

PERPETUUM MOBILE;

OR,

SEARCH FOR SELF-MOTIVE POWER,

DURING THE 17TH, 18TH, AND 19TH CENTURIES.

ILLUSTRATED FROM VARIOUS AUTHENTIC SOURCES,
IN PAPERS, ESSAYS, LETTERS, PARAGRAPHS, AND NUMEROUS
PATENT SPECIFICATIONS.

WITH

AN INTRODUCTORY ESSAY,

BY HENRY DIRCKS, C.E.

"A MOST INCREDIBLE THING IF NOT SEEN."

Marquis of Worcester.

"THE HUMAN UNDERSTANDING IS ACTIVE, AND CANNOT HALT OR
REST; BUT EVEN, THOUGH WITHOUT EFFECT, STILL PRESSES
FORWARD."

Bacon.



LONDON:

E. & F. N. SPON, 16, BUCKLESBURY.

1861.

[The right of Translation is reserved.]

THREE CENTURIES
OF
PERPETUAL MOTION.

BY HENRY DIRCKS, C.E.

COMPARATIVE SIZES OF THE TWO MOST CELEBRATED SELF-MOTIVE WHEELS.—[See Chapter II.]

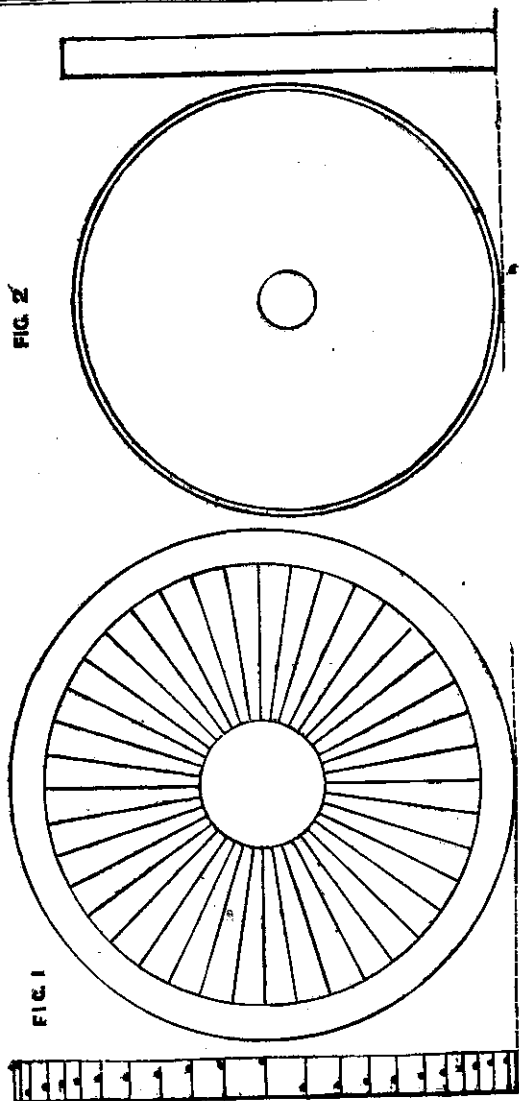


FIG. 2

FIG. 1

Fig. 1.—Invented by the Marquis of Worcester, prior to 1649. Its diameter 14 feet; and worked by forty 50 lb. weights.
Fig. 2.—Invented by Councillor Orffyreus, 1712. Its diameter 12 feet by 14 inches broad—very light, and covered with oil-cloth; exhibited 1717.—[See pp. 37 and 208.]

TJ181
.3
D55
20p. 2

P R E F A C E.

Who will not be reminded, on perusing the title of this book, of the exclamation—"Will no one write a book on what he understands!" Great will be the disappointment of him who seeks here to find an account of any veritable Perpetual Motion; or, to be enlightened on the art of constructing any such machine. Neither will he even meet with any very powerful arguments for or against its possibility. Either way, whatever may be his views, we opine he will discover many deficiencies, little to praise, and, as in all other human works, much to censure.

Can such a book be a desideratum? Yes; because it supplies a niche hitherto vacant in the history of Mechanical Science; it opens to view a curious phase in the mental constitution of a certain class of inventors; it brings into a comprehensive form their labours and the opinions of their opponents, gathered from sources scattered through a vast variety of works—many inaccessible to the general student; and, lastly, it exhibits an amount of infatuation respecting patent schemes that would otherwise have remained long unknown; or, if asserted without this evidence, could scarcely have been credited. If this publication tends to the attaining of no other result than arresting the further operations of this misguided, though ingenious, class of men, it will have erected a step in the ladder of advancement.

The writer at a very early period of life became aware of

the immense difficulty, if not impossibility, of solving this problem, but gave no other attention to it than attempting to satisfy himself by accumulated evidence. For this purpose he adopted the practice of copying every paper that came under his notice on the subject. For fifteen years the collection lay hid, and was near being doomed to destruction—perhaps a wiser course than the present! So little, however, seemed requisite to supply a continuity of the series, to the present time, that what appeared to be deficient has been supplied; and the whole is now submitted to the public as affording—to one portion, an amusing or, perhaps, melancholy history; to another, a serious warning against any expectancy of fame or fortune from the bestowal of attention on the dry wells and veinless mines of Perpetual Motion; and to an exceeding small minority, a treasure house of pleasant conceits and rare devices for their special delectation during leisure hours, should their station in life and their own mental habits equally contribute to their being—

“Content with Science, in the vale of peace.”

H. D.

London, January, 1861.

ERRATA.

PAGE		
ix	Line 16	from top, after "536," add "537—539."
34	" 4	" for "Orfireus," read "Orffyreus."
34	" 6	" "Orfireus," read "Orffyreus."
37	" 20	from bottom, for "Zittan," read "Zittau."
—	" 4	" "Orffyreus," read "Orffyreus."
38	" 17	" "Bernouilli," read "Bernoulli"
—	" 4	" "
39	" 4	from top, for "Bernouilli," read "Bernoulli."
53	" 13	" "
56	" 8	" "
95	Insert "E"	in the engraving at right hand of frame corresponding to e; and "D," at left hand above and corresponding to d; also "V," to mark weight at No. 6, on the beam.
106	" 7	from top after "1815," add, "Millington, 1823."
211	" 6	from bottom, for "Hoffman," read "Hofman."
406	Bottom line,	for "Urmacher," read "Urhmacher."
411	In note, for "this chapter,"	read "preceding chapter, page 405."
419	Line 10 from top,	for "C," read "E."
In the engraving at top mark A, at bottom B, and at left hand letter the pump barrels C, D.		
507	Line 23	from bottom, for "ieder," read "jeder."
—	" 20	" "Leite," read "Seite."
—	" 9	" "
—	" 4	" "
508	" 15	from top, for "var," read "vor."
—	" 26	" "Leite," read "Seite."
—	" 4	from bottom dele "l" in "fahhren."
509	" 3	from top dele "li" in "Erholirung."
—	" 5	from top for "zwie," read "zwei."
—	" 16	from bottom read "schlimmste ist."
—	" 15	from bottom for "könte," read "könnte."
518	" 16	" "epre," read "etre."
523	" 10	" "Tout," read "Toute."
527	" 16	from top dele "r" in "trombe."
—	" 22	from top read "Une suite fort."
528	" 17	from top for "j'ae," read "j'ai."

PERPETUUM MOBILE.

CONTENTS.

	PAGE
INTRODUCTORY ESSAY. —1. Early history, and to the Sixteenth century; 2. Seventeenth century characterized; 3. The Eighteenth century; 4. The Nineteenth century; 5. "Perpetual Motion" defined; 6. Found to be a fascinating pursuit; 7. Kind of machine sought; 8. Is a paradox—mathematicians divided in opinion; 9. The inventive faculty; 10. Undiscovered—constant failures; 11. Folly of secrecy; 12. At best but a toy; 13. Influence to the study; 14. Modern instances and correspondence; 15. Abortive efforts; 16. No decision offered; 17. General laws not without exceptions; 18. Mathematics opposed to perpetual motion; 19. Ordinary arguments against it; 20. Incessant failure; 21. Erroneous contrasts; 22. Its inutility often asserted; 23. Loss of fortune assumed; 24. Understanding assailed; 25. Opposition should be fairly directed; 26. The pursuit likened to a lock without a key; 27. Stimulus to continued search; 28. Belief and disbelief; 29. Error in the application, and not in the sciences of mechanics and mathematics; 30. Marquis of Worcester; 31. Orffyreus; 32. Invention of the first; 33. Invention of the second; 34. The subject in every light paradoxical; 35. Both the supposed discoveries kept secret; 36. Scientific disbelief; 37. Projectors should analyse their schemes; 38. Its discovery unpromising and unlikely on all known laws; 39. Apparatus to show the difficulty; 39. Conclusion	xi—xlii

CHAPTER I.—Early opinions respecting the possibility of, and projects for obtaining, perpetual motion 1—33

Bishop Wilkins, 1; Scarce works on perpetual motion, 2; Seeming facility and real difficulty of several contriv-

ances, 2—5 ; Attempts by magnetism, 5—7 ; and by wheel and solid weights, 8—12 ; Its power analysed, 9 ; Fluid weights, Archimedean screw, 12—18 ; Taisnierus on Continual Motion, 18 ; Wheel and magnet, 20 ; Leupold on Perpetual Motion, 21 ; on Orffyreus' wheel, 22 ; on a mill and syphon, 22 ; and a pump, 23 ; "Manual Arts," 1661, 23 ; Turrianus' mill, 24 ; Fludd's works, 1618, and two inventions, 24—29 ; Bettino's works, 1645, 29—33.

CHAPTER II.—Inventions of the Marquis of Worcester and Councillor Orffyreus 34—59

The Marquis of Worcester and his "Century of Inventions," 34 ; Partington's note on the same, 35 ; and on perpetual motion, 36 ; Orffyreus, his character, 37 ; his celebrated wheel, 38—42 ; and Gravesande's letter to Sir Isaac Newton, 39—42 ; Desaguliers against perpetual motion, 42—48 ; Notice of Orffyreus and Dr. Kenrick, 48, 49 ; Dr. Hutton on Orffyreus and against perpetual motion, 49—54 ; Kenrick's lecture in favour of perpetual motion and his own invention, 54—59.

CHAPTER III.—Patents of the Seventeenth and Eighteenth centuries, with contemporary scientific notices on them and the subject generally 60—84

1630, Ramseye, 60 ; 1635, Barton, 60 ; 1662, Wayne, 61 ; 1779, Müller, 61 ; 1782, Morley, 61 ; 1786, Mead, 62 ; 1790, Schwiers, 65 ; 1790, Haywood, 66 ; 1794, Mead, 67 ; 1797, Varley, 68 ; and remarks on same, and Schwiers' patent, 70—82 ; 1801, Thiville, and remarks on same, and perpetual motion, 82—84.

CHAPTER IV.—Early papers from the Philosophical Transactions, and Sir Robert Boyle ; also the Paris Academy of Sciences, with notices of communications to the Academy, 1837—56 85—105

Dr. Papin on a French invention for perpetual motion, 85 ; his further remarks, 87 ; and final answer, 88, 89 ; Rev. J. T. Desaguliers, LL.D., his proposition on the balance, 89—93 ; and on a mechanical paradox, 93—97 ; Sir R. Boyle on a self-moving liquor, 98—101 ; M. de la Hire, his celebrated demonstration of the impossibility of

perpetual motion, 102; List of communications on perpetual motion made to the Paris Academy of Sciences, 103, 104; M. Parent's demonstration of the impossibility of perpetual motion, 105.

CHAPTER V.—Remarks on Perpetual Motion, derived from treatises on Natural Philosophy 106—147

1747, By Martin, 106—108; 1748, Maclaurin, 108—113; 1748, Rutherford, 114—119; 1783, Hooper, 119, 120; 1794, Emerson, 120—122; 1800, Nicholson, 122—137; 1807, Young, 137—139; 1815, Gregory, 139—142; 1823, Millington, 142; 1828, Partington, 143; 1828, Dr. Arnott, 144, 145; Montucla's "Histoire des Mathématiques," 145—147; Cox's clock (by Nicholson), 123—127.

CHAPTER VI.—Papers from early scientific and other journals 148—191

From the "Gentleman's Magazine:"—I. Discovery of longitude, 148—153; II. Raising water, 153—159; III. Solski's machine, 159; IV. A self-moving wheel, 163; V. Magnetic motion, and alleged discovery by Hicken, 170; VI. Archimedean water-raising machine, 173; VII. Ashman's alleged discovery, 177; VIII. By Galvanic agency, 177; IX. Ancient attempt at perpetual motion, 177; X. Kenrick and Müller apply for patents, 178; XI. A magnetic scheme, 178; XII. Spence's magnetic motion, 180; XIII. Magnetic wheel, 181; Cox's time-piece, 182; Dodevant's alleged discovery, 183; Poppe on perpetual motion, 183; Gill's exposure of an impostor, 184—186; Dr. Young's illustrative model of perpetual motion, 187; Gravesande on perpetual motion, 187—190; Resolution of the Academy of Sciences against memoirs on perpetual motion, 190, 191.

CHAPTER VII.—Definitions and descriptions of perpetual motion from encyclopædias and dictionaries 192—212

Article from Rees' Cyclopædia, 192—197; Encyclopædia Britannica, 197; Chambers' Cyclopædia, 197; Stone's Mathematical Dictionary, 198; Dictionary of Mechanical Science (Fisher's), 200; Francis' Dictionary of Arts, 200; Ogilvie's Imperial Dictionary, 201; Brande and Cauvin's Dictionary of Science, &c., 201—203; Encyclopædia

Americana, 203, 204; Diderot and D'Alembert's French Encyclopædia, 1765, 204; Encyclopédie Méthodique, 205; Zedler's German Universal Lexicon, 1741, 206—209; Allgemeine Encyclopädie, von M. H. E. Meier, 1767, 209—211; Dr. Binder's Conversations Lexicon, 211; Hofmann's Lexicon, 1698, 211, 212.

CHAPTER VIII.—Early popular and other journals, and the Percy Anecdotes 213—236

Absurdity of perpetual motion demonstrated, 213; The perpetual motion hunter, 214—220; Dr. T. P. Jones (America) on the futility of attempting perpetual motion, 220—225; Stukeley, Anecdote of, 226; Spence's perpetual motion, and his inventions, 226—229; Pendulum motion, 229—231; Alleged discovery, two claimants, 231; A deception exposed, 231—233; another, 233, 234; "Century of Inventions," reviewed, 235, 236.

CHAPTER IX.—Recent popular scientific and other journals 237—406

Section I.—Possibility of perpetual motion asserted, 237; by Pasley, 237; to promote discovery, 239; by Welch, 239—241; by Todd, 241—244; Review, 244—250; A query, 250; to construct twenty models, 251; Arguments for and against, 252—254; by Twiss, 254—256; Pearson's views, 256—259; by Mackintosh, 259. Section II.—Its possibility denied, 259; advice, 259, 260; Objections to a pump, 260; No perpetual motion, 260—264; Invariable motion wanted, 264; On particles of matter, 266; Objections to perpetual motion, 267; Editor's advice, 269; A lecturer's observations, 269, 270; Scripture texts, 270; Remarks against perpetual motion, and editor's note, 271—273; To perpetual motionists, 273; "Penny Magazine" article, 275—277; Notes from Mudie's Mathematics, 277, 278; W. R. Groves' lecture, 279; General T. P. Thompson's lecture, 281. Section III.—Plans, 283; A pump, 283; Hydro-pneumatic apparatus, 284; De Luc's column, 285; A pump, 286; Archimedean screw, 287; A pump, 288—291; By magnetism, 291; Several schemes, 293; Spence's perpetual motion, 294; A clock, 295; A hydro-pneumatic plan, 296—298; Band with corks, 299, 300; Propelling vessels, 300—302; A pump, 302; A clock, 303; Ancient attempt, a

pump, 303—305; Orchard's engine, 305; Wheel and magnets, 307; Water-blowing machine, 307; Hydro-pneumatic machine, 310—314; Sir W. Congreve's schemes, 314—326; Pendulum motion, 327; Wheel and magnets, 329; Cox's time-piece, 330—338; Magnetic pendulum, 339; Syphon, 340; New motion, 342; Railway carriage, 343; Sims' water elevator, 346; Worcester's scheme, 347; Wheels and pumps, 349; Wheel and weighted levers, 350; Pump, 351; Mill, 354; Demonstration against water-wheels, 356—361; An hydraulic mover, 361; Paradoxical balance, 363; A rising and descending equal weight, 364; Two "certain" plans, 365; Wheel, ball, and magnet, 367; Its fallacy, 369; An attempt, 369. Section IV.—Claimants, 370; Alleged discovery in Stamford, 370; Advertisement, 371; by Van Dyke, 371; Franklin, 372; A clock, 373; Wright, 373; Sellery, Buckle, Townsend, 374; Stringfellow, Hutt, 375; in Gravesend, 375; Hendrickson, and his sad fate (America), 376; Chenhall's clock. Section V.—Impostures, 378; in Scotland, 378; from America, 380; Adams, 381; in Finch-lane, 382; Redhœffer (America), 383. Anecdote of Stukely, 383; Article on impossibility, 384; On impracticability, 385—390; A popular view, 390; Deuchar on loadstones, 393; Spence's imposture, 394—395; A paradox, 396; A pump, 397; Hollow-spoked wheel and weights, 398; The pursuit censured, 399; Rojoto's scheme, 400; On attempts, 401; Alleged discovery by Wather; Plan of double wheels (American), 402, and by Willis, 404; and others, 404; Poppe on perpetual motion, plans, and an imposture, 405; Censure, 406.

CHAPTER X.—Newspapers and miscellaneous sources of information 407—427

The Athenian Oracle, 407; Alleged discovery by Bayne, 408; Spence's invention, 408; Dalling's scheme, 409; A wager, 410; Mannardet's wheel, 410; Garhar's scheme, 410; Geyser's imposture, 411; Irish Advertisement, 411; Alleged discovery, 412; and in Newcastle, 412; An imposture, 413; Presumed discovery, 413; by Van Dyke, 414; Richards' engine, 414; by Vignernon, 415; by Stannard; by Hutt, 416; in Lille,* 417; Pasley's views, 417; Eaton's

* Probably the machine patented by Asaert, of Lille. (See page 451.)

syphon, 418; Legge's power, 419; Foster's wheel (America), 419; Predaval's patent motive power company, 420—427.

CHAPTER XI.—Patents of the Nineteenth century, for improvements in obtaining motive power: English, French, and American 428—500

Remarks on patents, 423; Patentees, namely:—Pleasants, 429; Winter, 430; Copland (three patents), 431; Linton, 435; Jordan, 437; Congreve, 437; Hainsselin, 438; Predaval, 442; Brazill, 442; Stuckey, 443; W. W. Sleigh (four patents), 446; Eaton, 450; Asaert, 451; Frèche, 455; Buchholz, 459; Greaves, 459, 460; Faulkner, 460; Luedeke, 460; Wood, 461; Fitt, 461; Newton, 461; Glorney, 462; Bellford, 462; A. W. Sleigh, 463; Aitken, 463; Shaw, 464; Oulton, 464; Thomas, 465; Hale, 465, 481; Malavas, 466; Huddart (two patents), 467; Benton, 468; Weber, 468; Gilardeau, 468; Jones, 469; Herault, 469; Lang, 470; Dembinski, 470; Lavender, 471; Lespinasse, 471; Barrow, 472; Lecocq, 472; Predavalle (four patents), 472; Commandeur, 475; Fontainemoreau, 478; Gilmour, 478; Middleship, 479; Mennons, 481; Hill, 481; Richard, 482; Black, 483; Coates, 484; Pickering, 485; Wright and Mercer, 485; Starbuck, 486; Roussel, 486; Rigby, 486; Smith, 487; Picciotto, 489; Prince G. Genrich, 491; Redrup, 493; Edwards, 495. Patentees' professions, 496. List of French patents, 497; and American patents, 498. Concluding remarks, 499.

CHAPTER XII.—Summary remarks 501—504

Scarce works, 501; List of eminent mathematicians, their births and deaths, 501; Dr. Kenrick, notice of, 502; Century of Inventions, unnoticed in foreign works, 502, 503; An error in naming the Marquis of Worcester; 503; Orffyreus's name; some patents probably omitted, 503; Conclusion, 504.

APPENDIX 505—534

A. From "Theatrum Machinarum Generale," by Jacob Leupold. Leipsic, 1794. Folio. Referred to at page 21.—505—509

- B. From the same. Referred to at page 23.—510, 511
- C. From the same, as above.—512, 513
- D. From "Memoires de l'Académie Royale" of Paris.
M. De la Hire's celebrated demonstration. Referred to at
page 102.—514
- E. From the "Histoire des Mathématiques" of Mon-
tucela. Referred to at page 147.—515—522
- F. From "Œuvres Philosophiques" of M. 's Grave-
sande. Referred to at page 190.—523—530
- G. From "Acta Eruditorum, Lipsiæ, 1715." Referred
to at page 503.—531
- H. From John Bernoulli's works, 1742. His celebrated
demonstration of the possibility of perpetual motion. Re-
ferred to at page 502.—532—534

ADDENDA

535, 536

List of Belgian Patents, 1854 to 1857, 535; Fictitious
perpetual motions at the Polytechnic Institution, 536.

Professor Airy, on certain conditions under which Per-
petual Motion is possible, 1829,