THE

CYCLOPÆDIA;

or,

Universal Dictionary

of

ARTS, SCIENCES, AND LITERATURE.

PLATES. VOL. III.

HYDRAULICS—NAVAL ARCHITECTURE.
THE

CYCLOPÆDIA;

OR,

UNIVERSAL DICTIONARY

OF

Arts, Sciences, and Literature.

BY


WITH THE ASSISTANCE OF

EMINENT PROFESSIONAL GENTLEMEN.

ILLUSTRATED WITH NUMEROUS ENGRAVINGS,

BY THE MOST DISTINGUISHED ARTISTS.

PLATES. VOL. III.

HYDRAULICS—NAVAL ARCHITECTURE.

LONDON:
Printed for LONGMAN, HURST, REES, ORME, & BROWN, Paternoster-Row,
F.C. and J. RIVINGTON, A. STRAHAN, PAYNE AND FOSS, SCATCHERD AND LETTERMAN, J. CUTHELI,
CLARKE AND SONS, LACKINGTON HUGHES HARDING MAYOR AND JONES, J. AND A. ARCH,
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R. SCHOLEY, J. BOOTH, J. BOOKER, SUTTABY EVANCE AND FOX, BALDWIN CRADOCK AND JOY,
SHERWOOD NEELY AND JONES, OGLE DUNCAN AND CO., H. SAUNDERS, HURST ROBINSON AND CO.,
J. DICKINSON, J. PATerson, E. WHITESIDE, WILSON AND SONS, AND BRODIE AND DOWDING.

1820.
HYDRAULICS.

DIVING BELL.

Dr. Halley's

Fig. 18.

Section of Spalding's Diving Bell

Fig. 20.

Klingers Diving Machine.

Fig. 21.

Fig. 22.

Section of Triewald's Diving Bell

Fig. 19.

Fig. 24.

Fig. 25.

Fig. 27.

Published as the Act directs, 1828, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.

Lowry, Scr.
HYDRAULICS.

Fire Engine by Rowntree.

Fig. 7.

Elevations

Fig. 1.

Fig. 3.

Sections

Fig. 4.

Valve

Fig. 5.

Valve Seat

Fig. 6.

Published as the Jet directe, 1813, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.

Engraved by Wilson Lowry.
HYDRAULICS.

FLUIDS.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

Fig. 9.

Fig. 10.

Fig. 11.

Fig. 12.

FOUNTAIN.

Published as the Act directs, 1811, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.

Engraved by Green Line.
HYDRAULICS

FOUNTAINS.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Published as the Act directs, 1745, by Longman & Co. Paternoster Row.

Lowry. Sculp.
HYDRAULICS.
FLOATING.

Fig. 1.

Hiero's Crown.

Fig. 2.

Fig. 3.

Hydromancy.

Fig. 5.

Published at the Act directs 1814 by Longman, Hurst, Rees, Orme and Brown, Paternoster Row.
Engraved by Wilson Lowry.
HYDRAULICS.

Fig. 1. JET d'eau

Fig. 2. MOISTURE

Fig. 3. PERSIAN Wheel

Fig. 4. Sucking PUMP

Fig. 5. Force PUMP

Fig. 6. Lifting PUMP

Fig. 7. TANTALUS'S Cup

Published as the Act directs, 1806, by Longman, Hurst, Rees, Orme, & Brown, Paternoster Row.
HYDRAULICS
PUMPS.

Fig. 1. Jekyll's improved Ships Pump.

Fig. 2. Martina Pump.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

Fig. 9.

Plate "XV."
Fig. 1. Plan of an Iron Forge.

Elevation. Fig. 2.

Published at the Act Directe, 1745, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.

Engraved by Wilson Lowry.
IRON MANUFACTURE.

Mr. Smellie's design for the Machinery of the Hammer at Kilnhurst Forge.

Fig. 1. Elevation in Front.

Fig. 2. Elevation Sideways.

Scale of Feet

Published as the Act directs, 1821, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.

Engraved by Wilson Lowry.
IRON MANUFACTURE.

ROLLERS for making BAR IRON.

Fig. 1. Elevation Fig. 2. Rollers for square bars.

Plan Fig. 3. Rollers for flat bars.

Scale of Feet.

Plate Roller.

Published as the Act directs, 1812, by Longman, Hurst, Rose, Orme & Brown, Paternoster Row.

Engraved by W. Lowry.
IRON MANUFACTURE.

STEEL CONVERTING FURNACE.

Section. Fig. 1.

See IRON and STEEL.

Section. Fig. 2.

Fig. 3.

Plan.

Scale of Feet.

Fig. 4.

Mould for making crucibles.

Published as the act directs, March 31, 1804, by Longman, Hurst, Rees, Orme, and Brown, Paternoster Row.
IRON MANUFACTURE.

MILL FOR TILTING STEEL.

by Mr. Smeaton.

PLATE VIII.

Plan Fig. 1.

Elevation. Fig. 2.

Published as the Act directs, 1814, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.

Engraved by W. Lowry.
LAMPS.

Hydro-Pneumatic Lamp, by R. W. King.

Fig. 1.
Fig. 2.
Fig. 3.
Fig. 4.
Fig. 5.

Mr. Burton's Lamp.

Porter's Automatic Lamp.

PLATE II.
MAGNETISM.

COMPASS.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

Fig. 9.

Fig. 10.

Fig. 11.

Fig. 12.

Published as the Act directs, 1804, by Longman, Hurst, Rees & Orme, Paternoster Row.

Engraved by Wilson Lowry.
Fig. 2.
Incertain.

Fig. 1.
Reticulated.

Fig. 4.
Pseudizodomum.

Fig. 3.
Isodomum.

Fig. 6.
Greek Emplection.

Fig. 5.
Roman Emplection.

Published as the Act directs, &c. by Longman, Hurst, Rees, Orme, & Brown, Paternoster Row.

Lowry sculp.
CENTER OF FRICTION, CENTER OF GRAVITY &c.

Fig. 21.

Fig. 22.

Fig. 23.

Fig. 24.

Fig. 25.

Fig. 26.

Fig. 27.

Fig. 28.

Fig. 29.

Published as the Act directs, July 1, 1807; by Longman, Hurst, Rees and Orme, Paternoster Row. Engraved by Wilson Lowry.
MECHANICS.

CENTER OF GRAVITY.

Fig. 41.

Fig. 42.

Fig. 43.

Fig. 44.

Fig. 45.

Fig. 46.

Fig. 47.

Fig. 48.

Fig. 49.

Fig. 50.

Fig. 51.

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MECHANICS.

CENTER OF OSCILLATION AND CENTER OF PERCUSSION.

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Engraved by Wilson Lowry.
MECHANICS.

CENTER OF POSITION, OF PRESSURE, OF ROTATION &c.

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Engraved by Wilson Lowry.
MECHANICS.

CENTRAL, CENTRIFUGAL, AND CENTRIFETAL FORCES.

Published as the Act directs, June 1, 1807; by Longman, Hurst, Rees & Orme, Paternoster Row.
MECHANICS.

CENTRIFUGAL MACHINE AND CENTROBARIC METHOD.

Published as the Act directs, Aug. 5, 1867, by Longman, Hurst, Rees & Orme, Paternoster Row.

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MECHANICS.
COACH.

View of the fore wheels of a crane necked carriage.

Mr. Jacobs' contrivance for the fore wheels of a coach.
MECHANICS.
WATER COCKS.

Fig. 1.
Fig. 2.
Fig. 3.
Fig. 4.
Fig. 5.

Fig. 6.
Fig. 7.
Fig. 8.

Fig. 9.
Fig. 10.
Fig. 11.
Fig. 12.
Fig. 13.
Fig. 14.
Fig. 15.

Published as the Act directs, 1824, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.
Engraved by W. Lowry.
Mechanics.

Prony's Condenser of Forces.

Composition of Motion.

Fig. 1.

Fig. 2.

Fig. 3.

Double Cone.

Elevation.

Published at the 3d of June, 1824, by Lemercier, Illust. Knox, Gurney & Birch, Paternoster Row, London.
MECHANICS.
CRANE.
by M. Ferguson.

Fig. 2.

Fig. 3.

Published at the Act direct 1814 by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.
Engraved by William Lewry.
Mr. Smeaton's design for a Crane, for the Wool Quay, Custom House, London, 1789.

Elevation

Scale of Inches.

Reduced by permission, from the Original Drawing in the possession of Sir Joseph Banks, K.B. by J. Ritty, Junior.

Published as the Act directs, 1781, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.

Engraved by William Lowry.
MECHANICS.

CRANES.

M. WHITE'S
Crane.

M. BRAITHWAITE'S
Crane.

M. DIXON'S
Crane.

Published as the Act directs, 1805 by Longman, Hurst, Rees & Orme, Paternoster Row.

Engraved by Wilson Lowry
MECHANICS.

DIRECTION of Motion.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

MECHANICS.

McHill's Machine for DRAWING out Ships' Bolts.

Published as the Act directs, 1813, by Longman, Hurst, Rees, Orme, and Brown, Paternoster Row, London.
MECHANICS.
DYNAMOMETERS
FOR MEASURING THE FORCE OF DRAUGHT.

M. M' Dougales.

Fig. 1.
M. Salmons contrivance for determining the force required to work a Mill.

Fig. 2.
M. Salmons Dynamometer.

Published at the Act Direct. Shop, by Longman, Hurst, Bow and Orme, Dernenear Row.

Engraved by Wilson Lowry.
MECHANICS.

EXPANDING RIGGERS.

Fig. 5.

Fig. 6.

M. A. Flints.

Fig. 10.

Fig. 1.

Fig. 11. M'Turk's.

Fig. 8.

Fig. 12.

Published at the Act directt. 1815. by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.

Engraved by Wilson Lowry.
MECHANICS.

PLATE XXXII.

Fig. 1. WEDGE.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

WEIGHT.

Fig. 7.

Fig. 8.

Fig. 9.

Fig. 10.

Fig. 11.

Fig. 12.

Fig. 13.

PLATE XXXIII.

Fig. 14.

Fig. 15.

Fig. 16.

Solid of least RESISTANCE.

Fig. 17.
Published as the late direct, &c. by Longman, Hurst, Rees, Orme & Brown, Paternoster Row, London.
MILITARY MANOEUVRES.

Published as the Act directs, Aug. 5, 1804, by Longman & Rees, Paternoster Row.

Engraved by Wilson Lowry.
13th Maneuver.

...Manoeuvre.

12th Maneuver.

...Manoeuvre.

11th Maneuver.

...Manoeuvre.

Line formed on the Light Infantry.

Retiring by alternate Companies covered by the Light Infantry.

Retiring in Line covered by the Light Infantry.

Open Column formed from movement in file.

Published as the Act directs. Nov. 1, 1804, by Longman & Rees, Paternoster Row.

Entered by W. B. Lewis.
MILITARY MANOEUVRES.

Battalion in line. 15

March to a flank in Brigade.

File from the proper right of Coop. 15

Battalion retiring 14

Satiation in line and march forward 20 paces from hollow square.

Square by left face.

Square when opposite the General forms line.

Open column marches 30 or 40 paces.

Open column and right into line. Battalion will retire.

Published as the Act directs, Feb. 2, 1804, by J. E. Parry & C. & J. W. D. Pownall. Engraved by W. L. Low.
ANCIENT ARITHMETICAL CHARACTERS.

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Published as the Act directs, 1820, by Longman, Hurst, Rees, Orme, and Brown, Paternoster Row.
MISCELLANY.

PLATE COINAGE.

Fig. 2. Milling

Fig. 4.

Fig. 3.

Published as the act directs, by Longman, Hurst, Ree, Orme & Brown, Paternoster Row, London.
Engraved by W. Lowry.
MISCELLANIES.
Hawkins's patent Polygraph.

Published, as the Act directs, 1802, by Longman, Hurst, Rees & Orme, Paternoster Row.
Engraved by Wilson Lowry.
MISCELLANY.

DIAGONAL MOTION.

PLATE V.

Published as the Act directs, 1823, by Longman, Hurst, Rees & Orme, Paternoster Row.

Engraved by Wilson Lowry.
MISCELLANY.
DIAGONAL MOTION.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Published as the Act directs, 1792, by Longman, Hurst, Rees & Orme, Paternoster Row.

Engraved by William Leroy.

Painted and Drawn by John Deane.
DRAUGHT AND CORDING OF LOOMS.

Fig. 1.
5 Leaf Tweel

Fig. 2.
Broken Tweel

Fig. 3.
8 Leaf Tweel

Fig. 4.
Broken Tweel

Fig. 5.
Striped Dimity

Fig. 6.
Dornock

Fig. 7.
Fancy Dimity

Fig. 8.
Diaper

Fig. 9.
Similar Spot

Fig. 10.
Dissimilar Spot

PLATE XII.

Published as the Act directs. Stept. by Longman, Hurst, Rees & Orme, Paternoster Row.

Engraved by W. Lewis Lowry.
Self-acting Extinguishers.

MS HAWKINS'S.

Published at the Act Direct, Stn. by Longman, Hurst, Row and Orme, Paternoster Row.

Engraved by Wilson Lowry.
MISCELLANY.

Mr. Muscoz's, original suspension.

Mr. Muscoz's fire escape
Simplified by Mr. Forster.

Painters Easel.

Figs. 1.

Indigo.

Figs. 1.

Indigo mills.

Figs. 5.

Figs. 2.
MISCELLANY
Hawkins's Clavichord or FINGER Keyed Viol.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5 or 7.

Fig. 6.

Fig. 3 or 5.

Fig. 5 or 7.

Foot Wheel & Balance.

Balance Weight

Drawn by J. Farcy

Published and sold by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.

Lowry, St.
MISCELLANY.

Apparatus for restoring those DROWNING to life.

Fig. 1.

Respiration Bells.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

FOUNDARY of BELLs.

Fig. 1.

FOUNDARY of LETTERS or TYPES.

Upper half of Mould

Fig. 3.

Under half of Mould

Fig. 2.

Published as the Act directs, 1814, by Longman, Hurst, Rees, Orme and Brown, Paternoster Row.

Engraved by Wilson Lowry.
The position of a surface a b is determined by the plane of an image P seen by reflection.

If the surface b c be turned so as to show the same image in the same place it must have moved through an angle a b c, the supplement to a b c.
MISCELLANY

PLATE XXI

Mr. Bramah's Patent Lock

Fig. 2.

Fig. 1.

Fig. 3.

Fig. 4.

Fig. 5.

Mr. Rowntree's Patent Lock

Fig. 6.

Fig. 7.

Published as the Act directs. May by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.

Engraved by W. Loamce.
## Monograms, etc.

*used by the French Engravers*

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*Published May 1st, 1785, by Longman. C.*
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### Monograms, &c.

**used by the German Engravers.**

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<td>Henry Lutensack</td>
<td>2 Marks</td>
</tr>
<tr>
<td><img src="image3" alt="ISL" /></td>
<td>Hans Schall Lutensack</td>
<td>2 Marks</td>
</tr>
<tr>
<td><img src="image4" alt="H" /></td>
<td>Theodori de Brie</td>
<td></td>
</tr>
<tr>
<td><img src="image5" alt="CM" /></td>
<td>Christopher Stinner</td>
<td></td>
</tr>
<tr>
<td><img src="image6" alt="DIH" /></td>
<td>David or Daniel Hopfer</td>
<td>2 Marks</td>
</tr>
<tr>
<td><img src="image7" alt="IH" /></td>
<td>Jereme Hopfer</td>
<td></td>
</tr>
<tr>
<td><img src="image8" alt="H" /></td>
<td>Theobius Stinner</td>
<td>2 Cyphers</td>
</tr>
<tr>
<td><img src="image9" alt="ML" /></td>
<td>Melchior Loric</td>
<td>2 Cyphers</td>
</tr>
<tr>
<td><img src="image10" alt="LN" /></td>
<td>Virgil Sclis</td>
<td>3 Cyphers</td>
</tr>
<tr>
<td><img src="image11" alt="M" /></td>
<td>Christopher Maurer</td>
<td>2 Cyphers</td>
</tr>
<tr>
<td><img src="image12" alt="M" /></td>
<td>Matthew Greuter</td>
<td>1566</td>
</tr>
<tr>
<td><img src="image13" alt="AM" /></td>
<td>Joost or Jedecius Amman</td>
<td>5 Marks</td>
</tr>
<tr>
<td><img src="image14" alt="AK" /></td>
<td>Matthew Greuter</td>
<td></td>
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<tr>
<td><img src="image15" alt="FGr" /></td>
<td>John Frederich Greuter</td>
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<tr>
<td><img src="image16" alt="DCAF" /></td>
<td>Domenic Custes</td>
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<tr>
<td><img src="image17" alt="TT" /></td>
<td>Theodorus Cruger</td>
<td>2 Cyphers</td>
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<tr>
<td><img src="image18" alt="MC" /></td>
<td>Matthias Cruger</td>
<td></td>
</tr>
<tr>
<td><img src="image19" alt="WK" /></td>
<td>Wolfgang Kilian</td>
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<tr>
<td><img src="image20" alt="LKE" /></td>
<td>Lucas Kilian</td>
<td></td>
</tr>
<tr>
<td><img src="image21" alt="AF" /></td>
<td>Bartholomeus Kilian</td>
<td></td>
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*Published 4th Nov. 1840 by T. Longman & Co.*
MONOGRAMS, &c.
used by the GERMAN Engravers.

Matthew Merian
3 Marks

Christopher Joger
Wenceslaus Hollar
The mark used by Hollar at
Prague
John William Baer

Clement Lant fiercely
2 Ciphers

John Ulric Kivas
Andreas Meyer
John James Theunycyen

Dirck Meyer
3 Marks
Redolph Meyer

Adrian Van Estade
2 Marks

Leiden Published 1710 by Tengraam &c.
MONOGRAMS &c.
used by the Engravers of the Low Countries.

Plate 1.

HF. A bosche x BB
John Cellart
Jerome Boex or Besche 2 Marks
Jacob Besius

HE. I MA L A
Henry Cellinus
Peter Coeck
Walter van Alen
Lucas Jacobs
Adrian Cellart

ME. CB CB CB C B M
Cornelius Boex 1 Mark
Martin Hemskerk

PE. P
D 4 4 W
Peter Breugel
Crispin de Pisse
Dietrich van Slaven
Henry van Cleef
William de Pisse

W RE RE
Dirck Vetlaer Celccnaeert 3 Cyphers

CB. CB. CB
Frances
Crispin vanden Breccck
3 Cyphers

M NV
Jerome Coox 2 Cyphers
Martin van Cleve
Montalen de Pisse
2 Cyphers

Published June 15, 1842 by Longman & Co.
MONOGRAMS, &c.
used by the Engravers of the Low Countries.

Plate II.

P W Bol. V $
Simon Pajis  Christopher van Sickem  Hanser John Bol  Cornelia van Sickem  John Sudeler

F. G.  A. L. N. B.
Philip Galle  Cornelius Vert  Nicholas de Bruyn  2 Marks

XL. Av. HEW  A. AB. ADB.
Asenius Landeret  Jerome Wierix  Abraham de Bruyn  2 Marks

D M K. Kocher  M  G
Zachary Delende  Paul Meerverse  Karl van Sickem  James Matham  James de Gheyn the elder

$ $ $ B B B B C
John or Hans Naureham  Barthelamew Delende  William Schoordam

H. M.  J. M.
Henry Hendius  Abraham Bloemart

Published June 25, 1812 by Longman & Co. London.
MONOGRAMS &c.

used by the Engravers of the LOW-COUNTRIES.

Plate IV

MK  A  H

Theodore von Kestel  Abraham Genvels  Herman von Swemeylt

£  £ruyl  B

Jan de Bischeper Episcopus  Levin Cruyl  Balthasar van Breemen
deh

$  H  R. 2h.  X

John van Senner  Januas van den Heyden  Robert van Andenauvel

AF  MB  RB

A. F. Bogaes  John van Houtenbeurgh  Peter van Bleek

WB  VB  WE

William Batenweg  John van den Bruggen  William de Lemis

Jv.L.f.  ML  MV  MM

John von Lendemer  Herman Muller  Peter Serwouterse

<table>
<thead>
<tr>
<th>Monograms, &amp;c.</th>
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<tbody>
<tr>
<td><strong>MONOGRAMS, &amp;c.</strong></td>
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<td><strong>used by the Italian Engravers.</strong></td>
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<tr>
<th>Monogram</th>
<th>Artist/Description</th>
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<tr>
<td>BX</td>
<td>A. Ant. de Bresic</td>
</tr>
<tr>
<td>M</td>
<td>Andrea Mantegna</td>
</tr>
<tr>
<td>N. L.</td>
<td>Niccolò da Modena</td>
</tr>
<tr>
<td>A</td>
<td>Agostino of Venice</td>
</tr>
<tr>
<td>E</td>
<td>Domenico Beccafumi of Venice Authority</td>
</tr>
<tr>
<td>B</td>
<td>Jerone Nucello</td>
</tr>
<tr>
<td>H</td>
<td>Lee Davicer</td>
</tr>
<tr>
<td>E</td>
<td>Lien Davin</td>
</tr>
<tr>
<td>ROM</td>
<td>Marc Antonio</td>
</tr>
<tr>
<td>LD</td>
<td>1 Cyphers and 3 Marks</td>
</tr>
<tr>
<td>MR</td>
<td>Marc of Ravenna</td>
</tr>
<tr>
<td>S</td>
<td>2 Cyphers</td>
</tr>
<tr>
<td>B</td>
<td>Julius Bemascine</td>
</tr>
<tr>
<td>IV</td>
<td>3 Marks</td>
</tr>
<tr>
<td>D. F.</td>
<td>Dominic Barbiere</td>
</tr>
<tr>
<td>B</td>
<td>2 Marks</td>
</tr>
<tr>
<td>N</td>
<td>Nicolas Beatrice</td>
</tr>
<tr>
<td>T.</td>
<td>of Lorraine</td>
</tr>
<tr>
<td>N. B.</td>
<td>A Cyphers</td>
</tr>
<tr>
<td>L</td>
<td>Lucas Panni</td>
</tr>
<tr>
<td>T.</td>
<td>2 Marks</td>
</tr>
<tr>
<td>A.</td>
<td>Jean Baptisti Ghisi</td>
</tr>
<tr>
<td>IBM</td>
<td>George Ghisi &amp; Mantua</td>
</tr>
<tr>
<td>1538</td>
<td>3 Marks</td>
</tr>
<tr>
<td>GMF.</td>
<td>Adam Ghisi</td>
</tr>
<tr>
<td>A.</td>
<td>2 Marks</td>
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Published as the Art Director 1964.5 by Longman, Hurst, Rose, Orn & Brown, London. Reprint 1894-1900.
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<th>Monograms, &amp;c.</th>
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<tr>
<td>B</td>
<td>Martin Reda</td>
</tr>
<tr>
<td>M</td>
<td>Antonio Fantuzzi</td>
</tr>
<tr>
<td>O</td>
<td>J.A. Caraglio</td>
</tr>
<tr>
<td>N</td>
<td>Antonio Salamanca</td>
</tr>
<tr>
<td>F</td>
<td>Gaspar de Avibus</td>
</tr>
<tr>
<td>C</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>T</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td></td>
</tr>
<tr>
<td>AT</td>
<td></td>
</tr>
<tr>
<td>M. CR. V. I.</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>J. Baptista Cavaloris</td>
</tr>
<tr>
<td>K</td>
<td>Marie Karlows</td>
</tr>
<tr>
<td>R</td>
<td>Jacques Patma</td>
</tr>
<tr>
<td>P</td>
<td>J. Baptiste Pagi</td>
</tr>
<tr>
<td>F</td>
<td>Franceschini</td>
</tr>
<tr>
<td>A</td>
<td>Bernardo Alberti</td>
</tr>
<tr>
<td>M</td>
<td>Andrea Andriani</td>
</tr>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>1608</td>
</tr>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>MDCV</td>
</tr>
<tr>
<td>A</td>
<td></td>
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<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Of</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Annibale Caracci</td>
</tr>
<tr>
<td>A</td>
<td>Antonio Tempesta</td>
</tr>
<tr>
<td>E</td>
<td></td>
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<tr>
<td>E</td>
<td></td>
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<tr>
<td>E</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>Louis Civelli</td>
</tr>
<tr>
<td>L</td>
<td></td>
</tr>
<tr>
<td>Co.</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>Francisco Villamena</td>
</tr>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td></td>
</tr>
<tr>
<td>Cr</td>
<td></td>
</tr>
<tr>
<td>C</td>
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Published in the Act Britannia No. 5. All for ornament and decoration, &c.
MONOGRAMS, &c.
used by the ITALIAN Engravers.

Plate III

<table>
<thead>
<tr>
<th>AB</th>
<th>SPAR. A</th>
<th>RA</th>
<th>Alexander Balbi</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>B. B. B. R. B. A.</td>
<td></td>
<td>Horace Bergomi</td>
</tr>
<tr>
<td>E</td>
<td>M. G. M. G. M. F.</td>
<td></td>
<td>Pietro Testa</td>
</tr>
<tr>
<td>A. L. F</td>
<td>B</td>
<td>D</td>
<td>Bella</td>
</tr>
<tr>
<td>I</td>
<td></td>
<td></td>
<td>Jacques Callot</td>
</tr>
<tr>
<td>M. L.</td>
<td></td>
<td></td>
<td>Julie Cesare Venti</td>
</tr>
<tr>
<td>A. D.</td>
<td>B. D. A.</td>
<td></td>
<td>Antonio Maria Zanetti</td>
</tr>
</tbody>
</table>

Published at the New Press on April 16th by Longman, Hurst, Rees, Orme & Brown, Water Row.
One Semibreve.......................................................... Rests or characters for Silence.

2 Minims......................................................................

4 Crotchets....................................................................

8 Quavers......................................................................

16 Semiquavers................................................................

32 Demisemiquavers ......................................................

Characters for Time.

Common Time..................................................................

Jig Time in common Measure..............................................

Jig Time compound of Triple Time.....................................

3. In the characters for Time, which used to be called the Moods or Modes, where Figures are used, the upper Figure tells how many Notes there are in each Bar, and the under Figure tells of what kind: for instance, $\frac{3}{4}$ implies 2 Crotchets or Notes so called in the Time Table $\frac{2}{3}$ three Minims $\frac{2}{3}$ of the 4 Crotchets in the Time Table that are equal to one Semibreve &c.
MUSICAL CHARACTERS.

GRACES AND MARKS OF EXPRESSION.


A Flat, ♭. Sharp, #. Double Sharp, X. Natural, ♮. Point or Dot, . Double Dot, ..

Ligatures or binding Notes. Accented or Staccato.

Pizzato with the vibration of one Bow. A Pause and final Mark of a Movement.


A Trill on the second part of a Note instead of a shake at the beginning. A Trill, turned from a Sharp.
THOROUGH BASE, OR ACCOMPANIMENT.

Table of Intervals.

Flat Scale:

\[ \begin{array}{ccccccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\
\end{array} \]

Base:

\[ \begin{array}{ccccccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\
\end{array} \]

Sharpe Scale:

\[ \begin{array}{ccccccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\
\end{array} \]

II. Significance in each Interval.

1. Major on 1st, 2nd in one of the lower stems above the base.

2. Major on 2nd, 2nd in two stems above the base.

3. Major on major 3rd, 3rd in the same column above the base.

4. Major on minor 3rd, 3rd in the same column above the base.

5. Major on major 6th, 6th in the same column above the base.

6. Minor on major 6th, 6th in the same column above the base.

7. Minor on minor 6th, 6th in the same column above the base.

8. Minor on minor 6th, 6th in the same column above the base.

9. Major on major 6th, 6th in the same column above the base.

10. Minor on major 6th, 6th in the same column above the base.

Harmonical circle. Modulated by 3rd.

The common chord major and minor.

All the 3rd consonance in the octave.

Should be practiced upwards and downwards in the following manner.

All imperfect chords are the beacon.
Further exercise of common chords in accompanying the Hexachords in all the keys major and minor to their fundamental bases. In the practice of which dots are placed on the notes in the treble that are to be played with the little finger; and though only the first of the Hexachords is written backwards, each of them is intended to be practiced backwards as well as forwards...Italian students in singing are long confined to the Hexachords in beginning to Selfsoggiar, but chiefly in keys best in tune, as C.E.B.G.
MUSIC.

THOROUGH BASE.

No two 5ths or two 6ths must succeed each other, rising or falling together, diatonically.

Disallowances in Thorough Base.

Published as the Act directs, Nov. 17th 1804 by Longman, Hurst, Rees & Orme, Paternoster Row.
**MUSIC.**

**THOROUGH BASE.**

**CARDS.**

<table>
<thead>
<tr>
<th>The 3rd, 5th, &amp; 8th singly or together imply the Common Chord.</th>
<th>is common to the 3rd below the Chord of the 7th to the 3rd below the Base.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Chord of the 6th.</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Ditto, to the 5th below.</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Common Chord to the Note above the Base.</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Ditto to the Note below.</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>taken instead of the 3rd.</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>instead of the 5th.</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>arc. Sounds of the preceding Chord and always in the Hand.</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Ditto Accompanied by the 5th.</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Accompanied by the Octave or the 5th.</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>a new combination.</td>
<td>4</td>
</tr>
</tbody>
</table>

In general the Use of Figures in Accompaniment is only to express such Sounds as differ from the Common Chord.

Let Royale de l'Octave, or a rule for accompanying each sound of the Musical Scale, without figures ascending and descending.

**Key of C Major.**

![Key of C Major](chart)

**Key of A Major.**

![Key of A Major](chart)

An accented # or flat in the base is accompanied by the 5th & changes the Key generally to the half-note above each sharp.

An Accidental that note is generally accompanied by the 5th & changes the Key to the 5th below each flat.

To the 5th or a Key is repeated at a close, two Chords are generally played. 3 & sometimes the 7th with the Common Chord.

When the base moves preceding a 3rd & 7th or common Chords will do.

When the base rises a 5th & rolls a 5th alternately & the contrary, each note may be accompanied by the chord of the 5th.

---

Example in Notes.

[Diagram of Examples]

Published as the Act directs, Nov 1st 1829 by Longman, Hurst, Rees & Orme, Paternoster Row.
Answers to regular Exercises must be in the Unison, the 8th, 5th, or 4th, in order that they may proceed in the same intervals as the subject.

Sala

Union in 3 Parts

Pepusch

Above

Below Sala

Two subjects

Below

Canon

Published as the Act-Senate May 1st, 1868 by Longman Hurst Rees & Orme, Paternoster Row.
Introduction to the manner of disposing the second parts in Fugues a 3.

Arrangement of the parts in Fugues a 4 for Voices, where 3 Tenor clfts are used.
The Regle de l'Octave in 4 parts.

C Major

C Minor
No Ninth can be used in the descending Scale, as it cannot be properly prepared.

Passing Notes. The notes with the tails upwards are all that are essential to the harmony of the base, the rest are Passing-Notes.

Supposed base to the Chromatic Scale.

Rousseau's double emploi, or two ways of treating the 5th to the 7th of a key. In the first instance, the 5th is made a discord by the 6th; in the second instance, the 6th is regarded as a discord.
Two Notes to one

Double Counterpoint in the Octave.

Scale

Inverted

Four to one

Scale

Scale

rivolto

Accompaniment to the Scale which cannot be inverted as the 5th reversed becomes a 4th.
Contrapunto doppio in genere Cromatico.

Moderato
Contrappunto doppio, in genere Cromatico, continuo.

Tempo di
Inpetto.

Pian.

dimin. e retardando

Published as the Act direct, April 7th 1803 by Longman, Hurst, Rees & Orme, Paternoster Row.
MUSIC.
Contrappunto doppio in genere Cromatico, seconda.

Published as the Act directs. July 5th by Longman, Hurst, Rees & Orme, Paternoster Row

In Ten Cents.
MUSIC.
MODULATION.

In the ascending Scale only three Notes are in one Key.

Accompaniment to the ascending Scale in the base, in relative sounds without Modulation.

Accompaniment to the Scale with Modulation.

Corelli

Unrelative Modulation. Pergolesi.

Mozart.
Modulation from a given Note to every species of Interval in the Octave.

Relative Keys immediately mediately North-West passage to the half Note below any Key.

Disappointed Close.
Music.
Roujeau's regular Modulation in the Key of C Major.

Kirnberger's two essential Chords.

Kirnberger's examples of the first use of Discords.

Published as the Act directs. July 15, 1866. by Longman, Hurst, Rees & Orme. Paternoster Row.
MUSIC.

Product of the Chord of the extreme flat 7th commonly called the enharmonic Chord.

The lowest Notes of these Chords may be regarded as the Tenor part in octave with the Base.

Minor Chromatic in flats.

Sharps.

Contra in A Minor à tre.

Contra in A Minor à quatre.

Major Scale by true 5th in the triple progression, without double flats or sharps.

Published as the Act directs. April 1780, by Longman, Hurst, Rees & Orme, Paternoster Row.

2nd Ed. only
Example of the Pathetic Genus, in which are expressed its successes in the Cromatic Scale ascending and descending.

First example of passing immediately from a Key-Note to the sharp 7th of another Key.

Key of D. Transition to C

Second example, immediately passing from any Key-Note to the key of its flat 3rd.

Key of D. Transition to the Key of E.

It must be observed, that to feel the effect of this sudden modulation, it is necessary to remain a little while upon the second Chord, before we pass to the third. This tends to another Theorem, which few Musicians will dispute, namely, that there is one note in harmony of every Chord which suits with every kind of movement, and another harmony quite different, which belongs only to Adagios. The Pathetic Genus appertains only to that.

Acciaccature
Fingering of semitonic or chromatic divisions.

Exercises for the hands.

Noble Notes.
MUSIC.

SHAKES.

Begin the Shake with the Note itself unless there is an Appoggiaturas

Running Shakes turned

Transient Shakes

Trill's

Effect

Effect

Synopsis of all the Chords used in Thorough base.
MUSIC.

SCALE OF THE BASSOON.
Air upon three Notes, sent to the Author of this Article by the late M. Roussel in his own hand writing.

A Fac simil.

Romance
Air de trois notes.

Le cœur me palpite
Quand j'entends la voix:
Tout mon sang s'agit
Dès que je te vois.
Ouvrez-les la bouche
Les Cieux vont s'ouvrir;
Si ta main me touche,
Je me sens frémir.

Published as the Act directs March 1st 1867 by Longman, Hurst, Rees & Orme, Paternoster Row
MUSIC.

Original Melodies to the Hymn of Osian in Ternora.

Sad and slow retir'd Sal-manna to Lena of the Streams, she went and ten times; her blue eyes rolled in tears. But when she came to the rock, that darkly covered Lena's vale, she looked from her bursting soul on the King, and sunk at once behind.

Son of Alpin: strike the string. Is there ought of joy in the harp?

pour it then on the soul of Osian: it is folded in Mist I hear thee O bird, in my Night. But cease the lightly trembling sound, the joy of grief belongs to Osian, amidst his dark brown years. Green thorn of the hill of ghosts, that shaketh thy head to nightly winds! I hear no sound in thee; is there no spirit windy skirt now rustling in thy leaves? often are the steps of the dead in the dark eddying blasts: when the moon a dull shield from the East, is rolled along the sky.

Ulfin, Garril, and Ryno, voices of the days of old! Let me hear you while yet it is dark to please and awake my soul. I hear you not, ye sons of song, in what hall of the Clouds is your rest? do you touch the shadowy harp reel'd with morning mist where the rising sun comes forth from his green head - ed waves?

Published as the Act directa, Oct., &c. 1814, by Longman, Hurst, Ree, and Brown, Paternoster Row.
Evclidis Sectio Canonis.

Neto hyperboleon.  —  E
M  —  Paramec hyperboleon.
N  —  Trite hyperboleon.
Neto diezeugmenon.  —  H
Neto synememenon.  —  Z

X  —  Trite diezeugmenon.
Paramere.  —  K
*Trite synememenon.
Meron.  —  D

R  —  Meron diatones.
O  —  Burypate meron.

Hypate meron.  —  O

G  —  Hypaton diatones.
P  —  Burypate hypaton.

Hypate gravis.  —  L

Proslymanomenos.  —  A

Published as the Act directe April 22nd by Longman, Hurst, Rees & Orme, Paternoster Row.
ANCIENT MUSICAL INSTRUMENTS.

1. A Timbrel, or Tambour de Basque.
2. A Caristria, or female minstrel.
3. A double Lituus.
4. Pan playing on the Syrinx.
5. A Bacchante playing on two Flutes of the same pitch; Tibia parte.
6. Antique Theatrical Masques.
7. A genuine ancient metaline Lituus.
8. A genuine ancient metaline Lituus.

Published at the Act, London, by Longman & Rees, Paternoster Row.
ANCIENT MUSICAL INSTRUMENTS & MASKS.

1. A Harp, from a bas-relief, a Cast of which is in the Royal Academy. An Antique Marble in the British Museum has a similar Parian. The Greek Vases &c furnish similar examples.


3. A Mask of Thais from Terence's play of the Bumper in the Illuminated Vatican M.S. of his Comedies.

4. A Figure of the 42nd Plate of the 4th Vol. of the Herodianum Paintings.

5. A Lyre from 3rd Wm. Hamilton's last Collection of Vases.

Published as the Act directs, June 1, 1803, by Longman & Reece Paternoster Row.
Ancient Musical Instruments.

Plate III.

1. & 3. are all taken from the same piece of Ancient sculpture, in the Ghizi Palace at Rome, representing a Group of Musicians performing an Epitaphium.
2. The Tub, or long Trumpet, called by the Hebrews, the Trumpet of the Jubilee; to be seen on the Arch of Titus, and on Trajan's Pillar.
4. Cupid playing on a double Flute or Tibia pars, from an Ancient painting in the Museo at Perto.

Published as the Act directs, May 1, 1804, by Longman & Reeve, Paternoster Row.
Fig. 1. From an original Indian Painting.

Fig. 2. The Been, an Indian Musical Instrument, as described by Sir William Jones, in a discourse on the subject, in the Asiatic Researches Vol. 1, P. 295.

Published at the Art Sheets, Sept. 17, 1786, by Longman, Hurst, Rees & Orme, Paternoster Row.
PANDEAN MINSTRELS, IN PERFORMANCE AT VAUX-HALL.

Published at the Art-Jerrets, Dec. 1796, by Longman, Hurst, Rees & Orme, Paternoster Row.
MUSICAL INSTRUMENTS.

WELSH HARPS.

Single Harp.

Ancient Triple Harp.

Modern Triple Harp.

Published as the Act directs, April 6, 1815, by Longman, Hurst, Rees, & Orme, Paternoster Row.
MUSICAL INSTRUMENTS.

ORIGIN OF THE BOW.

Fig. 1

Fig. 2

Fig. 3

Fig. 5

Published at the Act direct, April 1st, 1853 by Longman, Hurst, Rees & Orme, Paternoster Row.
RUSSIAN MUSICAL INSTRUMENTS.

From the Russian Antiquities, by M. Guthrie, Physician to the late Empress Catherine.

Goudok.
Rebec with three Strings.

Gélaïka.
Double Flutes of the Ancients.

Corne de chasse de Siberie, ou Rok.
Hunting Horn of Siberia.

Rejok.

Batalaïka.
Guitar with two Strings.

Published as the Act directs April 8 1808 by Longman Hartt, Rees & Orme, Paternoster Row.
Fig. 1 & 2. The Harp of Brian Boruah, height 32 In. In the University of Dublin.

Fig. 3. Silver Prize Harp, height 6½ In. In the possession of Dr. Burney.

Fig. 4. Bell Harp, height 28 In. In the possession of Mr. Jones.

Published as the Act directs, Aug. 1798, by Longman, Hurst, Rees & Orme, Paternoster Row.
1. English Common Flute
2. German Flute
3. Improved German Flute with additional Keys
4 & 5. Hautbois
6. B Flute
7. C Flute
8. English Flageolet
9. Gong
10 & 11. Tabour & Pipe

Scale to Fig. from Line 8

MUSICAL INSTRUMENTS.

Fig. 1 & 2 Hunting Horns. 3 Serpent. 4 French Horn. 5 Bugle. 6 Sackbut or Trombone.
Musical Instruments.

Fig. 1. Arch Lute, height 5 ft. In the Collection of the late M'. D. Walker. Fig. 2. Mandarline, the distance from Bridge to Nut same as Violin. Fig. 3. Mandela, varies in length from Bridge to Nut according to its pitch.

Published as the Act directs. Dec. 5th 1779 by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.
Musical Instruments.

Fig. 1 & 2 Violin and Bow. Fig. 3 Sordine or Mute. Fig. 4 Violoncello.

Fig. 5 Violino Piccola or Kit. Fig. 6 Viol de Gamba of the 16th century.

Published at the Art_direct. Jan's, 1822 by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.
NAVAL ARCHITECTURE.

DISPOSITION OF THE FRAME
OF A SHIP OF 74 GUNS.
NAVAL ARCHITECTURE
PROFILE OF A SHIP OF 74 GUNS
Inboard Works.
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