

Modern Construction Handbook 3rd Edition

This book adopts a methodical approach to the process of planning and control exercised by the contractor during the pre-tender, pre-contract and construction phases of projects through the application of various planning techniques to a number of case studies in both building and civil engineering. To develop a fundamental understanding of the factors which influence the successful management of time on projects, the book explores the implications of new forces that are changing the way the construction industry operates, including the 'Latham' culture and new health and safety legislation such as the Construction (Design and Management) Regulations. A number of planning applications are explained, including linked bar charts, networks and precedence diagrams, together with techniques used for repetitive projects, such as line of balance and time-chainage diagrams. The text also incorporates examples of contract budgetary control and cost-value reconciliation procedures.

Developed as a resource for practicing engineers, while simultaneously serving as a text in a formal classroom setting, Wind and Earthquake Resistant Buildings provides a fundamental understanding of the behavior of steel, concrete, and composite building structures. The text format follows, in a logical manner, the typical process of designing a building, from the first step of determining design loads, to the final step of evaluating its behavior for unusual effects. Includes a worksheet that takes the drudgery out of estimating wind response. The book presents an in-depth review of wind effects and outlines seismic design, highlighting the dynamic behavior of buildings. It covers the design and detailing the requirements of steel, concrete, and composite buildings assigned to seismic design categories A through E. The author explains critical code specific items and structural concepts by doing the nearly impossible feat of addressing the history, reason for existence, and intent of major design provisions of the building codes. While the scope of the book is intentionally broad, it provides enough in-depth coverage to make it useful for structural engineers in all stages of their careers.

The industry-standard guide to designing well-performing buildings Architectural Detailing systematically describes the principles by which good architectural details are designed. Principles are explained in brief, and backed by extensive illustrations that show you how to design details that will not leak water or air, will control the flow of heat and water vapor, will adjust to all kinds of movement, and will be easy to construct. This new third edition has been updated to conform to International Building Code 2012, and incorporates current knowledge about new material and construction technology.

Sustainable design issues are integrated where relevant, and the discussion includes reviews of recent built works that extract underlying principles that can be the basis for new patterns or the alteration and addition to existing patterns. Regulatory topics are primarily focused on the US, but touch on other jurisdictions and geographic settings to give you a well-rounded perspective of the art and science of architectural detailing. In guiding a design from idea to reality, architects design a set of details that show how a structure will be put together. Good details are correct, complete, and provide accurate information to a wide variety of users. By demonstrating the use of detail patterns, this book teaches you how to design a building that will perform as well as you intend.

Integrate appropriate detailing into your designs Learn the latest in materials, assemblies, and construction methods Incorporate sustainable design principles and

current building codes Design buildings that perform well, age gracefully, and look great Architects understand that aesthetics are only a small fraction of good design, and that stability and functionality require a deep understanding of how things come together. Architectural Detailing helps you bring it all together with a well fleshed-out design that communicates accurately at all levels of the construction process.

This book introduces the latest construction practices and processes for tall buildings from foundation to roof. It attempts to acquaint readers with the methods, materials, equipment and systems used for the construction of tall buildings. The text progresses through the stages of site investigation, excavation and foundations, basement construction, structural systems for the superstructure, site and material handling, wall and floor construction, cladding and roof construction. The construction sequence, merits and limitations of the various proprietary systems commonly used in these respective stages are discussed. This third edition also includes several new topics not covered in the previous edition.

An exploration of the world of concrete as it applies to the construction of buildings, Reinforced Concrete Design of Tall Buildings provides a practical perspective on all aspects of reinforced concrete used in the design of structures, with particular focus on tall and ultra-tall buildings. Written by Dr. Bungale S. Taranath, this work explains the fundamental principles and state-of-the-art technologies required to build vertical structures as sound as they are eloquent. Dozens of cases studies of tall buildings throughout the world, many designed by Dr. Taranath, provide in-depth insight on why and how specific structural system choices are made. The book bridges the gap between two approaches: one based on intuitive skills and experience and the other based on computer skills and analytical techniques. Examining the results when experiential intuition marries unfathomable precision, this book discusses: The latest building codes, including ASCE/SEI 7-05, IBC-06/09, ACI 318-05/08, and ASCE/SEI 41-06 Recent developments in studies of seismic vulnerability and retrofit design Earthquake hazard mitigation technology, including seismic base isolation, passive energy dissipation, and damping systems Lateral bracing concepts and gravity-resisting systems Performance based design trends Dynamic response spectrum and equivalent lateral load procedures Using realistic examples throughout, Dr. Taranath shows how to create sound, cost-efficient high rise structures. His lucid and thorough explanations provide the tools required to derive systems that gracefully resist the battering forces of nature while addressing the specific needs of building owners, developers, and architects. The book is packed with broad-ranging material from fundamental principles to the state-of-the-art technologies and includes techniques thoroughly developed to be highly adaptable. Offering complete guidance, instructive examples, and color illustrations, the author develops several approaches for designing tall buildings. He demonstrates the benefits of blending imaginative problem solving and rational analysis for creating better structural systems.

Get the updated industry standard for a new age of construction! For more than fifty years, Olin's Construction has been the cornerstone reference in the field for architecture and construction professionals and students. This new edition is an invaluable resource that will provide in-depth coverage for decades to come. You'll find the most up-to-date principles, materials, methods, codes, and standards used in the design and construction of contemporary concrete, steel, masonry, and wood buildings

for residential, commercial, and institutional use. Organized by the principles of the MasterFormat® 2010 Update, this edition: Covers sitework; concrete, steel, masonry, wood, and plastic materials; sound control; mechanical and electrical systems; doors and windows; finishes; industry standards; codes; barrier-free design; and much more Offers extensive coverage of the metric system of measurement Includes more than 1,800 illustrations, 175 new to this edition and more than 200 others, revised to bring them up to date Provides vital descriptive information on how to design buildings, detail components, specify materials and products, and avoid common pitfalls Contains new information on sustainability, expanded coverage of the principles of construction management and the place of construction managers in the construction process, and construction of long span structures in concrete, steel, and wood The most comprehensive text on the subject, Olin's Construction covers not only the materials and methods of building construction, but also building systems and equipment, utilities, properties of materials, and current design and contracting requirements. Whether you're a builder, designer, contractor, or manager, join the readers who have relied on the principles of Olin's Construction for more than two generations to master construction operations.

Modern Construction Envelopes deals with the facade and roof as an integral part of the building, allowing a holistic approach to the design of the building envelope and providing greater design freedom. The book is aimed at readers who want to extend their knowledge of wall and roof construction beyond the information given in the Modern Construction Handbook, using state-of-the-art construction principles of modern facade and roof systems. The third edition of this classic has been fully brought up to date; it contains new examples in all chapters and presents the projects in revised, new 3D drawings and in 27 AR applications that can be accessed free of charge via smartphone and tablet.

This new edition of a core undergraduate textbook for construction managers reflects current best practice, topical industry preoccupations and latest developments in courses and fundamental subjects for students. While the construction process still requires traditional skills, changes over recent decades today demand improved understanding of modern business, production and contractual practices. The authors have responded accordingly and the book has undergone a thorough re-write, eliminating some of the older material and adding new processes now considered essential to achieving lean construction.

Particular emphasis is given, for example, to supply chains and networks, value and risk management, BIM, ICT, project arrangements, corporate social responsibility, training, health and welfare and environmental sustainability.

Modern Construction Management presents construction as a socially responsible, innovative, carbon-reducing, manager-involved, people-oriented, crisis-free industry that is efficient and cost effective. The overall themes for the Seventh Edition are: Drivers for efficiency: lean construction underpinning production management and off-site production methods.

Sustainability: reflecting the transition to a low carbon economy. Corporate Social Responsibility: embracing health & safety, modernistic contracts, effective procurement, and employment issues. Building Information Management: directed

towards the improvement of construction management systems. The comprehensive selection of worked examples, based on real and practical situations in construction management and methods will help to consolidate learning. A companion website at www.wiley.com/go/MCM7 offers invaluable support material for both tutors and students: Solutions to the self-learning exercises PowerPoint slides with discussion topics Journal and web references Structured to reflect site, business and corporate responsibilities of managers in construction, the book continues to provide strong coverage of the salient elements required for developing and equipping the modern construction manager with the competencies and skills for both technical and business related areas.

• Test Taking Techniques • Book Overviews • Highlight and Tab Instructions • Hundreds of Test Questions • Math Review • Test Scope & Approved References

Over 140 experts, 14 countries, and 89 chapters are represented in the second edition of the Bridge Engineering Handbook. This extensive collection highlights bridge engineering specimens from around the world, contains detailed information on bridge engineering, and thoroughly explains the concepts and practical applications surrounding the subject. Published in five books: Fundamentals, Superstructure Design, Substructure Design, Seismic Design, and Construction and Maintenance, this new edition provides numerous worked-out examples that give readers step-by-step design procedures, includes contributions by leading experts from around the world in their respective areas of bridge engineering, contains 26 completely new chapters, and updates most other chapters. It offers design concepts, specifications, and practice, as well as the various types of bridges. The text includes over 2,500 tables, charts, illustrations, and photos. The book covers new, innovative and traditional methods and practices; explores rehabilitation, retrofit, and maintenance; and examines seismic design and building materials. The fifth book, Construction and Maintenance contains 19 chapters, and covers the practical issues of bridge structures. What's New in the Second Edition: Includes nine new chapters: Steel Bridge Fabrication, Cable-Supported Bridge Construction, Accelerated Bridge Construction, Bridge Management Using Pontis and Improved Concepts, Bridge Maintenance, Bridge Health Monitoring, Nondestructive Evaluation Methods for Bridge Elements, Life-Cycle Performance Analysis and Optimization, and Bridge Construction Methods Rewrites the Bridge Construction Inspection chapter and retitles it as: Bridge Construction Supervision and Inspection Expands and rewrites the Maintenance Inspection and Rating chapter into three chapters: Bridge Inspection, Steel Bridge Evaluation and Rating, and Concrete Bridge Evaluation and Rating; and the Strengthening and Rehabilitation chapter into two chapters: Rehabilitation and Strengthening of Highway Bridge Superstructures, and Rehabilitation and Strengthening of Orthotropic Steel Bridge Decks This text

is an ideal reference for practicing bridge engineers and consultants (design, construction, maintenance), and can also be used as a reference for students in bridge engineering courses.

Constant technological advancements are opening up dramatic new possibilities for the built form; at the same time architects are developing innovative designs which require new techniques to make these ideas reality. The Encyclopedia of Architectural Technology is the first book to specifically address these two issues by providing a comprehensive reference to modern architectural technologies, encompassing all key aspects of construction, structures, environmental design and servicing. The Encyclopaedia features over 180 entries ranging from materials and techniques to notable innovators in architecture and engineering. Each entry includes a brief quick-reference summary followed by a more detailed text and suggestions for further reading. Besides technological terms, entries are included on related topics such as sick building syndrome and sustainability. Key engineers Ove Arup and Ted Happold have dedicated entries, as do a range of ground-breaking architects such as Le Corbusier, Norman Foster, Walter Gropius, Herzog & de Meuron, Oscar Niemeyer, Richard Rogers, Carlo Scarpa, Frank Lloyd Wright, Ken Yeang and many others.

This new edition of Construction Technology for Tall Buildings comprehensively revises and expands the previous edition, incorporating new topics and many new figures. The text introduces the latest construction practices and processes for tall buildings from foundation to roof. It acquaints the reader with the methods, materials, equipment and systems used for the construction of tall buildings. The book progresses through the stages of site investigation, excavation and foundations, basement construction, structural systems for the superstructure, site and material handling, wall and floor construction, cladding and roof construction. The construction sequence, and the merits and limitations of the various proprietary systems commonly used in these stages, are discussed. The target readers are practitioners and students in the related professions, including architecture, engineering, building, real estate, project and property management, quantity and land surveying.

The second edition of the Construction Project Manager's Pocket Book maintains its coverage of a broad range of project management skills, from technical expertise to leadership, negotiation, team building and communication. However, this new edition has been updated to include: revisions to the CDM regulations, changes to the standard forms of contract and other documentation used by the project manager, the impact of BIM and emerging technologies, implications of Brexit on EU public procurement, other new procurement trends, and ethics and the project manager. Construction project management activities are tackled in the order they occur on real projects, with reference made to the RIBA Plan of Work throughout. This is the ideal concise reference which no project manager, construction manager, architect or quantity surveyor should be without.

An architect and engineer must consider many aspects of any building that is being evaluated for an adaptive re-use project. Careful and precise evaluation of an existing building's structure, systems, and materials are necessary for both design considerations and for financial feasibility analysis. This professional guide to evaluating structural and material integrity of existing buildings covers everything from foundation issues to decorative details, identifying the causes of building failures as well as techniques for repair. The book considers building assessment issues for structures of different scales: midsize commercial, small commercial and residential buildings. Building repairs on adaptive re-use or historic preservation projects are an essential consideration in the financial outlook of a project, and this book details each step in the assessment process in an easy-to-understand way.

This is a guide to both the basics and the details of tall building design, delving into the rudimentary aspects of design that an architect of a tall office building must consider, as well as looking at the rationale for why and how a building must be built the way it is. Liberally illustrated with clear, simple black and white illustrations showing how the building structure and details can be built, this book greatly assists the reader in their understanding of the building process for a modern office tower. It breaks down the building into three main components: the structure, the core and the facade, writing about them and illustrating them in a simple-to-understand manner. By focusing on the nuts and bolts of real-life design and construction, it provides a practical guide and desk-reference to any architect or architecture student embarking on a tall building project.

This study describes current construction practices and processes for tall buildings from foundation to roof. It discusses the construction sequence of the various proprietary systems and their merits and disadvantages.

Over 140 experts, 14 countries, and 89 chapters are represented in the second edition of the Bridge Engineering Handbook. This extensive collection provides detailed information on bridge engineering, and thoroughly explains the concepts and practical applications surrounding the subject, and also highlights bridges from around the world. Published Owing to regular revision, the Modern Construction Handbook has become a classic in advanced building construction literature, not least because of its clear structure covering the chapters "Material", "Wall", "Roof", "Structure", "Environment", and "Applications". For the fifth edition, a large part of the 3D presentations has been redrawn, all six chapters have been revised and updated. New standards have been established for this handbook, which is a basic resource for many architectural study courses, by adding more component details, new examples with a focus on sustainability and energy consumption, and a major update on finite element analysis (FEA) and computational fluid dynamics (CFD).

This book aims to provide knowledge on how infrastructure is planned and built in a typical developing country, and what key variables are there in the system limiting the efficient use of public investments in infrastructure. The book begins with a comprehensive literature review on construction and economic development, and trade and economic development. The focus of the book is on the case of Vietnam, with lessons drawn for other developing economies. The book employs the mixed use of data to provide a stronger basis for analysis and interpretation of related government policies. Based on the research findings, the book recommends significant capacity building work for Vietnam to develop capacities that would remove constraints on the efficient use of public investments in infrastructure. The general principles of significant capacity building work which are useful for policy implications are introduced in the book. Analysts, academics, public and private communities in developing countries can adopt

the research findings as guiding principles to bring about changes in their current use of public investments in infrastructure, thus supporting their trade and economic growth in the long term. Critical Path Method (CPM) and Performance Evaluation and Review Technique (PERT) are widely recognized as the most effective methods of keeping large, complex construction projects on schedule, under budget, and up to professional standards. But these methods remain underused because they are poorly understood and, due to a host of unfamiliar terms and applications, may seem more complicated than they really are. This encyclopedia brings together, in one comprehensive volume, all terms, definitions, and applications related to the time and cost management of construction projects. While many of these terms refer to ancient and venerable building practices, others have evolved quite recently and refer specifically to modern construction and management techniques. Sources include hundreds of professional books, trade journals, and research publications, as well as planning and scheduling software vendor literature. The detailed glossary of all applicable terms includes a cross-referenced listing of examples that describe real-world applications for each term supplied. An extensive bibliography covers all applicable books, articles, and periodicals available on project planning, scheduling, and control using CPM and related subjects. This book is an important quick reference and desktop information resource for construction planners, schedulers, and controllers, as well as civil engineers and project managers. It is also the ultimate research tool for educators, students, or anyone who seeks to improve their understanding of the management of modern construction projects.

Literature and Culture Handbooks are an innovative series of guides to major periods, topics and authors in British and American literature and culture. Designed to provide a comprehensive, one-stop resource for literature students, each handbook provides the essential information and guidance needed from the beginning of a course through to developing more advanced knowledge and skills. Written in clear language by leading academics, they provide an indispensable introduction to key topics, including:

- Introduction to authors, texts, historical and cultural contexts
- Guides to key critics, concepts and topics
- An overview of major critical approaches, changes in the canon and directions of current and future research
- Case studies in reading literary and critical texts
- Annotated bibliography (including websites), timeline, glossary of critical terms.

The Renaissance Literature Handbook is a comprehensive introduction to literature and culture in the "English Renaissance" or "Early Modern" period.

A world list of books in the English language.

The Whole Building Handbook is a compendium of all the issues and strategies that architects need to understand to design and construct sustainable buildings for a sustainable society. The authors move beyond the current definition of sustainability in architecture, which tends to focus on energy-efficiency, to include guidance for architecture that promotes social cohesion, personal health, renewable energy sources, water and waste recycling systems, permaculture, energy conservation - and crucially, buildings in relation to their place. The authors offer a holistic approach to sustainable architecture and authoritative technical advice, on:

- * How to design and construct healthy buildings, through choosing suitable materials, healthy service systems, and designing a healthy and comfortable indoor climate, including solutions for avoiding problems with moisture, radon and noise as well as how to facilitate cleaning and maintenance.
- * How to design and construct buildings that use resources efficiently, where heating and cooling needs and electricity use is minimized and water-saving technologies and garbage recycling technologies are used.
- * How to 'close' organic waste, sewage, heat and energy cycles. For example, how to design a sewage system that recycles nutrients.
- * Includes a section on adaptation of buildings to local conditions, looking at how a site must be studied with respect to nature, climate and community structure as well as human activities. The result is a comprehensive, thoroughly illustrated and carefully structured textbook and reference.

Lean Project Delivery and Integrated Practices in Modern Construction is the new and enhanced edition of the pioneering book Modern Construction by Lincoln H. Forbes and Syed M. Ahmed. This book provides a multi-faceted approach for applying lean methodologies to improve design and construction processes. Recognizing the wide diversity in the landscape of projects, and encompassing private and public sector activity, buildings and infrastructure, the book expands upon the detailed coverage of integrated project delivery and new lean tools and techniques to include: Greater emphasis on the importance of creating a lean culture and the initiatives required to transform the industry; Expanded discussions of the foundational writings in lean construction theory; Exploration of the synergies between "lean" and "green" initiatives; Specific procedures for modifying planning and scheduling activities to improve the performance of the project team; Expanded sections on quality, and topics that have become a part of the lean lexicon, such as Choosing by Advantages, "line of balance"/location-based scheduling, virtual design teams, takt time planning and set-based design; Discussion questions for beginners and advanced lean practitioners; and Improved cross-referencing within the text to help the reader navigate the frameworks, techniques and tools to support the application of lean principles. The techniques described here enhance the use of resources, reducing waste, minimizing delays, increasing quality and reducing overall costs. They enable practitioners to improve the quality of the built environment, secure higher levels of customer/owner satisfaction, and simultaneously improve their profitability. This book is essential reading for all those wanting to be at the forefront of construction management and lean thinking.

Designed as a day-to-day resource for practitioners, and a self-study guide for the AACE International Cost Engineers' certification examination. This third edition has been revised and expanded, and topics covered include project evaluation, project management, and planning and scheduling.

Revised edition of: Construction management / Daniel W. Halpin, Bolivar A. Senior. 2011. Successful financial management in the construction industry begins with this hands-on guide. While construction professionals are skilled in the technical side of their work, they often find the financial management aspect of the business daunting. Financial Management and Accounting Fundamentals for Construction will help you better understand and navigate the financial decisions that are part of every construction project. This book is a compact summary of the basic financial skills that a construction professional must have to be successful in the management of a construction company and its projects. Its topics address many of the questions that any construction administrator will face, such as: How to organize and use a company's financial reports What amount of cash must be made available to the contractor to complete a project Why the early payment of supplier invoices can enhance profitability How to quantify the time value of money in financial decisions What tax amount is owed by a company and how it impacts the bottom line How to control project costs What financial sources are available to a construction contractor for capital expansion In this text, you will learn about accounting fundamentals, project-related financial matters, and company level financial issues—three factors that are key to your career success. An ideal reference for students of construction management and engineering, as well as professionals who need a quick refresher when dealing with cost control analysis and other financial issues, this text also offers: Easy-to-understand coverage of financial concepts specific to the construction industry, including business taxation, project control, engineering economy, and financial forecasting Numerous worked examples, plus end-of-chapter review questions and exercises Helpful appendices that present the structure of a typical chart of accounts, the flow of transactions through a construction accounting system, and tables required for computing interest and the time value of money

The bright future and exciting possibilities of BIM Many architects and engineers regard BIM as

a disruptive force, changing the way building professionals design, build, and ultimately manage a built structure. With its emphasis on continuing advances in BIM research, teaching, and practice, *Building Information Modeling: BIM in Current and Future Practice* encourages readers to transform disruption to opportunity and challenges them to reconsider their preconceptions about BIM. Thought leaders from universities and professional practice composed essays exploring BIM's potential to improve the products and processes of architectural design including the structure and content of the tools themselves. These authors provide insights for assessing the current practice and research directions of BIM and speculate about its future. The twenty-six chapters are thematically grouped in six sections that present complementary and sometimes incompatible positions: Design Thinking and BIM BIM Analytics Comprehensive BIM Reasoning with BIM Professional BIM BIM Speculations Together, these authors provide stimulating ideas regarding new directions in building information modeling.

First published in 1995, the award-winning *Civil Engineering Handbook* soon became known as the field's definitive reference. To retain its standing as a complete, authoritative resource, the editors have incorporated into this edition the many changes in techniques, tools, and materials that over the last seven years have found their way into civil engineering research and practice. The *Civil Engineering Handbook, Second Edition* is more comprehensive than ever. You'll find new, updated, and expanded coverage in every section. In fact, more than 1/3 of the handbook is new or substantially revised. In particular you'll find increased focus on computing reflecting the rapid advances in computer technology that has revolutionized many aspects of civil engineering. You'll use it as a survey of the field, you'll use it to explore a particular subject, but most of all you'll use *The Civil Engineering Handbook* to answer the problems, questions, and conundrums you encounter in practice.

The first edition of this comprehensive work quickly filled the need for an in-depth handbook on concrete construction engineering and technology. Living up to the standard set by its bestselling predecessor, this second edition of the *Concrete Construction Engineering Handbook* covers the entire range of issues pertaining to the construction

Building Construction Handbook is an authoritative reference for all students and professionals. It is full of detailed drawings that clearly illustrate the construction of building elements. The principles and processes of construction are explained with the concepts of design included where appropriate. Extensive coverage of building construction practice and techniques, representing both traditional procedures and modern developments, are also included to provide the most comprehensive and easy to understand guide to building construction. The new edition has been reviewed and updated and includes additional material on energy conservation, sustainable construction, environmental and green building issues. Further details of fire protection to elements of construction are provided. *Building Construction Handbook* is an essential text for undergraduate and vocational students on a wide range of courses including NVQ and BTEC National, through Higher National Certificate and Diploma to Foundation and three-year Degree level. It is also a useful practice reference for building

designers, contractors and others engaged in the construction industry. It is ideal for students on all construction courses. The topics are presented concisely in plain language and with clear drawings. It incorporates recent revisions to Building and Construction Regulations.

A comprehensive reference of materials for interior designers and architects Choosing the right material for the right purpose is a critical—and often overlooked—aspect in the larger context of designing buildings and interior spaces. When specified and executed properly, materials support and enhance a project's overall theme, and infuse interior space with a solid foundation that balances visual poetry and functionality. *Materiality and Interior Construction* imparts essential knowledge on how materials contribute to the construction and fabrication of floors, partitions, ceilings, and millwork, with thorough coverage of the important characteristics and properties of building materials and finishes. Individual coverage of the key characteristics of each material explores the advantages and disadvantages of using specific materials and construction assemblies, while helping readers discover how to make every building element count. In addition, *Materiality and Interior Construction: Is* highly illustrated throughout to show material properties and building assemblies Supplies rankings and information on the "green" attributes of each material so that designers can make informed decisions for specifications Is organized by application for easy and quick access to information Includes a companion website, featuring an extensive online image bank of materials and assemblies Rather than a typical catalog of materials, *Materiality and Interior Construction* is efficiently organized so that the reader is guided directly to the options for the location or assembly they are considering. Reliable and easy to use, *Materiality and Interior Construction* is a one-stop, comprehensive reference for hundreds of commonly used materials and their integration as building components—and an invaluable resource that every interior designer or architect should add to their set of tools.

Historically, the scientific method has been said to require proposing a theory, making a prediction of something not already known, testing the prediction, and giving up the theory (or substantially changing it) if it fails the test. A theory that leads to several successful predictions is more likely to be accepted than one that only explains what is already known but not understood. This process is widely treated as the conventional method of achieving scientific progress, and was used throughout the twentieth century as the standard route to discovery and experimentation. But does science really work this way? In *Making 20th Century Science*, Stephen G. Brush discusses this question, as it relates to the development of science throughout the last century. Answering this question requires both a philosophically and historically scientific approach, and Brush blends the two in order to take a close look at how scientific methodology has developed. Several cases from the history of modern physical and biological science are examined, including Mendeleev's Periodic Law, Kekule's structure for

benzene, the light-quantum hypothesis, quantum mechanics, chromosome theory, and natural selection. In general it is found that theories are accepted for a combination of successful predictions and better explanations of old facts. Making 20th Century Science is a large-scale historical look at the implementation of the scientific method, and how scientific theories come to be accepted.

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