chitnis spent over a decade traveling through, getting to know, and falling in love with the intricate patterns of everyday Rajasthani life. With history and culture-based essays woven throughout the more than 200 stunning photographs of architecture, markets, cuisine, art, textiles, and everyday goings-on, Patterns of India captures the beauty and essence of this unique part of the world. Worries about scientific objectivity seem never-ending. Social critics and philosophers of science have argued that

invocations of objectivity are often little more than attempts to boost the status of a claim, while calls for value neutrality may be used to suppress otherwise valid dissenting positions. Objectivity is used sometimes to advance democratic agendas, at other times to block them; sometimes for increasing the growth of knowledge, at others to resist it. Sandra Harding is not ready to throw out objectivity quite yet. For all of its problems, she contends that objectivity is too powerful a concept simply to abandon. In *Objectivity and Diversity*, Harding calls for a science that is both more epistemically adequate and socially just, a science that would ask: How are the lives of the most economically and politically vulnerable groups affected by a particular piece of research? Do they have a say in whether and how the research is done? Should empirically reliable systems of indigenous knowledge count as "real science"? Ultimately, Harding argues for a shift from the ideal of a neutral, disinterested science to one that prizes fairness and responsibility. This book is a collection of essays by leading practitioners of modern European intellectual history, reflecting on the theoretical and methodological underpinnings of the field. The essays each attempt to assess their respective disciplines, giving an account of their development and theoretical evolution, while also reflecting on current problems, challenges, and possibilities. First Published in 1998. Routledge is an imprint of

Taylor & Francis, an informa company. From weaker to stronger rhetoric : literature - Laboratories - From weak points to strongholds : machines - Insiders out - From short to longer networks : tribunals of reason - Centres of calculation. Andy Warhol *Sunset Magnets* by Galison include 9 different colored versions of Warhol's famous *Sunset* masterpiece. Each magnet is 1.5 x 1.5" square. - Size: 4.5 x 6.75", 114 x 171 mm Sheet - Includes 9 Magnets - Magnet size: 1.5 x 1.5", 38 x 38 mm - Matte finish artwork - Perfect hanging notes and pictures on the refrigerator *Leviathan and the Air-Pump* examines the conflicts over the value and propriety of experimental methods between two major seventeenth-century thinkers: Thomas Hobbes, author of the political treatise *Leviathan* and vehement critic of systematic experimentation in natural philosophy, and Robert Boyle, mechanical philosopher and owner of the newly invented air-pump. The issues at stake in their disputes ranged from the physical integrity of the air-pump to the intellectual integrity of the knowledge it might yield. Both Boyle and Hobbes were looking for ways of establishing knowledge that did not decay into ad hominem attacks and political division. Boyle proposed the experiment as cure. He argued that facts should be manufactured by machines like the air-pump so that gentlemen could witness the experiments and produce knowledge that everyone agreed on. Hobbes, by

contrast, looked for natural law and viewed experiments as the artificial, unreliable products of an exclusive guild. The new approaches taken in *Leviathan* and the *Air-Pump* have been enormously influential on historical studies of science. Shapin and Schaffer found a moment of scientific revolution and showed how key scientific givens--facts, interpretations, experiment, truth--were fundamental to a new political order. Shapin and Schaffer were also innovative in their ethnographic approach. Attempting to understand the work habits, rituals, and social structures of a remote, unfamiliar group, they argued that politics were tied up in what scientists did, rather than what they said. Steven Shapin and Simon Schaffer use the confrontation between Hobbes and Boyle as a way of understanding what was at stake in the early history of scientific experimentation. They describe the protagonists' divergent views of natural knowledge, and situate the Hobbes-Boyle disputes within contemporary debates over the role of intellectuals in public life and the problems of social order and assent in Restoration England. In a new introduction, the authors describe how science and its social context were understood when this book was first published, and how the study of the history of science has changed since then. Modern philosophy of science has paid great attention to the understanding of scientific 'practice', in contrast to concentration on scientific 'method'. Paul

Feyerabend's acclaimed work, which has contributed greatly to this new emphasis, shows the deficiencies of some widespread ideas about the nature of knowledge. He argues that the only feasible explanations of scientific successes are historical explanations, and that anarchism must now replace rationalism in the theory of knowledge. The third edition of this classic text contains a new preface and additional reflections at various points in which the author takes account both of recent debates on science and on the impact of scientific products and practices on the human community. While disavowing populism or relativism, Feyerabend continues to insist that the voice of the inexpert must be heard. Thus many environmental perils were first identified by non-experts against prevailing assumptions in the scientific community. Feyerabend's challenging reassessment of scientific claims and understandings are as pungent and timely as ever. "A book that will alter substantially our conceptions regarding the development and influence of a crucial modern science."--Philip J. Pauly, Rutgers University "Clarke gives us a window into a part of the history of science that has never before been made so accessible but one about which there is great concern. . . . An extremely valuable work."--Emily Martin, Princeton University "As an excellent case study of the powerful analytical potential of the social world's approach, Disciplining

Reproduction is a major contribution to theory building in science studies."--Nelly Oudshoorn, University of Amsterdam "The role of aerial photography in the evolution of the concept of social space" and its impact on French urban planning in the mid-twentieth century. In mid-twentieth century France, the term "social space" (l'espace social)—the idea that spatial form and social life are inextricably linked—emerged in a variety of social science disciplines. Taken up by the French New Left, it also came to inform the practice of urban planning. In *The View from Above*, Jeanne Haffner traces the evolution of the science of social space from the interwar period to the 1970s, illuminating in particular the role of aerial photography in this new way of conceptualizing socio-spatial relations. As early as the 1930s, the view from above served for Marcel Griaule and other anthropologists as a means of connecting the social and the spatial. Just a few decades later, the Marxist urban sociologist Henri Lefebvre called the perspective enabled by aerial photography—a technique closely associated with the French colonial state and military—"the space of state control." Lefebvre and others nevertheless used the notion of social space to recast the problem of massive modernist housing projects (grands ensembles) to encompass the modern suburb (banlieue) itself—a critique that has contemporary resonance in

light of the banlieue riots of 2005 and 2007. Haffner shows how such "views" permitted new ways of conceptualizing the old problem of housing to emerge. She also points to broader issues, including the influence of the colonies on the metropole, the application of sociological expertise to the study of the built environment, and the development of a spatially oriented critique of capitalism. Galison's vintage-inspired *Secret Book Safe* is a clever place to hide treasures, keepsakes and more. The secret compartment includes a bonus multi-directional notebook to list store notes on side and logins and passwords on the other side. Award-winning designer, illustrator and creative director Michael Storrings captures a lively New York City holiday scene, complete with sledding, dogs in the park and snowy fun. Michael Storrings *Bow Bridge 500 Piece Puzzle* and all Galison puzzles are packaged in a sturdy, matte-finish box perfect for gift giving and storage. - Package: 8 x 8 x 2" - Complete puzzle: 20 x 20" - Includes insert with information about the artist and image 'Einstein's Generation' offers a new approach to the origins of modern physics by exploring both the material culture that stimulated relativity and the reaction of Einstein's colleagues to his pioneering work. Across the world, universities are more numerous than they have ever been, yet at the same time there is unprecedented confusion about their purpose and scepticism

about their value. What Are Universities For? offers a spirited and compelling argument for completely rethinking the way we see our universities, and why we need them. Stefan Collini challenges the common claim that universities need to show that they help to make money in order to justify getting more money. Instead, he argues that we must reflect on the different types of institution and the distinctive roles they play. In particular we must recognize that attempting to extend human understanding, which is at the heart of disciplined intellectual enquiry, can never be wholly harnessed to immediate social purposes - particularly in the case of the humanities, which both attract and puzzle many people and are therefore the most difficult subjects to justify. At a time when the future of higher education lies in the balance, What Are Universities For? offers all of us a better, deeper and more enlightened understanding of why universities matter, to everyone. The Embodied Image

The Embodied Image: Imagination and Imagery in Architecture Juhani Pallasmaa

All artistic and architectural effects are evoked, mediated and experienced through poeticised images. These images are embodied and lived experiences that take place in 'the flesh of the world', becoming part of us, at the same time that we unconsciously project aspects of ourselves on to a conceived space, object or event. Artistic images have a life and reality

of their own and they develop through unexpected associations rather than rational and causal logic. Images are usually thought of as retinal pictures but profound poetic images are multi-sensory and they address us in an embodied and emotive manner. Architecture is usually analysed and taught as a discipline that articulates space and geometry, but the mental impact of architecture arises significantly from its image quality that integrates the various aspects and dimensions of experience into a singular, internalised and remembered entity. The material reality is fused with our mental and imaginative realm. The book is organised into five main parts that look at in turn: the image in contemporary culture; language, thought and the image; the many faces of the image; the poetic image; and finally the architectural image. The Embodied Image is illustrated with over sixty images in pairs, which are diverse in subject. They range from scientific images to historic artistic and architectural masterpieces. Artworks span Michelangelo and Vermeer to Gordon Matta-Clark and architecture takes in Modern Masters such as Mies van der Rohe, Le Corbusier and Alvar Aalto, as well as significant contemporary works by Steven Holl and Daniel Libeskind. Objectivity has a history, and it is full of surprises. In Objectivity, Lorraine Daston and Peter Galison chart the emergence of objectivity in the mid-nineteenth-century sciences —

and show how the concept differs from alternatives, truth-to-nature and trained judgment. This is a story of lofty epistemic ideals fused with workaday practices in the making of scientific images. From the eighteenth through the early twenty-first centuries, the images that reveal the deepest commitments of the empirical sciences — from anatomy to crystallography — are those featured in scientific atlases: the compendia that teach practitioners of a discipline what is worth looking at and how to look at it. Atlas images define the working objects of the sciences of the eye: snowflakes, galaxies, skeletons, even elementary particles. Galison and Daston use atlas images to uncover a hidden history of scientific objectivity and its rivals. Whether an atlas maker idealizes an image to capture the essentials in the name of truth-to-nature or refuses to erase even the most incidental detail in the name of objectivity or highlights patterns in the name of trained judgment is a decision enforced by an ethos as well as by an epistemology. As Daston and Galison argue, atlases shape the subjects as well as the objects of science. To pursue objectivity — or truth-to-nature or trained judgment — is simultaneously to cultivate a distinctive scientific self wherein knowing and knower converge. Moreover, the very point at which they visibly converge is in the very act of seeing not as a separate individual but as a member of a particular scientific community.

Embedded in the atlas image, therefore, are the traces of consequential choices about knowledge, persona, and collective sight. Objectivity is a book addressed to any one interested in the elusive and crucial notion of objectivity — and in what it means to peer into the world scientifically. An introduction to the new area of ignorance studies that examines how science produces ignorance—both actively and passively, intentionally and unintentionally. We may think of science as our foremost producer of knowledge, but for the past decade, science has also been studied as an important source of ignorance. The historian of science Robert Proctor has coined the term agnotology to refer to the study of ignorance, and much of the ignorance studied in this new area is produced by science. Whether an active or passive construct, intended or unintended, this ignorance is, in Proctor's words, “made, maintained, and manipulated” by science. This volume examines forms of scientific ignorance and their consequences. A dialogue between Proctor and Peter Galison offers historical context, presenting the concerns and motivations of pioneers in the field. Essays by leading historians and philosophers of science examine the active construction of ignorance by biased design and interpretation of experiments

and empirical studies, as seen in the “false advertising” by climate change deniers; the “virtuous” construction of ignorance—for example, by curtailing research on race- and gender-related cognitive differences; and ignorance as the unintended by-product of choices made in the research process, when rules, incentives, and methods encourage an emphasis on the beneficial and commercial effects of industrial chemicals, and when certain concepts and even certain groups' interests are inaccessible in a given conceptual framework. Contributors Martin Carrier, Carl F. Cranor, Peter Galison, Paul Hoyningen-Huene, Philip Kitcher, Janet Kourany, Hugh Lacey, Robert Proctor, Londa Schiebinger, Miriam Solomon, Torsten Wilholt Is science unified or disunified? Over the last century, the question has raised the interest (and hackles) of scientists, philosophers, historians, and sociologists of science, for at stake is how science and society fit together. Recent years have seen a turn largely against the rhetoric of unity, ranging from the please of condensed matter physicists for disciplinary autonomy all the way to discussions in the humanities and social sciences that involve local history, feminism, multiculturalism, postmodernism, scientific relativism and realism, and social constructivism. Many of these varied aspects of the debate over the disunity of science are reflected in this

volume, which brings together a number of scholars studying science who otherwise have had little to say to each other: feminist theorists, philosophers of science, sociologists of science. How does the context of discover shape knowledge? What are the philosophical consequences of a disunified science? Does, for example, an antirealism, a realism, or an arealism become defensible within a picture of local scientific knowledge? What politics lies behind and follows from a picture of the world of science more like a quilt than a pyramid? Who gains and loses if representation of science has standards that vary from place to place, field to field, and practitioner to practitioner. Are science and technology independent of one another? Is technology dependent upon science, and if so, how is it dependent? Is science dependent upon technology, and if so how is it dependent? Or, are science and technology becoming so interdependent that the line dividing them has become totally erased? This book charts the history of technoscience from the late nineteenth century to the end of the twentieth century and shows how the military-industrial-academic complex and big science combined to create new examples of technoscience in such areas as the nuclear arms race, the space race, the digital age, and the new worlds of nanotechnology and biotechnology.