

ANNUAL REPORT

OF THE

BOARD OF VISITORS

TO THE

United States Military Academy

MADE TO

Congress and the Secretary of War,

FOR

THE YEAR 1819.



WEST POINT:

U. S. MILITARY ACADEMY PRESS AND BINDERY.

1894.

THE following Reports of the Board of Visitors to the United States Military Academy for the years from 1819 to 1850, both inclusive (except for the year 1820, for which no report appears to have been made), are taken from the official records in the office of the Adjutant of the Academy. The Reports are in writing, comprise three volumes, and have apparently been copied from the originals filed away in the War Department.

The Reports from 1851 to 1866, both inclusive, are taken from the Executive Documents for those years.

J. M. CARSON, JR.,
1st Lieut. 5th Cavalry,
Adjutant.

HEADQUARTERS, U. S. MILITARY ACADEMY,
WEST POINT, N. Y., March 31, 1894.

1819.

The Board of Visitors, of the Military Academy, have attended the general examination of the Cadets commencing the 1st inst, and according to order, submit to the Secretary of War, their report on the actual state of the Institution, together with such suggestions for its improvement as they think necessary.

By an act of Congress passed the 16th March 1802, the President of the U. S. was authorized to establish a Corps of Engineers, consisting of ten Officers and ten Cadets, who when organized were to be stationed at West Point and to constitute the Military Academy; the superintendence of which was given to the principal Engineer and in his absence to the next in rank. By the act of Feby. 1803 there were attached to the Corps of Engineers, a Teacher of the French Language, and a Teacher of Drawing, and by act of April 29, 1812, there were added to the Corps of Engineers, two Captains, two 1st Lieutenants, two 2d Lieutenants and the Company of Bombardeers, Sappers and Miners. The Corps of Engineers thus constitute together with one Professor of Natural and Experimental Philosophy and one Professor of Mathematicks, and one Professor of the Art of Engineering, the present Military Academy. Each of the above named professors, was allowed one Assistant Professor, "to be taken from the most prominent Characters of the Officers of the Engineers or Cadets," and the President was authorized to attach 250 Cadets, as students to the Military Academy thus organized, who were to be arranged into Companies of non-commissioned Officers and Privates, and to be officered from the Corps of Engineers.

The defects in this organization experience has proved are;

1. The exposure of the superintendence of the Academy to all the changes incident to ordinary military Command.
2. The inability of the Corps of Engineers, to act as a constituent part of the Academy, as contemplated by Law.
3. The inability of that Corps also, in its present numerical state to furnish the number of Officers requisite for the Instruction of the Cadets in Military exercises.
4. The want of a sufficient number of Teachers in most of the Departments, particularly in Mathematicks and French, which has rendered several provisional appointments indispensably necessary.
5. The limited field for the selection of Assistant Professors, and
6. The want of adequate compensation to the Professors and other Officers of the Academy.

The course of Studies and Exercises at present pursued at this Institution, is exhibited in the annexed Program.

Considering the Military Academy merely as an elementary School, this Course of Instruction appears in general well calculated to attain the end in view; with perhaps this exception, that the practical application of the several parts of it, particularly in the departments of Natural Philosophy and Engineering, is not sufficiently attended to, and a disproportionate attention is paid to some parts of science which in Military Life will be less frequently employed, than others on which less attention is bestowed.

It is conceived that an Astronomical Observatory should be added to the present establishment; this may be done for a very moderate expense, and there can scarcely be conceived a more suitable situation for one, than West Point; the Cadets should be regularly instructed and exercised in making all the necessary observations, as well as calculations. As Chymistry and Mineralogy are now universally acknowledged to be essential parts of a scientific education, the Board would suggest the propriety of employing a well qualified Teacher of these two kindred branches of science. To extend the course of Experimental Philosophy an enlarged apparatus will be necessary, and the Superintendent has intimated that a Course of the application of the Mathematical principles of Natural Philosophy to the construction of Machines will be introduced the next year, this last is at the present moment a desideratum. Perhaps too a competent knowledge of the Spanish Language might be usefully combined with that of French, and both communicated by the same Teacher.

It is not the intention of the Board to discuss the question, whether it would be better to have what is technically called a School of Application, annexed to, or separate from the present institution; they will barely remark, that the want of practical knowledge is severely felt, and that they are decidedly and unanimously of opinion that the Cadet should be taught the practical as well as the scientific part of his profession at the present School, at least until one specially devoted to that purpose is established elsewhere; and that without this the end of the Legislation in creating the Military Academy is most imperfectly attained.

The Board suggest the propriety of a new organization of the Military Academy and propose the following plan.

I. COMPOSITION OF THE ACADEMY.

The Military Academy of the United States shall be composed of a Staff. five Professors, eighteen Teachers and — Cadets.

There shall moreover be especially attached to the Academy, one Surgeon, and one Ward Master, one Paymaster, one Quartermaster, one Model Maker and Machinist, one Teacher of Music, seventeen Musicians, three Sergeants, four Corporals, and twenty-four Privates.

2. STAFF OF THE ACADEMY.

The Staff of the Academy, shall consist of one Superintendent, one Instructor of Tactics, one Assistant Instructor of Tactics, one Instructor of Artillery, and one Adjutant, all of whom shall be taken from the Officers of the Army.

3. PROFESSORS AND TEACHERS.

The Professors and Teachers of the Military Academy shall be as follows and shall receive the yearly pay herein named, together with Quarters, and the fuel allowed by law to field Officers.

1 Professor of Mathematicks	the yearly pay of	\$2,200
7 Teachers,	do	{ 3 1,000
		{ 4 900
1 Professor of Natural & Experimental Philosophy		2,500
2 Teachers of	do	do
		{ 1 1,200
		{ 1 1,000
1 Professor of Chymistry & Mineralogy		2,500
1 Professor of Engineering & Artillery		2,500
1 Teacher	do	do
		1,200
1 Professor of Geography, History & Ethicks to act as Chaplain		2,000
1 Principal Teacher of the French & Spanish Languages		1,500
3 Assistants	do	do
		900
1 Teacher of Drawing and Perspective		1,200
1 Assistant	do	do
		900
1 Librarian, to be taken from the Officers of the Academy		120
1 Teacher of Riding and the Small & Broad Sword Exer'		800
1 Principal Teacher of Music		800

4. MATERIAL OF THE ACADEMY.

The establishment of the Academy shall comprehend.

1. All the public grounds and buildings at West Point in the State of New York.
2. A Library of Military and general science.
3. An Astronomical Observatory.
4. A Cabinet of Natural History of the Minerals and Vegetables, used in the Military Art.
5. A Cabinet of Natural Philosophy and Chymistry with a Laboratory.
6. The Machines, Tools, Instruments and Materials necessary for constructing works and making experiments.
7. Necessary Workshops.
8. Models of such Machines used in War as cannot be conveniently exhibited in kind.
9. Necessary Magazines and Parks.
10. A Polygon for the Exercise of Artillery.
11. A Polygon of Mines &
12. A Riding School.

5. RULES AND REGULATIONS.

The President of the U. S. shall be authorized to establish Rules & Regulations and to prescribe the Course of Studies and Exercises for the Academy.

6. POLICE AND ADMINISTRATION.

The Police and Administration of the Academy shall be confided to an Officer of the Army specially designated for that purpose by the President and who, while in the discharge of this duty shall have the Pay, Rank, Emoluments of a Brigadier General. The other Officers of the Staff of the Academy shall receive the pay and emoluments of the grade next above that which they may hold in the line of the Army. The Command of the Academy shall devolve upon the Instructor of Tactics during the absence of the Superintendent. The Professors and Teachers may be appointed either from Officers of the Army or from Citizens, but in neither case shall they exercise any Military Command at the Academy.

7. BOARD OF VISITORS.

The President shall be authorized to appoint a Board of Visitors, of not less than — persons versed in Military Science, whose duty it shall be to visit the Academy at the times of examination of the Cadets, for the purpose of ascertaining the progress and improvement of the Cadets, and of examining into, and reporting everything connected with the management and Police of the Institution. The Superintendent shall lay before the Board of Visitors at each examination, the Registers of Police and Instruction, and those Cadets who shall be there noted for irregularities, or inattentive shall be particularly examined before the Board, and if the Board so determine, the Superintendent shall dismiss them from the Academy.

8. ADMISSION TO THE ACADEMY.

No person should be admitted as a Cadet to the Military Academy except between the age of 14 and 18 years and should be well versed in Reading, Writing, English Grammar and common Arithmetick, including Vülgar and Decimal Fractions and the extraction of the Square & Cube Roots.

“The Board of Visitors do not conceive that any further Legislative provisions are necessary for the more convenient Organization and Government of the Military Academy.” The details of Instruction, Police and Discipline are better adjusted by Regulations than by Law.

The Board of Visitors will merely remark that they think it indispensable to the well being of the establishment, that the Regulations hereafter to be formed should contain strict provisions restraining luxury in dress & should limit the expenditure of the Cadets to the pay which is allowed them by Government; no distinction should be tolerated here,

except that which arises from Merit; such a Regulation would moreover produce habits of Economy which would be of lasting value.

The Board of Visitors take great pleasure in expressing their entire satisfaction in the proficiency of the Cadets generally, they would however except from this praise the 2d Section of the 1st Class, and the 5th Section of the 4th Class. The progress of the Cadets is equally honorable to themselves and their Instructors. The Police and Administration of the Academy, and the moral & orderly conduct of the Cadets is scarcely susceptible of improvement; no time is allowed for dissipation or for contracting bad habits; from Reveillé till Tattoo, their whole time with the exception of three hours allowed for Meals & Recreation is consumed in Study, Recitation & Military Exercises. To the present Superintendent of the Military Academy, who, notwithstanding the defects of its Organization, has placed it upon an equality with the best of its kind, the Country are under lasting obligations, and the Board confidently believe, should the proposed changes be adopted, that under his direction this School would produce all the advantages to the nation which are to be derived from the establishment of a Military Academy.

The Buildings, Books, Instruments and Apparatus at present wanting for this Institution, together with an estimate of their cost, is hereunto annexed.

There is one other expense which the Board of Visitors most earnestly recommend that Government would incur for the benefit of this Institution; they allude to the purchase of Mr. North's land adjoining the West Point Tract; they are assured and can readily conceive that the Tavern kept on this land within 100 Yards of the Cadet Barracks, & over which the Regulations of the Academy do not extend, has been productive of the very worst consequences to some of the Cadets, tho' the vigilant Superintendence of the Commanding Officer has, in a very great degree, diminished the evil, that it still exists to too great an extent to render the Cost of removing it, an object of serious consideration. All of which is respectfully submitted.

West Point, 1st July, 1819.

Signed.—	JOHN R. FENWICK,	Prest. of the Board.
“	JOHN ELBOOC.	JAS. RENWICK.
“	JOS. G. TOTTEN.	JOHN GARNETT.
“	S. B. ARCHER.	RD. PATTERSON.
“	G. SWIFT.	

Summary Estimate of the Books, Instruments, Apparatus and Buildings necessary for the Endowment and accommodation of the Military Academy.

Books, as per estimate in detail.....	\$7,000
Philosophical Apparatus.....	3,500
Chymical Apparatus, (probably).....	1,500
Mathematical & Surveying Instruments.....	1,000
Buildings & other works, viz:	
1. An Hospital.....	4,000
2. A Building for Ordnance & Ordnance Stores.....	3,000
3. One Double dwelling House for 2 Assistant Professors or Teachers.....	5,000
4. An additional store to the Refectory, for a Drawing School.....	4,000
5. An Astronomical Observatory.....	1,500
6. A Chymical Laboratory.....	2,000
7. An Aqueduct for supplying the House & Barracks with water.....	2,500

LIST

Of Instruments which should be added to the Philosophical Apparatus of the U. S. Military Academy for the purpose of extending the course of Experimental Philosophy, and forming an Observatory.

EXPERIMENTAL PHILOSOPHY.

1 <i>Balistic Pendulum</i> and apparatus for Huttons experiments } on practical Gunnery.....	\$ 100
1 Pyrometer of the most approved construction with Micrometers.....	50
1 Complete set of apparatus for illustration of Hydrostaticks.....	200
1 Set of Models for pumps.....	50
1 Condensed Air fountain.....	20
Nicholson's Hydrometer & others.....	30
1 Medium sized air pump with all the necessary Apparatus including Leslie's for making air.....	200
1 Exhausting & condensing Syringe.....	25
1 Weighing apparatus for air.....	25
1 Air Gun.....	50
1 Pair Englefield's Barometers.....	100
Sine's self registering Thermometer.....	15
For other Thermometers.....	30
1 Pair Horse-shoe magnets.....	15
1 Pair Armed do.....	20
1 Dipping Needle.....	25
1 Best Achromatic Telescope and stand, power 180 or 200 with } Micrometers. (errors in this article).....	
1 Electrical Machine & necessary apparatus.....	186.67
1 Electrophorus.....	10

1 Galvanic Battery and pile.	50
1 Pair of 5 Inch Lenses with Stands, &c	20
1 Set of Models for illustrating the principles of refraction & reflection with the application to the construction of Telescopes & Optical Instruments.....	60
1 Set of Models for illustrating the construction of the eye laws of vision, &c	
1 Set of Brewsters do. for shewing the polarization of lights &c.	35
1 Pair of Scioptic balls, different sizes	10
1 Camera Lucida.....	7 50
1 Camera Obscura	15
2 Single Microscopes	30
1 Compound do	30
1 Pocket do	15
Apparatus for collision.....	25
	\$1484.17

FOR THE OBSERVATORY.

1 Pair 18 Inch Globes	50
1 Chronometer.....	250
1 Best Achromatic Telescope & Stand, power 180 or 200 with Micrometers.....	580
1 Astronomical repeating circle of 12 in. radius	
2 Artificial Horizons.....	15
1 Zenith Sector.....	150
1 Equatorial Stand for Telescope.....	150
1 Large Astronomical Circle. (It is understood that two Astronomical circles of 2½ or 3 ft. diameter are in the possession of the United States which are too valuable for use but in a fixed Observatory, one of these might be placed at West Point which, with the above Instruments and those already on hand, will suffice for all the observations necessary to instruct a Class in practical Astronomy.	
	\$1455.00

RECAPITULATION.

For the course of experimental Philosophy.....	\$1484.17
For the Observatory.....	1455.00
	\$2939.17

It is therefore believed that an appropriation of from Three Thousand and to Thirty five hundred Dollars will be amply sufficient to place the Philosophical Apparatus of the Academy upon a respectable footing and to furnish an Observatory. For the observatory itself an estimate has been made under its proper head by the Superintendent of the Academy.

A Collection of working Models is necessary in the course of Machines which is hereafter to make a part of the instruction of the Academy; to provide these, to add new Instruments to the apparatus and to keep it in repair an annual appropriation of Dollars might be made to be applied to those purposes under the direction of the Superintendent.

Many of the Instruments may be made in the United States, and it would perhaps be better to purchase all that can be so found even at an increased expense.

The Philosophical Apparatus should be confided to the care of a proper person who should be responsible for its safe keeping, who ought to be accountable for all Instruments which may be missing except when broken in the necessary employment of them in the course of Instruction; and the Observatory should in like manner be placed under the charge of a person skilled in the use of Instruments and in practical observations.

U. S. MILITARY ACADEMY,
West Point, June 15, 1819.

(Signed) R. PATTERSON.

“ JOHN GARNETT.

“ JAS. RENWICK.

TO COL. FENWICK,

President of the Board of Visitors, Etc.

CATALOGUE OF ENGLISH BOOKS NECESSARY FOR THE LIBRARY OF THE
UNITED STATES MILITARY ACADEMY AT WEST POINT.

NATURAL PHILOSOPHY.

GENERAL TREATISES.

	£.	s.	P.
1. Atwood's Lecture on Natural Philosophy.....		5	
2. Brewsters, on New Philosophical Instruments.....		18	
3. Bridge's Mathematical Principles of Natural Philosophy..	1	1	
4. Boyle's Philosophical Works.....	1	16	
5. Brooke's Treatise on Electricity, Air Pump & Barometer..	10		6
6. Cavallo's Philosophy 4 Vol. 8vo.....	2		
7. Coate's Lectures.....		5	
8. Desagulier's Experimental Philosophy, 2 Vol. 4to.....	1	10	
9. Emerson's Comment on Newton's Principia.....	3		6
10. Gravesande's Natural Philosophy, 2 Vol. 4to.....	1	10	
11. do Explanation on Newton.....		5	
12. Gregory's Popular Lectures on Natural Philosophy.....		13	
13. Haüy's Natural Philosophy.....	1	4	
14. Helsham's Lectures.....		14	
15. Hook's Philosophical Experiments.....		4	
16. Keill's Introduction to Philosophy.....		7	

17. Maclaurin's View of Newton's Philosophy	15
18. Mott's Newton's Philosophy	12
19. Mussehenbroeck's Philosophy by Colson	13
20. Newton's works by Horsley	3
21. do do Principia 4to	18
22. Nicholson's Philosophy	16
23. Pemberton's View of Newton's Philosophy	7
24. Philosophical Transactions of the Royal Society to the year 1800, Abridged in 18 Vol. 4to	31
25. do do from 1800 to 1816. 16 vol. 4to	18 18
26. Rowning's Philosophy, 2 Vol. 8vo	14
27. Rutherford's System of Natural Philosophy, 3 Vol. 4to	1 16
28. Thomson's History of the Royal Society	3 12
29. do Annals, 10 Vol. to include 1817	7 10
30. Worster's Natural Philosophy	10
31. Young's Lectures on Natural Philosophy, 2 Vol. 4to	5 5
32. do do Analysis of do	10

MECHANICKS AND HYDROSTATICKS.

1. Canus on Teeth of Wheels	10
2. Clave's Motion of Fluids	14
3. Cotes' Hydrostatical and Pneumatical Lectures	5
4. Description of Congreve's Hydropneumatic Lock, 4to	10
5. Ditton on Fluids	3 6
6. Emerson's Principles of Mechanicks, 4to	1 5
7. Euler's Mechanica, 4to 2 Vol	14
8. Gregory's Mechanicks, 3 Vol. 8vo	13
9. Gustitute's of Hydrostaticks	6
10. Marrat's Treatise on Mechanicks	16
11. Parkinson's Mechanicks & Hydrostaticks	1 7
12. Wood's Principals of Mechanicks	5
13. Young's Mechanicks	7

PNEUMATICKS, METEOROLOGY AND ACOUSTICKS.

1. Cavallo on Air 4to	1 5
2. do History and Practice of Aerostation	6
3. Copper's Meteorological & Miscellaneous Tracts	14
4. do Observations on the Wind & Monsoons, 4to	15
5. Priestley's Experiments on Air, 3 Vol. 8vo	1 1
6. Young's Inquiry into the Phenomena of Sounds	4

MAGNETISM, GALVANISM AND ELECTRICITY.

1. Aldenis, Account of Improvements on Galvanism, 4to	1 1
2. Brook's Treatise on Electricity	10 6

3. Cavallo on Magnetism	} in his tracts	7
4. Cavallo on Electricity, 3 Vols. 8vo		18
5. Ferguson's Introduction to Electricity, 8vo		2
6. Franklin's Electricity, 4to		10
7. Mahan's Principles of Electricity, 4vo		10
8. Priestley's Introduction to Electricity		2
9. do History of Electricity		18
10. Wesley's Electricity		10

OPTICKS.

1. Adam's Essay on Vision	3
2. Barrow's Optical Lectures	18
3. Emerson's Opticks	8
4. Harris' Treatise on Opticks, 4to	15
5. Newton's Opticks	4
6. Priestley on Vision, Light and Colours, 2 Vol. 4to	1 18
7. Smith's Opticks, 2 Vol. 4to	1 10
8. Vince & Woods' Opticks	10

ASTRONOMY.

1. Atwoods' Rectilinear Motion of Bodies	10	6
2. Bailly's Astronomical Observations in the North Seas, 4to	1	1
3. Bradley's Astronomical Observations, 2 Vol. fol	9	
4. Bonnycastle's Astronomy	10	
5. Dunn's Introduction to Practical Astronomy	10	
6. Emerson's Astronomy	8	
7. Ewing's Practical Astronomy	6	
8. Flamsteed's Historia Cœlestis, 3 Vol. fol	3	15
9. do Cœlestis	2	12 6
10. Gauss' Theoria Motus Corporum Cœlestium	1	1
11. Grant's Longitude, 4to	2	2
12. Gregory's Treatise on Astronomy	15	
13. do Lessons Astronomical & Philosophical	5	
14. Halley's Astronomical Tables, 4to	15	
15. Heath's Astronomia Accurata, 4to	15	
16. Herschel's Catalogue of Stars	4	
17. Inglefield on the orbits of Comets, 4to	15	
18. Keill's Astronomia Accurata	15	
19. Lecaille's Astronomia, Translated by Robertson	12	
20. Long's Astronomy, 2 Vol. 4to	2	2
21. Maskelyne's Astronomical Observations from 1765 to 1810, 4 Vol. fol	6	
22. Mayer's Tabulæ Motuum Solis et Lunæ	5	
23. do Lunar Tables improved by Mason	5	6

24. Mendoza's Tables of Nautical Astronomy, 4to.....	2	
25. Pond's Astronomical Observations.....		18
26. Tables for correcting the Distance of the Moon & a Star..	1	1
27. Vince's Practical Astronomy, 4to.....		15
28. do System of Astronomy, 3 Vol. 4to.....	5	17
29. Wollaston's Astronomical Catalogue, fol.....	3	3
30. Woodhouse's Treatise on Astronomy.....	1	1
31. Wollaston's Fasciculus Astronomicus, 4to, 2 Copies.....	2	10
Other works in the Department of Natural Philosophy & Astronomy, titles not recollected.....		30

MATHEMATICKS.

1. Agnesi's Analytical Institutions, 2 Vol. 4to.....	2	2
2. Barlow's Mathematical Dictionary.....	2	5
3. Barrow's Geometrical Lectures.....		18
4. Biot's Treatise on Mathematical Instruments, folio.....	1	1
5. Bonhote's Logarithm Tables for Exchanges, 8vo.....		6
6. Bonnycastle's Arithmetick, 8vo.....		8
7. do do Algebra, 2 Vol. 8vo.....	1	4
8. do do Mensuration.....		4
9. do do Geometry, 8vo.....		5
10. do do Trigonometry, 8vo.....		12
11. Bossut's General History of Mathematicks.....		9
12. Bridge's Lectures on Algebra.....		7
13. do do Plane Trigonometry.....		4
14. do do Conic Sections.....		5
15. do Mathem'l Principles of N. Philosophy, 2 Vol. 8vo..	1	1
16. Brown's Mathematical Tables, 12 Copies.....	3	18
17. Clark's Rationale of Circulating numbers.....		4
18. do Laws of Chance.....	3	6
19. Cotesii Harmonia Mensurarum.....		12
20. Cresswell's Investigation Maxima & Minima.....		10
21. Dalby's Course of Mathematicks, 2 Vol. 8vo.....	1	12
22. Dealtry's Principles of Fluxations.....		14
23. De Moivre's Doctrine of Chance.....	1	2
24. do Miscellanea Analytica 4to.....		10
25. Ditton's Fluxions.....		4
26. Dodson's Calculator.....		7
27. do Logarithms, folio (anti logarithmic Canon).....		12
28. Dodson's Mathematical Repository, 3 Vol. 12mo.....		12
29. Donn's Mathematical Essays.....		5
30. Donn's Geometrician.....		5
31. Emerson's Arithmetick.....		7
32. do Geometry.....		6

33.	Emerson's Trigonometry.....	6	
34.	do Algebra.....	12	
35.	do Arithmetick of Infinites.....	9	
36.	do Combinations of Surveying, &c.....	8	
37.	do Fluxions.....	8	
38.	do Method of Increments, 4to.....	9	
39.	do Navigation.....	4	
40.	Euler's Introduction à l'Analyse Infinitésimale.....	12	
41.	do Institutiones Calculi Differentialis.....	12	
42.	do do do Intergralis.....	12	
	do Algebra, 2 Vol. 8vo.....		
43.	Hamilton's Conic Sections, 4to.....	17	
44.	Hellin's Mathematical Essays, 4to.....	7	6
45.	Holliday's Introduction to Fluxions.....	6	
46.	Horsley's Principles of Practical Mathematicks.....	8	6
47.	Howard's Treatise on Spherical Trigonometry.....	7	
48.	Hutton's Recreations in Mathematicks, 4 Vol. 8vo.....	3	
49.	do Tracts Mathematical & Philosophical, 3 Vol. 8vo.....	8	
50.	do Tables of the Products of Numbers, fol.....	7	6
51.	do Treatise on Mensuration.....	18	
52.	do Compendious Measurer.....	4	
53.	do Elements of Conic Sections.....	10	6
54.	Inman's Introduction to Algebra.....	4	
55.	Keith's Elements of Plane & Spherical Trigonometry.....	10	6
56.	do Introduction to Trigonometry.....	12	
57.	Kelly's Introduction to Spherics, &c.....	12	
58.	Landen's Mathematical Memoirs, 2 Vol. 4to.....	1	16
59.	Lawson's Geometry.....	9	
60.	Lea's Resolution on the higher Equations in Algebra, 4to.....	15	
61.	L' Hospital, on Conic Sections, 4to.....	13	
62.	Lochee's Military Mathematicks, 2 Vol. 8vo.....	12	
63.	Lorgna's Summation of Infinite Converging Series by Clark, 4to.....	15	
64.	Ludlam's Mathematicks.....	10	
65.	Mackay's Description of the Sliding Gunter.....	6	
66.	do do of the Sliding Rule.....	5	
67.	do Collection of Mathematical Tables.....	7	
68.	Maclaurin's Algebra.....	8	
69.	do Fluxions by Davis, 2 Vol. 8vo.....	1	8
70.	Maseres' Algebra, 4to.....	14	
71.	do Trigonometry.....	6	
72.	Monduit's Spherical Trigonometry.....	3	6
73.	Natte's Practical Geometry.....	10	6
74.	Newton's Quadratures of Curves, 4to.....	8	

75. Newton's Fluxions by Colson, 4to	12	
76. Pasley's Practical Geometry	15	
77. Peacock's System of Conic Sections	4	6
78. Playfair's Elements of Geometry	8	
79. Robertson on Mathematical Instruments	15	
80. Rowe's Doctrine of Fluxions by Davis	7	6
81. Sanderson's Fluxions	8	
82. do Algebra	8	
83. Sherwin's Tables of Logarithms	12	
84. Simpson's Geometry	6	
85. do Algebra	4	6
86. do Exercises for Mathematicians	7	6
87. do Laws of Chance	4	
88. do Mathematical Demonstrations, 4to	7	
89. do Essays on Mathematicks, 4to	6	
90. do Miscellaneous Tracts, 4to	7	
91. do Arithmetick		
92. Stewart's General Theorems in Mathematicks	3	
93. Taylor's Tables of Logarithms, folio	4	4
94. Vince's Principles of Fluxions	7	
95. do Conic Sections	2	6
96. do Plane & Spherical Trigonometry	4	6
97. Vince & Woods, Mathematical & Natural Philosophy, 3 parts, 8vo.	2	3
98. Woodhouse's Treatise on Trigonometry & Astronomy	9	
Other Works in Mathematicks Titles not recollected	20	

ENGINEERING, ARCHITECTURE AND PERSPECTIVE.

1. Anderson's Essay on Lime	5	
2. Atwood's Dissertation on Arches, 2 parts, 4to	18	
3. Bisset's Theory and Construction of Fortifications, 4to	10	6
4. Creswell's Elements of Linear Perspective		6
5. Edgeworth's Essays on Roads and Carriages	14	
6. Ferguson's Art of Drawing in Perspective	4	
7. Fulton's Treatise on Canal Navigation, 4to	18	
8. Gibb's Rule for Drawing Architecture, folio	16	
9. Gwilt's Treatise on Equilibrium of Arches	6	
10. Hill's Construction of Timber explained by the Microscope	8	
11. Hutton's Principles of Bridges	5	
12. Kirby's Perspective made easy, folio	2	12
13. do of Architecture, folio	3	3
14. Moore's Treatise on the Motion of Rockets	10	
15. Newton's Architecture of <i>Vitruvius</i> , 2 Vol. folio	4	4
16. Nicholson's Principles of Architecture, 3 Vol. 8vo.	3	3

17. Noble's Elements of Linear Perspective.....	6	6
18. do Practical Perspective, 4to.....	1	1
19. Oakley's Magazine of Architecture, folio.....	16	
20. Priestley's Introduction to Perspective.....	5	
21. Richardson's Treatise on the first orders, folio.....	1	11
22. Semple's Treatise on Building in Water, 4to.....	10	
23. Vitruvius Britannicus, 5 Vol. folio.....	15	1
24. Wood's Lectures on Perspective, 4to.....	1	16
25. do Elements of Perspective.....	6	
Other Works in Engineering &c., titles not recollected....	35	

GEOGRAPHY, TOPOGRAPHY AND STATISTICS.

1. Anderson's View of the importance of Canada.....	10	
2. Beaujour's Sketch of the United States.....	16	
3. Boetticher's Statistical Tables of Playfair, 4to.....	1	1
4. Gaugh's British Topography, 2 Vol. 4to.....	2	2
5. Jamieson's Treatise on the Construction of Maps.....	9	
6. Keith's Treatise on the use of the Globes, 8 Vol.....	6	
7. Kirwan's Temperature of Different Latitudes.....	3	
8. Luckamb's Englands Gazetteer. 3 Vol. 12mo.....	10	6
9. Malham's Naval Gazetteer, 2 Vol. 8vo.....	1	4
10. Martin's Description and the use of the Globes.....	4	
11. Muller's Topographical Description of Germany.....	7	
12. Pinkerton's Geography, 2 Vol. 4to.....	5	5
13. Playfair's Geography Ancient & Modern, 6 Vol. 4to.....	12	12
14. Pownall's Map & Description of part of North America, folio	10	6
15. Pye's Dictionary of Ancient Geography.....	7	
16. Thompson's Geographical Dictionary of America, 5 Vol. 4to	10	10
17. Tuckey's Maritime Geography and Statistics, 4 Vol. 8vo..	2	16
Other works in Geography.....	15	

MAPS AND CHARTS.

1. Cary's Large Map of England and Wales.....	3	13	6
2. Cary's New Universal Atlas Imperial, 4to.....	4	14	6
3. English Atlas containing maps of each County.....	8	8	
4. New Map of the Russian Dominions in Europe.....	2	12	6
5. New Map of London, Westminster and Southwark.....	15		
6. British Channel by Arrowsmith.....	2	2	
7. Mediterranean by do.....	1	1	
Other Maps and Charts, &c.....	35		

ARTS, CHYMISTRY, MINERALOGY AND GEOLOGY.

1. Accum's System of Chymistry, 2 Vol. 8vo.....	1	1
2. do Manual of Analytical Mineralogy, 2 Vol. 12mo...	14	
3. do Elements of Chrysallography.....	16	

4. Accum's Treatise on Gas Light	12	
5. do Essays on Chymical Re-agents.....	8	
6. Aikin's Dictionary of Chymistry and Mineralogy, 2 Vol. 4to	4	10
7. Allan's Systematic Catalogue of Minerals.....	12	
8. Aspin's Geochronology of Europe.....	10	
9. Babington's New System of Mineralogy.....	15	
10. Bailey's Advancement of the Arts, folio	8	13
11. Bakewell's Introduction to Geology.....	14	
12. Bancroft's Philosophy of Permanent Colours, 2 Vol. 8vo....	1	16
13. Beckmann's History of Inventions and Discoveries, 3 Vol. 8vo.....	1	1
14. Bergman's Physical and Chymical Essays, 3 Vol. 8vo.....	18	
15. Berthollet's Inquiry into Chymical Affinity.....	7	
16. do Essays on Chymical Staticks, 2 Vol. 8.....	16	
17. Berzélius Scientific System of Mineralogy.....	6	
18. Brands' Descriptive Catalogue of Geological Specimens. .	9	
19. Chaptal's Chymistry applied to Art, 4 Vol. 8vo.....	1	16
20. Clark's Methodical Distribution of the Mineral Kingdom, folio	1	1
21. Conversations on Chymistry	15	
22. Davy's Researches concerning Nitric Oxide.....	10	6
23. do Chymical Philosophy.....	18	
24. do Agricultural Chymistry	2	
25. Dalton's Chymical Philosophy, 2 parts, 8vo	1	17
26. Deluc on Geology.....	12	
27. Gray's Experienced Millwright, 4to.....	2	2
28. Hampis' Experimental System of Metallurgy, folio	18	
29. Henry's Experimental Chymistry, 2 Vol. 8vo.....	1	5
30. do Practical Chymistry, 2 Vol. 8vo.....	1	8
(New Edition published in this country by Selliman.)		
31. Higgin's Experiments on Calcareous Cements.....	5	
32. Hutton's Theory of the Earth, 2 Vol. 8vo	14	
33. Jamieson's Cuviers Theory of the Earth.....	8	
34. Jamieson's System of Mineralogy, 3 Vol. 8vo.....	1	16
35. Kidd's Outlines of Mineralogy, 2 Vol. 8vo.....	18	
36. Kirwan's Elements of Mineralogy, 2 Vol. 8vo.....	1	4
37. Klaproth's Mineralogical Essays, 2 Vol. 8vo.....	16	6
38. Lavoisier's Essays Physical and Chymical.....	6	
39. do Elements of Chymistry, 2 Vol. 8vo.....	14	
40. Leslie's Inquiries into the Nature of Heat.....	14	
41. do Relations of Air to Heat and Moisture	7	6
42. Lewis' Philosophical Commerce of the Arts, 4to.....	1	1
43. Martin's Circle of Mechanic Arts, 4to.....	2	
44. Murray's System of Chymistry, 4 Vol. 8vo.....	2	8

45. Nicholson's Journal, about 40 Vol. published, Svo.....	15	
46. Parkes' Chymical Essays, 5 Vol. 18mo.....	2	2
47. do Chymical Catechism, Svo.....	12	
48. Parkinson's Organic Remains, 3 Vol. 4to.....	10	10
49. Pearl's Treatise on Electricity and Electric Atmosphere.....	5	
50. do on the Elementary Principles of Nature.....	5	
51. do on the Antiphlogistic Doctrine of Lavoisier.....	4	
52. do on the Composition and Properties of Water.....	4	
53. Pennant's Outlines of the Globe, 4 Vol. 4to.....	4	8 6
54. Pinkerton's Treatise on Rocks, 2 Vol. Svo.....	2	8
55. Priestley's Doctrine of Philogiston Established.....	3	6
56. Robertson's Natural History of the Atmosphere, 2 Vol. Svo.....	1	1
57. Tables of the New Chymical Nomenclature, 4to.....	6	
58. Thomson's System of Chymistry, 5 Vol. Svo.....	3	15
59. Other works on the Arts &c.....	35	

NATURAL HISTORY AND BOTANY.

1. Darwin's Phytologia, 4to.....	1	11 66
2. Goldsmith's Natural History, by Furtan.....	2	14
3. Linnæus's System of Botany, 4to.....	7	
4. do Natural History, 14 Vol. Svo Coloured.....	18	
5. Martynus' Language of Botany, 4to.....	7	
6. do Botanical Plates.....	1	
7. Milne's Botanical Dictionary, Coloured.....	1	15
8. Pennant's History of Quadrupeds, 2 Vol. 4to.....	2	12 66
9. Pursh's Plants of North America.....	2	12 66
10. Shaw's Zoological Lecture, 2 Vol. Svo.....	2	12
11. Smith's Conversations on Natural History, 2 Vol. 12mo.....	30	8
12. Thornton's Philosophy of Botany, 2 Vol. folio.....	10	10
Other works in this Department.....	25	

HISTORY, CHRONOLOGY, ANTIQUITIES, BIOGRAPHY AND MEMOIRS.

1. Adam's History of the Principal Republics, 3 Vol. Svo.....	1	1
2. Anderson's History of France, 5 Vol. 4to.....	4	5
3. do do of the Ancient Greeks, 4to.....	1	4
4. Andrews' Continuation of Great Britain, 2 Vol. Svo.....	18	
5. Beloe's Herodotus, 4 Vol. Svo.....	2	2
6. Blair's Chronology, folio.....	6	6
7. Clarendon's History of the Civil Wars, 6 Vol. Svo.....	3	3
8. Crawford's History of the Indoos.....	10	
9. Curtin's History of Alexandria, 2 Vol. Svo.....	1	5
10. Drinkwater's History of the Siege of Gibraltar, 4to.....	1	7
11. Fox's History of the Reign of James II, 4to.....	2	12
12. Gordon's History of the American War, 4 Vol. Svo.....	1	4

13. Gordon's History of Peter the Great, 2 Vol. 8vo.....	8	
14. Granger's Biographical History, 4 Vol. 8vo.....	2	2
15. Greswell's Memoirs of Poleteanus, Picus, Sannazarius, &c.....		12
16. Heriot's History of Canada.....		12
17. History of Greece, by Gillies.....	1	16
" " the World during the time of the Reign of Alex- ander, by do.....	1	16
18. " " Greece, by Mitford, 4 Vol. 8vo.	2	4
19. Hobbe's Thucydides, 2 Vol. 8vo.....		16
20. Holmes' American Annals, 2 Vol. 8vo.....	1	1
21. Henry's Great Britain, 12 Vol. 8vo.....	5	8
22. Hooke's Roman History, 11 Vol. 8vo.....	5	15
23. Hughes' Suetonius.....		3
24. Hume's History of England, with the continuation, 15 Vol. 8vo.....		6
25. Knox's Campaigns in North America, 2 Vol. 4to.....	1	11
26. Mackenzie's Sketch of the War with Tippoo Sultan, 2 Vol. 4to.....		2
27. Mayne's Campaigns of the Lusetanean Legion.....		9
28. Middleton's Life of Cicero, with Portraits, 3 Vol. 8vo.....	1	7
29. Neale's Campaign's in Spain and Portugal, 1808-9.....	2	2
30. Priestley's Memoirs, 2 Vol. 8vo.....		18
31. Putter's History of the Germanic Empire, 3 Vol. 8vo.....	1	1
32. Raleigh's (Sir Walter) History of the World, folio.....	1	15
33. Smith's Thucydides, 2 Vol. 8vo.....	1	1
34. do Xenophon on the Affairs of Greece.....		10
35. Spelman's Dionysius Halicarnassensis, 4 Vol. 4to:.....	3	
36. Stanley's Lives of the Philosophers, 4to.....		15
37. Stedman's History of the American War, 2 Vol, 4to.....	2	2
38. Taylor's Pausanias, 3 Vol. 8vo.....	1	1
39. Vaness' Life of Bonaparte, 6 Vol. 8vo.....	3	15
40. Universal History, Ancient and Modern, 60 Vol. 8 vo.....	14	10
41. William's History from the Creation to Cadmus, 4to.....		16
42. Wilson's History of Egypt, 3 Vol. 8vo.....	1	4
43. Young's Political History of Athens, 4to.....		15
44. Zunicus, History of the Philippine Islands, 2 Vol. 8vo....	1	1
Other works in History, Politics, &c.....		30

TRAVELS AND VOYAGES.

1. Ambury's Travels through America, 2 Vol. 8vo.....	14	
2. Barrow's Travels in China, 4to.....	2	12 6
3. Bruce's Travels, 7 Vol. 8vo.....	6	6
4. Charlevia's Travels in America, 2 Vol. 8vo.....		8
5. Eustace's Classical Tour in Italy, 2 Vol. 4to.....	5	5

6. Lambert's Travels in Canada and the United States.....	1	10	
7. Mackenzie's Travels in North America.....	1	11	6
8. Pinkerton's Voyages and Travels, 17 Vol. 4to.....	32	16	
9. Staunton's British Embassy to China, 3 Vol. 8vo.....	1	7	
10. Young's Travels in France, 2 Vol. 4to.....	2	2	
Other Books of Travels.....		25	

MISCELLANIES.

1. Adam's Defence of the American Constitution, 3 Vol. 8vo.....		18	
2. Addison's Works, 6 Vol. 8vo.....	2		
3. Aikin's Essays, Literary and Miscellaneous.....		10	
4. Archæologia Americana, 17 Vol. 4to.....	23	13	6
5. Anderson's Philosophy of Ancient Greece, 4to.....	1	4	
6. Aristophanis, Comœdiæ.....		12	
7. Bailey's English Dictionary, folio.....	1	15	
8. Beattie's Works, about 12 Vol. 12mo.....	1	6	
9. Beloe's Aulus Gellius, 3 Vol. 8vo.....	1	1	
10. Berkley's Treatise on Human Knowledge.....		5	
11. Boethius' Consolation of Philosophy by Ridpath.....		6	
12. Bolingbroke's Works, 8 Vol. 8vo.....		12	
13. Boyd's Divina Comedia of Dante, 3 Vol. 8vo.....	1	16	
14. Cato's Letters, 4 Vol. 12mo.....		10	
15. Chalmer's English Poets, 21 Vol. 8vo.....		5	
16. do Biographical Dictionary, 29 Vol. 8vo.....	12	8	
17. Colman's French Comedies.....		12	
18. Darwin's Botanic Garden.....		15	
19. Duverger's English and French Languages compared, 3 Vol. 12 mo.....		11	
20. Elphinston's Analysis of the French & English Languages.....		5	
21. do Principles of the English Language, 2 Vol. 12mo.....		5	
22. Encyclopædia Perthenisis, 23 Vol. Royal 8vo.....	10		
23. Erskine's Speeches on the Liberty of the Press, 4 Vol. 8vo.....	2	2	6
24. Franklin's Sophocles.....		10	
25. do Phalaris.....		4	
26. do Cicero on the Nature of the Gods.....		5	
27. Franklin's Lucian, 4 Vol. 4to.....	1		
28. do (Benjamin) Complete Works, 4 Vol. 8vo.....	2	8	
29. Gillie's Orations of Liasias and Isocrates, 4to.....		18	
30. do Ethics & Politics of Aristotle, 2 Vol. 8vo.....	1	1	
31. Gisborne's Duties to Men in Society, 2 Vol. 8vo.....		18	
32. Green's Apollonius, 2 Vol. 8vo.....		6	
33. Grotius' Right of War & Peace by Campbell, 3 Vol. 8vo....	1	11	
34. Guther's Quintilians Institutes of Eloquence, 2 Vol. 8vo...		16	
35. do Cicero Orations, 2 Vol. 8vo.....		18	

36. Guther's Cicero on Oratory and Orators, 2 Vol. 8vo.	16	
37. do do Epistles to Atticus, 3 Vol. 8vo.	1	1
38. Harris' Lexicon Technium, 2 Vol. folio.	2	2
39. do Hermes.		7
40. do Philological Inquiries, 2 Vol. 8vo.		12
41. Hartley's Observations on Man, 2 Vol. 8vo.	2	2
42. Hume's Essays, 2 Vol. 4to.	1	16
Hamilton's Polybius.		
43. Janson's Dictionary.	5	5
44. Jones' (Sir W.) Complete Works, 13 Vol. 8vo.	6	16
45. Junius Letters, Woodfall, 3 Vol. 8vo.	2	2
46. Kirwan's Logic, 2 Vol. 8vo.		14
47. Knox's Essays, 3 Vol, 12mo.		12
48. do Winter Evenings, 2 Vol. 12mo.		7
49. Leland's Demosthenes, 2 Vol. 8vo.		18
50. Leman's English Etymology, 4to.	1	7
51. Leslie's Dictionary of Synonymous Words.		6
52. Locke's Works, 10 Vol. 8vo.	6	
53. Macarthy's Cicero, Treatise of Moral Duties.		5
54. Mackpherson's Iliad of Homer, 2 Vol. 4to,	1	16
55. Malthus, Essay on the Principle of Population, 2 Vol. 8vo	1	1
56. Mandeville's Fable of the Bees.		9
57. Mason's Supplement to Johnson's Dictionary, 4to.		16
58. Melmoth's Cicero's Letters, 3 Vol. 8vo.	1	4
59. do Cato & Lelius, 8vo.		8
60. do Pliny's Letters, 2 Vol. 8vo.		10
61. Monboddo's Ancient Metaphysics, 6 Vol. 4to.	5	2
62. do Origin & Progress of Language, 6 Vol. 8vo.	1	16
63. Montaigne's Essays, 3 Vol. 8vo.	2	10
64. Montefiore's Commercial Dictionary, 4to.	2	12
65. More's Utopia.		6
66. Murray's English Grammar, 2 Vol. 8vo.	1	1
67. Northauk's Historical & Classical Dictionary, 4 Vol. 8vo.		10
68. Oddy's European Commerce, 4to.	2	2
69. Parson's Origin of the European Languages, 4to.	1	1
70. Petrarch with notes and Original, 8vo.	10	6
71. Piozze's British Synonymy, 2 Vol. 8vo.		12
72. Pitt's Speeches in Parliament, 3 Vol. 8vo.	1	11
73. Rabelais' Works, with Notes, 4 Vol. 12mo.	2	2
74. Reynier's State of Egypt after the Battle of Heliopolis, 8vo		7
75. Robertson's Complete Works, 8 Vol. 4to.	7	17
76. Seneca's Epistles, by Morell, 2 Vol. 4to.	1	10
77. Shakespeare's Works, 7 Vol. 4to.	7	7
78. Sheridan's English Dictionary.		14

79. Sheridan's Lectures on Elocution	6	
80. Sidneys Arcadia, 3 Vol. 8vo.....	10	
81. Smith's Longinus.....	4	
82. Smith's (Adam) Works, 5 Vol. 8vo.....	3	
83. Sterne's Works, 5 Vol. 12mo.....	1	
84. Swift's Works, 24 Vol. 12mo.....	4	4
85. Sydenham's Plato, 4 Vol. 4to.....	4	10
86. Thompson's Marcus Antonius Meditations.....	3	6
87. Tooke's Diversions of Purley, 2 Vol. 4to.....	3	3
88. Trusler's Distinction between Synonymous words, 2 Vol. 12mo.....	10	6
89. Tyrwhitt's Chaucer, 2 Vol. 4to.....	2	2
90. Walker's Dictionary, 4to.....	1	11
M. Thomas' Edition of Johnson, with Walker's Pronuncia- tion.....		
91. Walker's Key to the Pronunciation of Proper names, 8vo.....	7	
92. Webster's Dissertation on the English Language, 8vo.	1	
93. Whiter's Universal Etymological Dictionary, 2 Vol. 4to....	4	4
94. Wilson's Archaeological Dictionary, 8vo.....	6	
95. Woodhull's Tragedies & Fragments of Euripides, 3 Vol. 8vo	1	16
96. Xenophon's Works by Spelman, 4 Vol. 8vo.....	2	2
Other Miscellaneous Works & Periodicals	65	
American Publications.....	82	
Total Estimated of the Books of the preceding Catalogue..	£1,350	
		\$6,000
Estimated Cost of additional Books in Foreign Languages, Commissions, &c.....	\$1,000	
		\$7,000