Rudimentary treatise on the principles of design in architecture as deducible from nature and exemplified in the works of the Greek and Gothic architects

Garbett Edward Lacy
Title: Rudimentary treatise on the principles of design in architecture as deducible from nature and exemplified in the works of the Greek and Gothic architects

Author: Garbett Edward Lacy
MR. WEALE’S

SERIES OF RUDIMENTARY WORKS

FOR BEGINNERS.

Mr. Weale has prepared for publication, in a neat and convenient size, a series of original and useful Volumes, by the most esteemed writers, forming a Rudimentary Course for the easy comprehension of the leading principles of various Sciences.

It has been remarked, that “those who are in the ship of Science ought to remember that the disciples cannot arrive without the aid of boats.” Popular Treatises are to Science what boats are to large ships: they assist people in getting aboard. But as no one would trust himself to a weak or inefficient boat, so no one ought to begin the study of Science with an imperfect guide. It sometimes happens that popular treatises are made to appear easy by the omission of those very details which are most essential to be known: they state results without going through the necessary processes by which those results are gained: they deal largely in facts, and leave principles untouched.

The only method of avoiding this error is to confide to men who are masters of their respective subjects the task of drawing up Popular Introductions to the several branches of Science. The Publisher trusts that the following list of names will be a sufficient guarantee to the Public that what he proposes to attempt in the cause of Popular Instruction will be done well; and that these little treatises will fully answer the purpose for which they are intended, namely, to become convenient and accurate Guide-Books in Government and other Schools, and in Popular Institutions generally; while their low price will place them within the reach of all classes earning their daily bread, to many of whom a knowledge of the elements of Science is a positive gain in the common pursuits of life, as well as a means of winning from gross tastes, and presenting to the mind noble and worthy objects of study.

The several Series are amply illustrated, in demy 12mo, each neatly bound in cloth; and, for the convenience of purchasers, the Subjects are published separately at the following prices:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rudimentary Chemistry, by Prof. Fownes, F.R.S., &amp;c., third edition, and on Agricultural Chemistry, for the use of Farmers</td>
<td>1s.</td>
</tr>
<tr>
<td>Natural Philosophy, by Charles Tomlinson</td>
<td>1s.</td>
</tr>
<tr>
<td>Geology, by Lieut.-Col. Portlock, R.E., F.R.S., F.G.S., &amp;c.</td>
<td>1s.</td>
</tr>
<tr>
<td>Mineralogy, by D. Varley, Author of Conversations on Mineralogy, 2nd edit. vol. i.</td>
<td>1s.</td>
</tr>
<tr>
<td>vol. ii.</td>
<td>1s.</td>
</tr>
<tr>
<td>Mechanics, by Charles Tomlinson</td>
<td>1s.</td>
</tr>
<tr>
<td>Electricity, by Sir William Snow Harris, F.R.S., &amp;c.</td>
<td>1s.</td>
</tr>
</tbody>
</table>
CONTINUED SERIES OF RUDIMENTARY WORKS FOR BEGINNERS.

Rudimentary Pneumatics, by Charles Tomlinson

Civil Engineering, by Henry Law, C.E., vol. i.

Architecture (Orders), by W. H. Leeds, Esq.

Ditto (Styles—their several examples), by T. Bury, Architect, F.I.B.A.


Ditto, vol. ii.

Perspective, by G. Pyne, Artist, Author of 'Practical Rules in Drawing, for the Operative Builder and Young Student in Architecture,' vol. i., second edition

Ditto, vol. ii., second edition

Art of Building, by E. Dobson, C.E., Assoc. Inst. C., Author of 'Railways in Belgium'.

Brick-making, Tile-making, by the same, vol.

Masonry and Stone-cutting, by the same.

Illustrations of the preceding, in colour, size, 13 Plates

Painting, or a Grammar of Colouring, by Geo. Field, Esq., vol. i.

Draining Districts and Lands

Draining and Sewage of Towns and Buildings

Well-digging and Boring, by John G. Scudier, Architect

Use of Instruments (generally), by J. F. Heath, M.A., of the Royal Military Academy, Woolwich

Constructing Cranes for the Erection of Buildings, and for Hoisting Goods, by J. Glynn, F.R.S., C.E.

Treatise on the Steam Engine, by Dr. Barker. (Written specially for this Rudimentary Series.)


Dictionary of Terms used by Architects, Builders, Civil and Mechanical Engineers, Surveyors, Artists, Ship-builders, &c.

Series of Rudimentary Works of Mathematical Science for Beginners.

The Series of Rudimentary Works for the use of Beginners has realized the anticipated success from that portion of the public who see the attainment of those objects of Science which belong to the business of life, and the highest and most useful subjects in the Elements of Art and Science. Pursuing the same path, to render further aid to public instruction, and to direct the attention of the Heads and Principals of several College and Schools of the United Kingdom, and the Royal Military Academies, to these serial works, it is intended to publish an Elementary Course of Mathematics for the use of Beginners, at 1s. each volume.

It has been observed by Bonnycastle, in the Preface to his admirable Elementary Work on Algebra, that "Books of Rudiments, concisely written
well-digested, and methodically arranged, are treasures of inestimable
value, and too many attempts cannot be made to render them perfect and
complete."

"To carry out this new Series successfully and methodically, the most
 eminent men in scholastic erudition and elementary instruction have been
selected, under the able management and editing of Mr. JAMES HANN,
Mathematical Master of King's College, London, who, with the co-oper-
ation of the following gentlemen, will produce a set of books that will be
found efficient both for public and self-instruction:

W. S. B. WOOLHOUSE, F.R.A.S., Actuary of the National Loan Fund, Author of
several Scientific Works.
HENRY LAW, Civil Engineer, Editor and Author of several Professional Works.
JAMES HADDON, Arithmetical and Second Mathematical Master, King's College,

The Subjects are as follows:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>TREATISE ON ARITHMETIC, with numerous Mathematical and</td>
<td>1s.</td>
</tr>
<tr>
<td>Examples, for Practice and Self-Examination</td>
<td></td>
</tr>
<tr>
<td>SYSTEM OF BOOK-KEEPING, with concise Modes of Calculation,</td>
<td>1s.</td>
</tr>
<tr>
<td>Numerous Documents, in English, French, German, and Italian,</td>
<td></td>
</tr>
<tr>
<td>Phrasology, &amp;c.; forming a complete introduction to the Counting</td>
<td></td>
</tr>
<tr>
<td>TREATISE ON ALGEBRA, vol. i.</td>
<td>1s.</td>
</tr>
<tr>
<td>vol. ii.</td>
<td></td>
</tr>
<tr>
<td>PRINCIPLES OF GEOMETRY</td>
<td>1s.</td>
</tr>
<tr>
<td>ANALYTICAL GEOMETRY</td>
<td></td>
</tr>
<tr>
<td>TREATISE ON PLANE TRIGONOMETRY</td>
<td>1s.</td>
</tr>
<tr>
<td>SPHERICAL TRIGONOMETRY</td>
<td></td>
</tr>
<tr>
<td>AND PRACTICE OF MENSURATION AND GEODESY</td>
<td>1s.</td>
</tr>
<tr>
<td>SYSTEM OF LOGARITHMIC TABLES for reference and Practice</td>
<td>1s.</td>
</tr>
<tr>
<td>TREATISE ON POPULAR ASTRONOMY</td>
<td>1s.</td>
</tr>
<tr>
<td>AS AND PRACTICE OF STATICS AND DYNAMICS</td>
<td>1s.</td>
</tr>
<tr>
<td>AND PRACTICE OF NAUTICAL ASTRONOMY AND NAVIGATION</td>
<td>1s.</td>
</tr>
<tr>
<td>DIFFERENTIAL CALCULUS, in which the Principles will be clearly elucidated</td>
<td>1s.</td>
</tr>
<tr>
<td>INTEGRAL CALCULUS, in which the Principles will also be clearly elucidated</td>
<td>1s.</td>
</tr>
<tr>
<td>COLLECTION OF EXAMPLES OF THE DIFFERENTIAL AND INTEGRAL CALCULUS</td>
<td>1s.</td>
</tr>
</tbody>
</table>

The following are also published or in the Press.

RUDIMENTARY TREATISE ON COTTAGE BUILDING; or Hints for Improving the
Dwellings of the Labouring Poor, by C. B. Allen, Architect       1s.

TUBULAR BRIDGES, GIRDERS BRIDGES, &c., more
particularly the Conway and Britannia Bridges, describing the
Experiments made to determine their form, strength, and effi-
ciency, together with the construction of the same, the floating
and raising the tubes, and other wrought iron constructions 1s.

ART OF MAKING FOUNDATIONS, CONCRETE WORKS, &c., by
E. Dobson, C.E.                                         1s.

TREATISE ON LIMES, CALCEOUS CEMENTS, MORTARS,
STUCCOES and CONCRETE, by Geo. R. Burnell, C.E.       1s.

ART OF LAYING-OUT AND MAKING OF ROADS for New and
Old Countries, by H. Law, C.E.                        1s.

TREATISE ON THE CONSTRUCTION OF LIGHTHOUSES, more par-
ticularly those of Britain, by A. Stevenson, LL.B., F.R.S.E.,
M. Inst. C.E., vol. i.                                  1s.

DUTTO, the Continuation of the same subject, vol. ii. 1s.

LAW OF CONTRACTS for all kinds of Buildings, for Employers,
Contractors, and Workmen, by David Gibbons, Esq., Author
of Treatises on the 'Law of Dilapidations,' and on the 'Law
of Fixtures,' &c.                                     1s.
Rudimentary Treatise on Hydraulic Engineering, and on Tunnelling through various kinds of Strata, with Plates, forming a third vol. of the Engineering (and completing that subject), published in the First Series

Price.

Locomotive Engines, describing them on the various Railways for their several purposes, and their duty and efficiency, by J. Sewell, L.E.

Marine Engines and Steam-Boats, for Sailors and Engineers, by R. Murray, C.E.


The Practice, with Plates, by the same

Masting, Mast-making, and Rigging of Ships

Sailor's Sea-Books, Directions for Signals, Flags of all Maritime Nations

Also in Preparation,

Rudimentary Treatise on Magnetism, by Sir W. Snow Harris, F.R.S.,


Ditto, vol. ii., by the same

Art and Practice of the Surveying of Land, on the of Surveying and Levelling for Road-making, Rail-way-making, and the Making of Canals, &c., by Baker, C.E., with Illustrations, vol. i.

Ditto, also the Field Book, vol. ii., by the same

Treatise on the Construction of Railways, with numerous Illustrations, by Rowland Macdonald Stephenson

on Clocks and Watch-making, with a Chapter on Church Clocks; with Illustrations, by E. B. Denison, M.A., Author of two papers on Clock Escapements, in the Cambridge Philosophical Transactions, vol. i.

Conchology, &c. (Fossils and Shells), vol. i.

Continuation of the same subject, vol. ii.

Elements of Music, with Plates of Examples, vol. i.

Practice of Music, with Plates of Examples, vol. ii.

Instruction on the Piano-forte

Descriptive Geometry, Applied to Ship-building (text), by J. F. Heather, M.A.


Applied to Architecture (text), by J. F. Heather, M.A.


Applied to Civil Engineering (text), by J. F. Heather, M.A.


Applied to Mechanical Engineering (text), by J. F. Heather, M.A.


Treatise on Harbours and Coast Engineering, by Thomas Stevenson, C.E., with Illustrations

Ditto, the Continuation of the same subject, vol. ii.

Treatise on Mill-Work, Mill-Machinery, and Water and Steam Power, by T. Fairbairn, C.E., with Illustrations

Ditto, the Continuation of the same subject, vol. ii.
RUDIMENTARY TREATISE

ON

THE PRINCIPLES OF DESIGN

IN

ARCHITECTURE

AS DEDUCIBLE FROM NATURE

AND EXEMPLIFIED IN

THE WORKS OF THE GREEK AND GOTHIC ARCHITECTS.

BY EDWARD LACY GARBETT,

ARCHITECT.

PARTS I. AND II.

London:

JOHN WEALE,

ARCHITECTURAL LIBRARY, 59, HIGH HOLBORN.

M.DCCC.L.
PREFACE.

Two widely different arts at present bear the name Architecture. The more common of them may be defined as the art of clothing or masking buildings, of whatever class, with scenic representations of the features of a superior class, erected in some past age. The merit of these works is of course to be estimated by the fidelity with which they adhere to the peculiar marks of the period chosen, and avoid those belonging to any other period or country. This art has now arrived at great perfection, in consequence of the many fine archaeological works in which specimens of the building styles of various ages and nations are delineated. Indeed, few things can be easier than this is now rendered by such engravings; in the absence of which, of course, verbal directions on this art would be useless, and whose presence renders them needless. With this art, therefore, the present little work has no concern.

There is another art, however, of the same name, more ancient, yet less known and practised at present, because more difficult and troublesome. This is the art of Building Well,—well as regards every purpose intended in building, and not only the actual fitness of a building or its parts to their several purposes, but also the fitness of their appearance thereto, together with the generally pleasing character of this appearance, and the correct or tasteful choice and disposition of such decorations (if any) as may aid in this object.
All that relates to the appearance of buildings and their parts has been termed architectural design, or sometimes 'Architecture Proper,' as not being reducible to the principles of any other art; and it is perhaps the only branch of architecture in which, as a whole, those not professing the art can be expected to take an interest. The present treatise is intended to confine itself to this, as far as it can be separated from the other branches, which, however, (especially as regards the branch of construction,) is not always possible.

The existence of professors of this art, implies in itself that they profess to have attained, by special study, the ability to do rightly that which others, without that preparation, do wrongly. That is, it implies the existence of such things as right and wrong taste in architecture, or, in other words, the dependence of this art on fixed principles,—otherwise the profession would be useless.

"There is," says a proverb, "no disputing about tastes," i.e. affections of the palate or other senses. It is far otherwise with Taste,—another word for sound and cultivated sense, judgment, and perception of fitness. This is a most legitimate, instructive, and fertile subject for useful discussion and conclusive argumentation. Most of the differences that appear between persons of acknowledged good taste will be found on examination to arise from their different acceptations of the same words, and to vanish when these words are defined and then carefully limited to one meaning. Thus a late writer on architecture lays this down as "a principle of simple common sense. Wherever you can rest, there decorate. Where rest is forbidden, so is beauty." Now, taking these words in their accustomed meaning, the latter part of the statement is very disputable, since common sense and the observation of nature fail in discovering that beauty is forbidden any where, or in any circumstances; but when we learn
that this word, as used by the author, is synonymous with
ornament or decoration, our objection vanishes.

The principles of Taste in Architecture, as in every other
fine art, can never be all elicited: if they could, the art would
cease to be a fine art: it would no longer afford a field for
genius, which consists in the discovery and practice of prin-
ciples previously unknown. These are the secrets of great
artists, kept secret, not from any selfish motive, but because
artists, seldom much skilled in the use of verbal language,
can rarely translate into that language, even the principles
with which they are most imbued. Nay, the most important
of these are often of so refined and delicate a nature as hardly
to admit of statement in words. “Yet,” says Sir Joshua
Reynolds, “it does not follow but that the mind may be put
into such a train as to perceive, by a kind of scientific sense,
that propriety which words, particularly words of unpractised
writers, such as we are, can but very feebly suggest.”

Every principle in Art (unlike one in Science) has to be
discovered twice; first, by the artist of genius who introduces
it into the practice of his art, but would generally be quite
unable to state or explain it in words; and secondly, by the
critic who translates it into verbal language, and thereby
makes it part of the theory of the art. Many centuries may
elapse between these two discoveries of the same principle:
when, at length, it is absorbed into the theory of the art,
it becomes common property, and the practice of it ceases
to be a mark of genius, for genius consists in practice out-
stripping theory. The advance of theory, however, does not
narrow the field of genius, but urges it on into a higher
sphere. As its secrets are, one by one, wrested from it, so it
must wrest others from nature.

The present little volume does not pretend to state all the
principles now known in the theory of architecture, nor per-
haps even the most important of them. It rather aims to
dwell on those which are most neglected in the present (noto-
riously defective) practice of this art.

The reader is supposed to have acquired from the two
former volumes of this series a general notion of the history
of this art, of the peculiarities of its various styles, and of the
nomenclature of the features of its two great systems,—the
Classic and the Gothic: but should any terms new to him
occur, ‘Weale’s Rudimentary Dictionary of Terms used in
Architecture, &c.,’ is at hand.

Our plan is quickly told. The first chapter is devoted to
the question—‘What is architecture, and what are the objects
at which it aims?’ In the three following, we endeavour to
deduce from the works of nature, and from the consideration
of these objects themselves, some rules and principles which
might be expected to conduce to their attainment; and to
show that these principles have actually presided in the most
successful productions of the art. In the last two chapters
we examine the two architectural systems, by general consent
called pure or complete styles, with a view to show that their
purity consisted in the observance of these principles, and to
elicit some other principles peculiar and essential to each
system. We conclude with a few remarks on the vexed
question of the present state and prospects of the art.

E. L. G.

March, 1850.