John Dominy school exercise book [newspaper, The Spectator, March 30, 1803, used as covers] : geometry, trigonometry. 1810

Dominy, John
[s.l.]: [s.n.], 1810

M...		16 —	16 50
...er of...		5 50—	
Peas, black e...	...sh.	87—	
All sp...		88—	1
Rum Jam. 4th pr.	...al.	1 2—	
Antigua, 3d pr.		...8—	90
Country, (N.E.)		52 —	54
...ice,	cwt.	5 50—	6
...t, Liverp. blown,	bush.	48—	
Cadiz,		46—	
Lisbon,		53—	
...t Turks Isl.		72—	
...Ubes,		56—	
...uscovado,	cwt.	10—	13
...ndia, 1st qu.		12 —	
Lump,	lb.	21—	
Loaf,		23—	
German,		11—	
English.		11—	12
Country blistered,		6½—	
...l sizes,	cwt.	12 —	none
...re, refin'd	lb.	20—	
...hea,	lb.	28—	
...son,		1 12—	
...on skin,		56—	60
...ng,		52—	70
...ra	bbl.	2 37—	2 50
...ne,		3 50—	3 62
...plates,	box.	19 —	20
...o, Richmond,	lb.	6½—	7½
Petersburgh,		5—	
Maryland,		—	none
North-Carolina,		4—	
Georgia,		4½—	5
...llow, American	lb.	11—	
...s Wax,		30—	
...Madeira,	pipe	150 —	250
Lisbon,	gall.	1 1... —	1 18
Teneriffe,		94—	1 9
Sherry,		...8 —	1 25

...intermediate s... R. Whether the gentleman from Connecticut had availed himself of the labours of his friend or had lent his assistance to them, he could not undertake to determine, but from the tenor of that letter, and of the objections which had just been offered, it was evident that the same master hand had prompted both. It was nevertheless contended that the proceeds of the bank shares could not be estimated as a part of the appropriation of 7,300,000 to the public debt. Mr. R. said that the report of the sinking fund did not indeed include these proceeds in that sum, because the commissioners construed the law so as to have the utmost efficiency to the appropriation, and to pay of course, a larger sum towards the reduction of the debt. But it was perfectly clear that these shares were included in that appropriation. [Here Mr. R. read the first section of the law.] This appropriation is made out of "so much of the duties on imports and tonnage as *together with the monies which now constitute the sinking fund* (surplusses of revenue excepted) will amount to 7,300,000 dollars"—and by the act of the 3... May, 1796, the power to sell those shares is expressly given to the commissioners of the sinking fund—and they have been accordingly sold and applied to the purposes directed by that act. Those shares then did, when the appropriation was made, constitue a part of the sinking fund, and were what remained of 5000 shares, 2780 having been sold under the act of May, 1796, by the commissioners of the sinking fund. It is evident then that the sinking fund might take credit for the sum produced by the sale of that stock, as part of the sum of dollars 7,300,000. But exclusively of it, Mr. R. said it could easily be proved that more than the amount appropri... been disbursed on account of the... The items consisted, if gentlemen ...turn to the report, of 1st, disburse... account of the interest of the whole... On account of the principal, viz. ...nd Dutch debts and the 8th and ...nts of the old, and deferred six ...pectively, payable 1st January, ...nd,

...s of the sinking fund had given a tol... ...ral construction to the law wh... was passed in April by paying 7,300,000 dollars in the course of that year if the bank stock were included, and eight millions if it were not. Previous provision being necessary for the Dutch debt, the commissioners had taken credit for the last six months of 1802, and the first six months of 1803, instead of 12 months in the year 1802. But if the construction given to the law shall exclude the last period, credit must be given for the payments made in the first 6 months of 1802. For if it be said that this payment was made out of the bills purchased in 1801, and those bills are charged in the year 1801 although provided for 1802, certainly the bills provided in 1802, for payment due in 1803, must also be credited in the year during which they were purchased. If this credit is to be given when the bills are purchased, then this sum of 9,600,000 guilders must be allowed. But if credit is on the other hand to be given, not at the time of the purchase, but when the bills are paid in Holland, then gentlemen must give credit for the payments made in the first 6 months of 1802. And wherefore should not these guilders, purchased in 1802, be applicable in 1803, be credited to the year 1802, as well as the reimbursement of the 6 per cent and deferred stocks, payable on the 1st January, 1803, be credited, as admitted by the gentleman from Connecticut, to the year 1802?

Mr. Randolph said he would notice the objection that the sum of 5,914,606 guilders mentioned in the 7th page of the report was

* 1st. Disbursements on account of the interest of the whole debt,	dolls. 4,065,733 47
2d. Principal, Bank 1,299,000, and Dutch 1,344,000,	2,634,000
8th and 2d. Installments, old 6 per cent and deferred stocks, respectively payable 1st January, 1803,	1,117,869 37
3d. Excess of guilders on hand at the end of the year 1802, beyond those on hand at the end of 1801 equal if rated at 41 cents per guilder	1,476,311 62
	9,293,119 46
Deduct Bank shares sold,	1,287,...
Remainder,	8,005,119 46

...a subject of ... importance ... our readers. The important principles resulting from the peculiar structure of our government, which are there examined and settled—the ability with which these principles are investigated—the strength and reason with which they are supported, and the perspicuous, yet nervous stile in which they are delivered, must excite in every American, an honest pride, at seeing their courts of Judicature, these guardians, of their property, lives and reputation, supplied with such talents and animated with so laudable a zeal for the rights and liberties of the citizen.

There have not been wanting men, even on the floor of Congress, base enough to make the most unwarranted insinuations against the Justices of the Supreme Court.—They have called his application for a Mandamus, *their measure*—instigated and supported by them as an hostile attack upon the Executive, to gratify party spirit, and to encrease their own powers. Let such men read this opinion and blush, if the power of blushing still remains with them. It will remain as a monument of the wisdom, impartiality and independence of the Supreme Court long after the names of its petty revilers shall have sunk into oblivion.—*W. Fed.*

MANDAMUS.

Opinion of the Supreme Court, delivered by Chief Justice Marshall, Feb. 24th, 1803.

William Marbury, vs. The Secretary of State. } On a motion for a Mandamus.

At the last term on the affidavits then read and filed with the clerk, a rule was granted in this case, requiring the Secretary of State to shew cause why a Mandamus should not issue, directing him to deliver to William Marbury his commission as a justice of peace for the county of Washington, in the district of Columbia.

No cause has been shewn, and the present motion is for a Mandamus. The peculiar delicacy of this case, the novelty of some of its circumstances, and the real difficulty attending the points which occur in it, require a complete exposition of the princi-

...act of the ... ect, tho it can only be ... with the advice and consent of the Senate.

3d. The commission. To grant a commission to a person appointed, might perhaps be deemed a duty enjoined by the constitution. 'He shall,' says that instrument, 'commission all the officers of the United States.'

The acts of appointing to office, and commissioning the person appointed, can scarcely be considered as one and the same; since the power to perform them is given in two separate and distinct sections of the constitution. The distinction between the appointment and the commission, will be rendered more apparent, by adverting to that provision in the 2d section of the 2d article of the constitution, which authorises congress, 'to vest, by law, the appointment of such inferior officers, as they think proper, in the President alone, in the courts of law, or in the heads of departments;' thus contemplating cases where the law may direct the President to commission an officer appointed by the courts, or by the heads of departments. In such a case, to issue a commission would be apparently a duty distinct from the appointment, the performance of which, perhaps, could not be legally refused.

Altho that clause of the constitution which requires the President to commission all the officers of the United States, may never have been applied to officers appointed otherwise than by himself, yet it would be difficult to deny the legislative power to apply it to such cases. Of consequence the constitutional distinction between the appointment to an office and the commission of an officer, who has been appointed, remains the same as if, in practice, the President had commissioned officers appointed by an authority other than his own.

It follows too, from the existence of this distinction, that, if an appointment was to be evidenced by any public act, other than the commission, the performance of such public act would create the officer; and if he was not removable at the will of the President, would either give him a right to his

...and lop the borrow'd air,
...ew-born lustre to the beaming eyes,
...bid the modest blush in sweetness rise,
Unfeign'd affection, in the bosom glow,
And the tear brighten at the sight of woe,
Till native beauty shine, from blemish free,
And what Almira is each lovely maid shall be.

—

* *Twickenham is the proper name of the place at which Pope used to reside :—But in his political writings, he more commonly spelt it in the manner above*

RIGHTS OF JURIES.

[The following anecdote, extracted from a *British* periodical publication, entitled "The Patriot," furnishes one among a thousand instances, of overbearing arrogance in a *Judge* and *honest independence in a Jury*. *Boston Chron.*

A [illegible] Judge, [illegible] not many years since, travelled the northwest circuit in Ireland, came to the trial of a cause in which much of the local consequence of some demagogues in the neighbourhood was concerned : it was the cause of a landlord's prosecution against a poor man, his tenant, for assault and battery, committed on the person of the prosecutor by the defendant, in defence of his only child, an innocent and beautiful girl, from ravishment. Not only the *Bench*, but the whole *Bar*, dined with the prosecutor's father the day before the trial, and some of them, to this day, praise the venison and claret.—Next day the poor man was brought into Court and put to the *Bar*. The prosecutor appeared and swore most manfully to every title of the indictment. He was cross examined by the jurors, who were honest tradesmen and respectable farmers. The poor man had no lawyers to tell his story. He pleaded his own cause ; not to the *fancy*, but, to the judgment and to the heart.—The jury found him "*Not Guilty*."—

The Court was enraged, but the surrounding spectators exulted in a shout of applause. The Judge told the jury they must go back to their jury-room and reconsider the matter, adding, "he was astonished they could ... science and the best of our *opinions* on the evidence before us. We have in our own minds *acquitted ourselves of our duty* as honest men. If we have erred, we are answerable not to your lordship, nor to that bench, nor the King who placed you there ; but to *higher power*, the King of Kings and the Lord of Lords.

The bench and the bar were both silent. Astonishment murmured through the crowd—the poor man was discharged, and the jury withdrew from the Court House, amidst the plaudits of a people whose rights they had so well defended from the *encroachment of official influence*.

ANECDOTE OF MARSHAL TURENNE.

" It is well known of Marſhal Turenne, that his true heroiſm, (for ſuch it really was) was only to b equalled by his ſolid and manly piety, equally remote upon the one hand from the ſuperſtitions of his own age, and upon the other from the indifference of ours. In a court of gallantry, and in times when the point of honor, (falſely ſo called) was preſerved in its full extravagance, the marſhal was never known either to fight a duel, or be engaged in an intrigue. The grace, the dignity, with which he once releaſed himſelf from an embarraſſment of this nature, will at once give an exact idea of what he was, and be a ſufficient anſwer to the favourite queſtion of the defenders of duelling—" how is a challenge to be refuſed?"—How is it to be refuſed !—let this anecdote, of the Marſhal anſwer them.—" A young officer of noble family, and in deſpite of what may be thought from the part of his conduct which follows, of real worth, imagined himſelf to have received an inſult from the Marſhal, and demanded ſatiſfaction in the uſual forms. The Marſhal made no reply to his challenge ; the officer repeated it ſeveral times, but the Marſhal ſtill maintained the ſame ſilence. Irritated at this apparent contempt, the officer reſolved to compel him to the acceptance of his invitation : for this purpoſe he watched him upon his walks, and at length meeting him in the public ſtreet, accompanied by two other

...mum, 1s. per pot ; D... 2s. do

Gentlemen may have their shaving boxes filled with fine Shaving Soap, at 2s. each.

Smith's Balsamic Lip Salve of Roses, for giving a most beautiful coral red to the lips ; cures roughness and chops, leaves them quite smooth and beautiful, 2 and 4s. per box.

Smith's Purified Alpine Shaving Cake, made on a chemical principle, to help the operation of shaving, and is of such a balsamic nature as to heal any scratch or cut made by the razor : sold with printed directions at 3s. 6d.

Smith's Chemical Dentrifice Tooth Powder for the teeth and gums, warranted, 2 and 4s. per box.

Smith's Purified Chemical Cosmetic Wash-Ball, far superior to any other for softening, beautifying, and preserving the skin, with an agreeable perfume : sold with printed directions, 4 and 8s. each.

Smith's Pomade de Grasse, for thickening the hair, and keeping it from coming out or turning grey, with printed directions—4 and 8s. per pot.

Smith's celebrated Corn Plaister, 3s per box.

The best warranted Concore RAZORS, elastic Razor Strops, Shaving Boxes, Dressing Cases, &c.

Most of the above articles, with many others, being his own manufacturing and preparing, he is enabled to serve town and country store-keepers, and for exportation wholesale, on the most advantageous terms. They can have their goods warranted, and made to suit any climate.

SMITH thanks the ladies and gentlemen for the honor they have done him, by giving his goods that are manufactured under his own inspection, the preference to those imported, as they not only have a saving, but have their goods fresh and free from adulteration, which is not the case with imported perfumery. april 23

*** ... HOPKINS has removed his Office to No. 274 Pearl-street. may 7 Sp

---

State of New-York, Queen's County, ss

WHEREAS all the real estate whereof JONATHAN SMITH, of Hempstead, in Queen's County, in the state of New-York, died seized, has been sold by an order of the surrogate of the said county for the payment of his debts, all persons who have any demands against the estate of the said Jonathan Smith are hereby notified and desired to produce the same to the said surrogate, at his office in the town of Jamaica, on the fifteenth day of August next, when a final settlement and distribution of the said estate will be made. Given under my hand at the surrogate office, at the town of Jamaica, the twelfth day of May, one thousand eight hundred and three.

JOSEPH ROBINSON, Surrogate.

may 18 Sp6w

John Dominy
East Hampton

County, at a place called Massick, adjoining the South Bay. One of the said Farms containing about 700, another about 600, another 400, and another about 250 acres. The pleasant and agreeable situation of these Farms need not be described, as a view of them will be sufficient to satisfy. A suitable quantity of woodland is adjoining to each Farm, and the whole well watered with good springs. Any person inclining to purchase the whole or either of said Farms, may know the terms by applying to the subscriber living on the premises.

WILLIAM FLOYD.

december 18 Sptf

BURR STONES.

A PARCEL of excellent Burr Stones—being stored contigious to the North River can be removed without cartage.—They will be sold either by the quantity or in lots of not *less* than 50, provided they are taken promiscuously. Apply at No. 58 Wall-street. december 15 Sp3m

---

At a court held at the Surrogate's office, at Brookhaven, in the county of Suffolk, on the tenth day of March, in the year of our Lord one thousand eight hundred and three.

PRESENT,

Nicoll Floyd, Esq. Surrogate of the said county.

WHEREAS, upon the petition of Isaac Nichols, administrator of all and singular the goods, chattles and credits which were of Benjamin Nichols, late of the county of Suffolk, laborer, deceased, presented to the said surrogate, setting forth, among other things, that the said Benjamin Nichols was, at the time of his death, seized of a real estate, within this state, and that his personal estate was insufficient to pay his debts, and praying the aid of the said surrogate in the premises, an order was made by the said surrogate, on the seventeenth day of January last, directing all persons interested in the estate of the said Benjamin Nichols, to appear before the said surrogate, at the surrogate's office, at Brookhaven, in the county of Suffolk, on the seventh day of March then next, to shew cause, if any they had, why so much of the real estate whereof the said Benjamin Nichols died seized, should not be sold, as would be sufficient to pay his debts, which order has not been published, as the law in such case directs—Therefore, the said surrogate doth further order, that all persons interested in the estate of the said Benjamin Nichols do ... appear before the said surrogate, ... office aforesaid, on the twentieth day ... to shew cause, if any they have, why s... the real estate, whereof the said Benjamin ... died seized, should not be sold as will be ... to pay his debts.

NICOLL FLOYD, Surr...

March 19—Sp Sat. 4w

... of the ... which ... down to clover ; and its pro... was so ... the last summer past, (although ... one) as to enable its proprietor to fatten, ... manner, 37 head of horn cattle, besides ... a large stock of store creatures of every de... which he will venture to say is as much, if not more, than any farm of the same size in the state would ... and it is also ranked among the first land in the county for producing either wheat or corn. There is also running through a part of said farm, and within stone-throw of the buildings, a delightful stream of water, ... which there is a good grist mill. The improve... both as to buildings and fences are good, and ... uation of the former convenient, healthy ... which when united with the other go... the place, must make it an object ... attention of those who are desirous ... wealth and enjoying happiness by pursu... ture. For further particulars enquire of S... Wyck, No. 118 Pearl-street, New-York ... subscriber on the premises.

June 12 Sptf *WILLIAM VA...*

PUBLIC NOTICE is hereby ... suant to the directions of an Act o... lature of this state, entitled " An act ... Mortgages," passed the 6th April, 180... fifth day of September next, at tw... will be sold at Public Auction, a... house of Samuel Carman, in B... of Suffolk, inn-keeper, ... the hi... certain Tract or Lot of L... being in the township of ...ok-Have... and bounded as follows, viz northwardly ... of Samuel Combs ; eastwardly by the ... River, a little brook running into said riv... land of Zophar Tooker ; southwardly by ... way ; and westwardly by the land of ... Tooker and the land of the aforesaid Sam... containing by estimation one hundred acres ... same more or less, together with all and ... the buildings, hereditaments, and appurte... the same belong... ; and also, all the est... title, and interest ... law and equity of Dav... of the town and county aforesaid, in and ... mises ... every part thereof, w... ... virtue of a power con... ... premises, duly ... Combs to the ... the seven...

... upon the d... Merchandize ... articles s... ...es, not havin... allowed a ... ...ction of 3½ pe... Cent per Gallo...

NEW-YORK, No 151 Pearl-street : Published (*Wednesdays & Saturdays*) by E. BELDEN & CO. Printers of the LAWS of the UNI...
State
☞ *SUBSCRIPTIONS for this Paper are received by the following Gentlemen, at the respective places, who are authorised to rece...*
Portsmouth, Mark Simes *Postmaster* ; Hanover (Dart. Col.) Jed. Baldwin, *ditto* : Charlestown, (N. H.) Samuel Crosby, *ditto* ; Greenfield, (Mass.) Thomas Dickman, *ditto* ; North... Newport, John Richardson, *ditto* ; Windsor, (Ver.) Benjamin Comens, *ditto* ; Hartford, Ezekiel Williams, *ditto* ; Middletown, Wensley Hobby, *ditto* ; Stratford, Victor We... Lisle, *ditto* ; Poughkeepsie Nicholas Power ; Wardbridge, (N. J.) J. Miller ; Princeton, John Harrison ; Washington, (Ken.) William Murphy, *ditto*.

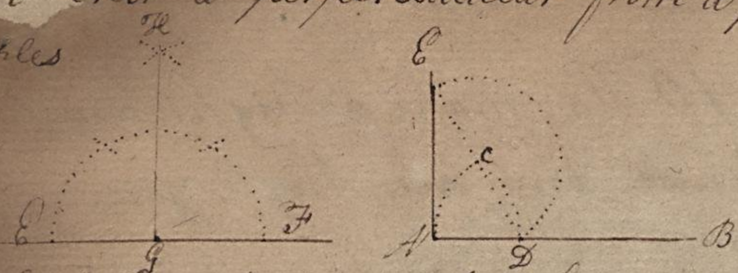
Practical Geometry

Problem 1. To draw a Line parallel to a given Line

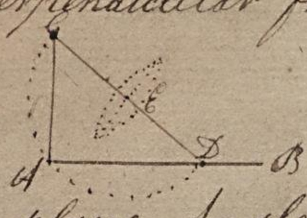
Definition. Paralel Lines are of equal Distance and if infinitely produced (being in the same Superficies) will never meet as the Lines AB and CD. Example. AB the Line given and C is a punct given.

Problem 2 To bisect or divide a given Line into two equal parts. Example. AB is the given Line. To find the middle thereof is required?

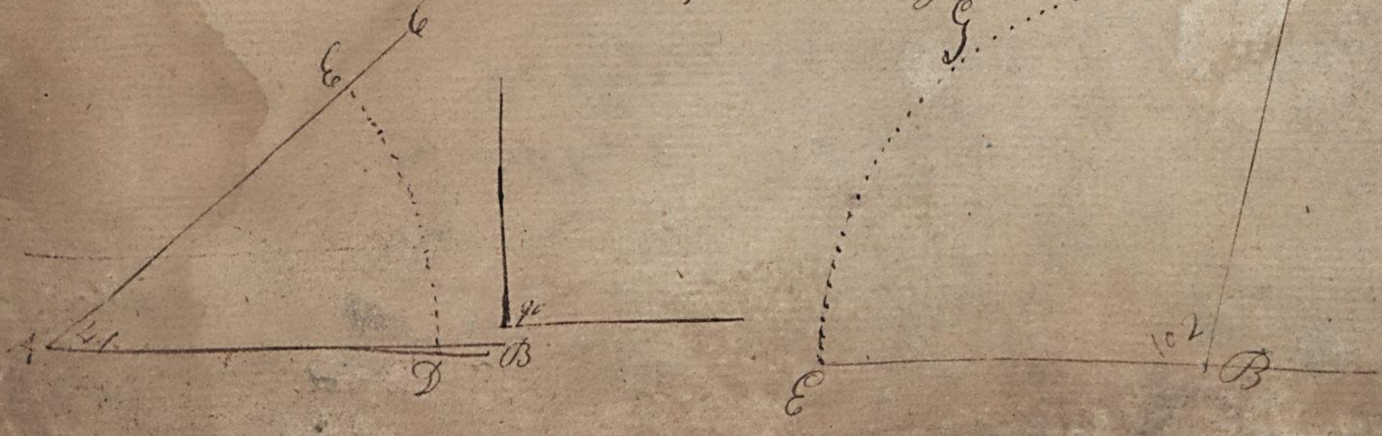
Problem 3 To erect a perpendicular from a punct in a given Line. Examples



Problem 4 To let fall a perpendicular from a given punct to a given line. Example.

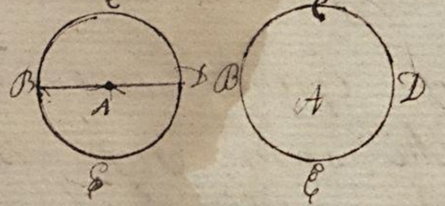


Problem 5. To make a plane Angle.

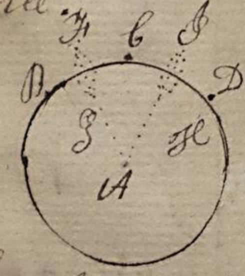


Continued

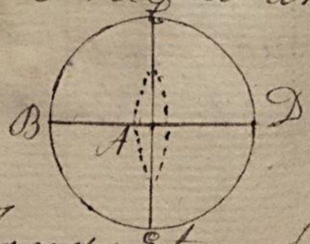
Problem. 6. To Describe a Circle having its diameter given.



Problem 7 To draw the periphery of a Circle through any three Puncts not in a right Line. Example.



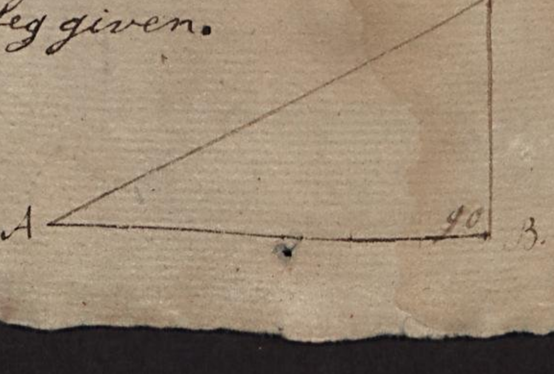
Problem 8 To quarter a Circle or in a Circle to draw two diameters at right angles. Example.



Problem 9 To find the Chord, Sine, Tangent, and Secant of an arc of a Circle.

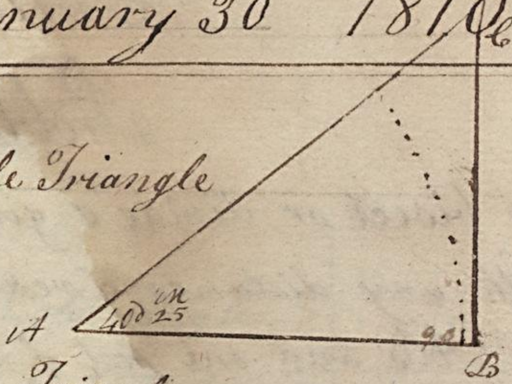
Problem 10 To make a Right angle Triangle the Hypotenuse and one Angle given.

Problem 11 To make a Right Angle Triangle the Hypotenuse and one Leg given.



Continued January 30th 1810

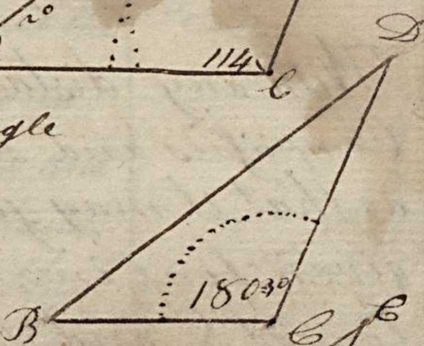
Problem 12. To make a Right Angle Triangle one Leg and one Angle given.



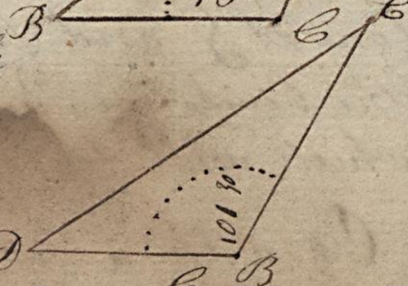
Problem 13 To make a Right Angle Triangle the Legs given.

Problem 14 To make an Oblique Triangle two Angles and one side opposite given.

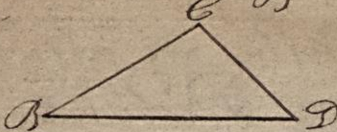
Problem 15 To make an Oblique Triangle two sides and one Angle opposite given.



Problem 16 To make an Oblique Triangle two sides and an included Angle given.



Problem 17 To make an Oblique Triangle three sides given.



Geomatrical Problems.

Problem 1

To draw a Line parallel to a given Line.

Take with a pair of Compasses the nearest Distance between the given point C and the Line AB. With that distance and one foot of the Compasses any where in the Line AB draw the Arch D And its done for the Line CD is parallel to the Line AB, as was required.

Continued. Jan^{r} 30st 1810

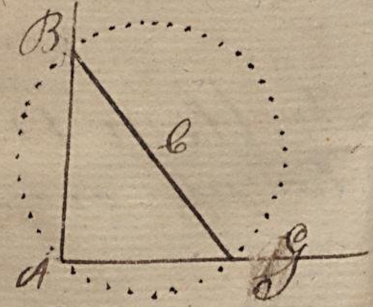
Problem 2.

To bisect or divide a given Line into two equal Parts. With any distance greater than half the given Line AB and one foot of the Compasses on A, describe the Arch CD; with the same Distance and one Foot on B, cross the former Arch in C and D; by C and D draw a Line that will cut AB in E the Middle, as was required.

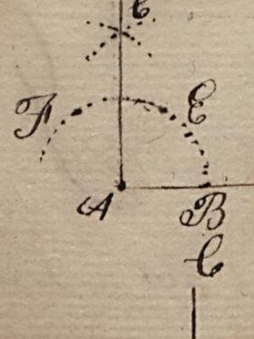
Problem 3

To erect a perpendicular at the End of a given Line as AG

With any distance as from A to C in your Compasses and one foot in C describe a Circle so that it may just touch the End of the given Line in A, from where that cuts the Line at G, and through C draw a Line to cut the Circle in B, from B draw the Line AB, which will be the Perpendicular required.

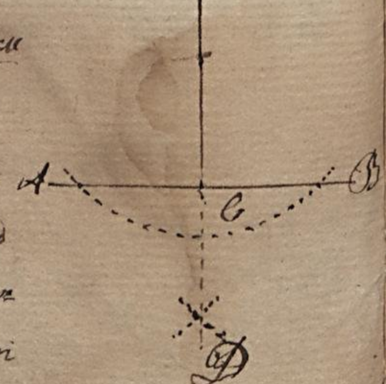


Or with a conveniant Distance in your Compasses describe an arch as FB set off the same Distance from B to E, with one foot in E describe an Arch, and with the same Distance and one Foot in F, describe an Arch to cut the former Arch in C from C to A draw a Line and it is done.



Problem 4

From a point as at C, to let fall a perpendicular on the Line AB. With one foot in C describe an arch to Cut the given Line in AB, with one foot in B describe an Arch; and with the same Radius and one foot in A describe an Arch to cut the former in D, and from D to C draw a Line and it is done.



Continued Jan^{r} 31st

Problem 5

To make Plane Angles.

At A in the Line AB to make a Right Angle Erect the perpendicular AC and it is done; for the Angle BAC is a Right Angle containing 90 Degrees.

To make an angle equal to any given number of deg^{s}

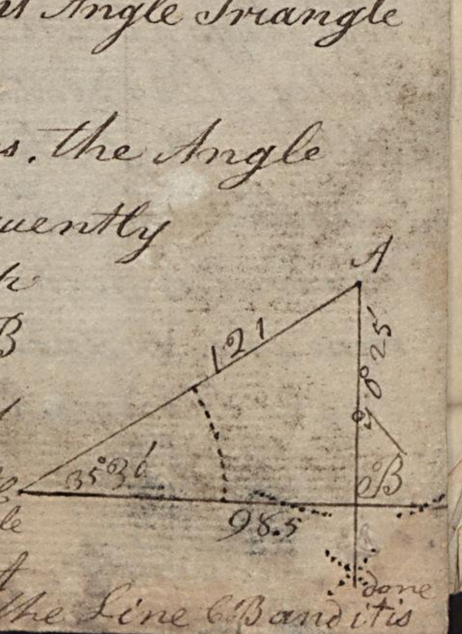
Draw the Line AB. and take always a Chord of 60° from the Scale in your Compasses and with one foot in A describe the Arch DE to cut the Line AB in D; take any number of Degrees suppose 42° 30', from the Line of Chords and lay it upon the Arch from D to E; by A and E draw the Line AEC and it is done; for the Angle BAC is an Acute Angle Containing 42°30'

To make an Obtuse Angle Equal to 102°

Draw the Line BC, and upon B describe an Arch as before with a Chord of 60° to Cut BC in E on that Arch set off E G equal to 90° from G set off 12° towards F; by B and F draw the Line BFD and it is done.

Problem 6

The Angles and Hypothenuse of a Right Angle Triangle given to find either of the Legs.



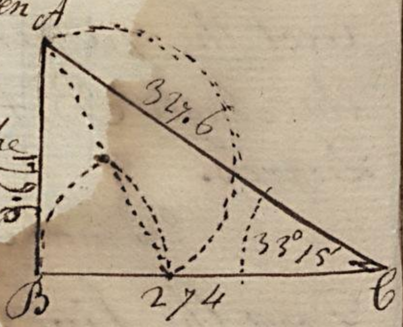
Given the Hypothenuse 121 Leagues, the Angle opposite to the Base 54°30' and consequently the other Angle 35°30' the Base and perpendicular are required. Draw the Lines CB and at C make an Angle equal to 35°30' by drawing the Line CA take 121 Leagues in your Compasses from any Conveniant Scale of Equal Parts and set that off from C to A from A let fall the perpendicular AB to cut the Line CB and it is done

Continued Feb.ʳ 1ˢᵗ 1810

Problem 7

The Angles and one Leg of a Right Angled Triangle being given to find the Hypothenuse and the other Leg.

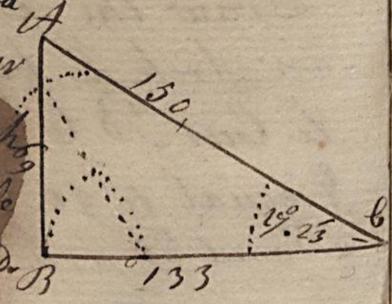
The Angle A B C 33°15', the Leg B C 274 Miles, given to find the Hypothenuse and the other Leg A B. Draw the Base B C equal to 274, upon B erect the Perpendicular B A; from C draw the Line C A making an Angle with B C of 33° 15' to Cut the Line B A in A and it is done.



Problem 8

The Hypothenuse and one Leg given to find the Angles and the other Leg.

The Leg A B 69, the Hypothenuse 150, given to find the Angles and Leg B C. Draw the Base B C upon B erect the perpendicular B A upon which set of 69 take 150 in your Compasses and with one foot on A lay the other on the Base as at C, from C to A draw a Line and it is done; for the Angle B C A being measured by a Chord of 60° will be 27°23 which being subtracted from 90° leaves the Angle A 62°37, and the Leg B C 133, as was required.



Problem 9

The Legs given to find the Angles and Hypothenuse

The Leg A B 980, B C 690 given to find the Angle B A C or A C B and the Hypothenuse A C.

Draw the Base B C and on B erect the Perpendicular A B make B C equal to 690 and B A 980 from A to C draw a Line, and it is done for the Angle being measured as before will be found as in the figure and the Hypothenuse 1198, as was required.

Continued Feb^y 2^d 1810

Problem 10

Two Angles and one Side of an Oblique angled Triangle given to find either of the other Legs.

The Angle BDC 101° 25', and CBD 44° 42', and the Leg BC 76 given to find the Sides CD and BD.

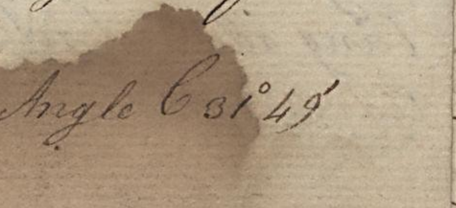
Draw the Line BC equal to 76, on B describe an Arch, and make the Angle CBD 44° 42' add the Angles B and D together, that Sum subtracted from 180° Leaves the Angle C 33° 53'; upon C describe an Arch, and make the Angle BCD equal to 33° 53' by drawing CD and it is done; for the Side BD will be 43·2. and DC 54·5. which was required.

Problem 11

Two Sides and angle opposite to one of them, given to find the other opposite Angle and the third Side.

The Side BC 106. BD 65 Miles and the Angle C 31° 49' given to find the Angle D and Side CD.

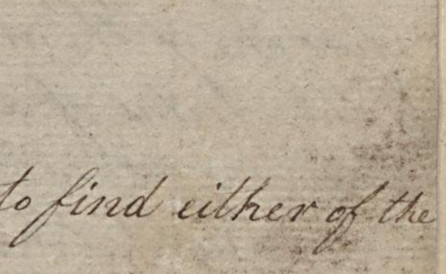
Draw the Line BC equal to 106 at C make an Angle of 31° 49' by drawing CD take 65 in your Compasses and with one foot in B lay the other upon the Line CD, in D; draw the Line BD and it is done; for the Angle D will be 120° 43 the Angle B 27° 28', and the Side 56·9, as was required.



Problem 12

Two Sides and their contained Angles given to find either of the other Angles and the third Side.

The Side BC 109, BD 76 Leagues and Angle CBD 101° 30' given to find the Angle BDC or BCD and Side CD. Draw the Line BC 109 and BD so as to make an Angle with BC of 101° 30' which make equal to 76;



Continued Febr 3d 1810

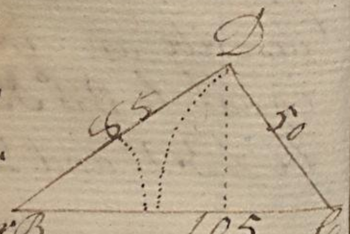
join B C with a Right line and it is done; for the Angle D being measured by the Chord of 60° will be 47° 32', Angle C 30° 58', and the side D C 144,8, as was required.

Problem 13

The Three Sides given to find the Angles.

The Sides B C 105, B D 85 and C D 50 Miles given to find the Angles B D C, B C D or C B D.

Draw the Line B C equal to 105. take C D 50 in your Compasses and with one foot in C describe an Arch as at D, then take B D 85 in your Compasses, and with one foot in B cut the former Arch in D join B D and D C and it is done; for the Angle B being measured will be found 28° 4', Angle C 53° 7', which being added together, is 81° 11' that Sum subtracted from 180°, leaves Angle D 98° 49' as was required.



The Doctrine of Plane Triangles,

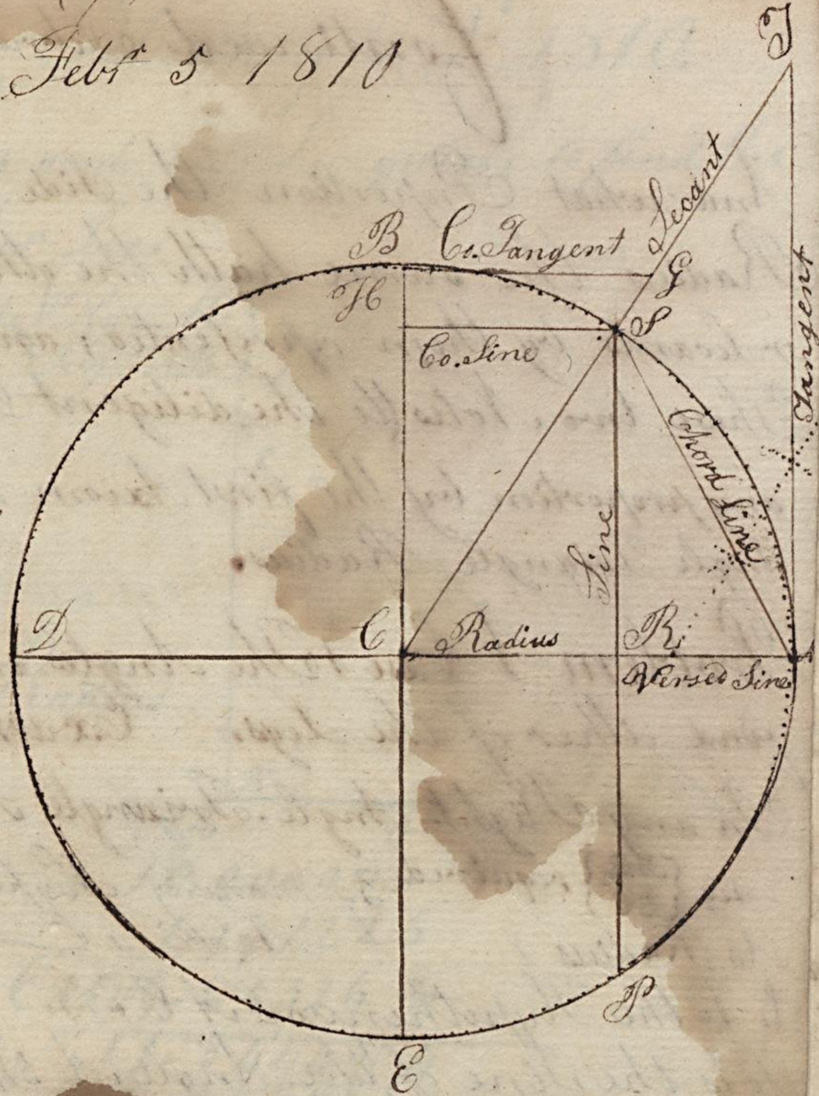
Teaches the Mensuration of Triangles by comparing the Sides and Angles together by known Analogies; whereby Three Things being given a fourth may be found on Condtion that one of them be a side; in which Right Lines are applied to the Arches of a Circle that the proportion they bear to the Sides of a plane Triangle may be found.

The Right Lines applied to a Circle are Chords, Sines, Tangents, and Secants.

A Chord or Substance of an Arch, is a Right Line that divides a Circle into two unequal Parts and is a Chord to them both, as A S, and P S. A Right Line of an Arch, is a Line drawn from one End or Termination of an Arch perpendicular to the Radius; or it is half

Continued. Febr 5 1810

the Chord of twice the Arch; so that R S is the Sine of the Arch S A and of the Arch S D the sum of which Arches make 180°, or a Semicircle.



3

The versed Sine is that part of the Diameter Contained between the Sine and the Arch; wherefore R A is the versed Sine of the Arch S A, and R D the versed Sine of the Arch S D.

Plane Trigonometry Rectangular.

Section 2. The first Axiom and the seven Cases of Plane Right angled Triangles depending thereon.

Axiom 1. In all Plane Right Angle Triangles if one of the Sides be made Radius the other two will be either Sines Tangents or Secants; That is, 1. If the Hypothenuse be Radius each Leg is the Sine of the opposite Angle, see Fig. 1. marked for the first Axiom. 2. If one of the Legs be Radius the Hypothenuse is a Secant and the other Leg is a Tangent of the Angle opposite to this Leg, See Fig. 2. titled for the first Axiom.

Note 1. To find a side any Side may be Radius saying thus;
As the word on the Side given is to the Side given;
So is the word on the Side required to the Side required.
2.d To find an Angle one of the given Sides must be Radus
Then say, As one given Side is to the word on it;
So is the other given Side to the word on it.
Observe to begin with the Side made Radius.

Continued February 21st 1810

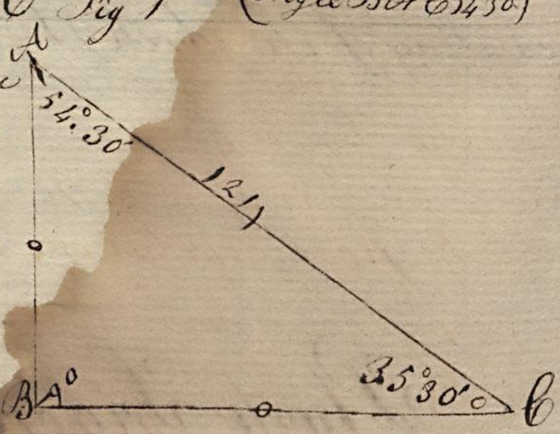
And what Proportion the Side made Radius hath to Radius the same hath the other Sides to the Sines Tangent or Secants by them represented; and the Contrary: And, These two Notes (to the diligent Reader) are sufficient to frame any proportion by the first Axiom making any Side of a Right-Angle-Triangle Radius.

Problem 1 Case 1 The Angles, and Hypothenuse given; to find either of the Legs. Example.

In any Right-Angle-Triangle A B C Fig 1 The {Hypot A C 121 Leng / Angle B A C 54°30'} given

Leg {AB / BC} required   By making Hypothenuse Radius

As Radius
Is to the Hypothenuse A C 121
So is the Sine of the Angle A 54°30'
To the Base B C



By making the Hypothenuse Radius

As Radius   10.000000
Is to the Hypothenuse A C 121   2.082785
So is sine of Angle C   35°30'   9.763954
                                   11.846739
                                   10.000000
To the Perpendicular A B 70.26   1.846739

By making the Perpendicular Radius.

As Radius   10.000000
Is to the perpendicular 70.26   1.846708
So is the Tangent of the Angle A 54°30' 10.146732
To the Base 98.51   11.993440
                                   10.000000
                                   1.993440

Continued (11) February 22d 1810.

Problem 2d. (base 2-3) The Angles and one Leg given; to find the Hypothenuse, and the other Leg.

The {Angle C 35°30' / Leg BC 98 Leagues} given: The {Hyp AC / Leg AB} reqd

By making the Base Radius

As Radius ~~~~ 10.000000
Is to the Base 98 1.991226
So is the Tangent of the Angle C 35°30 9.853268
To the perpendicular. 70.21

11.844494
10.000000
1.844494

By making the perpendicular Radius.

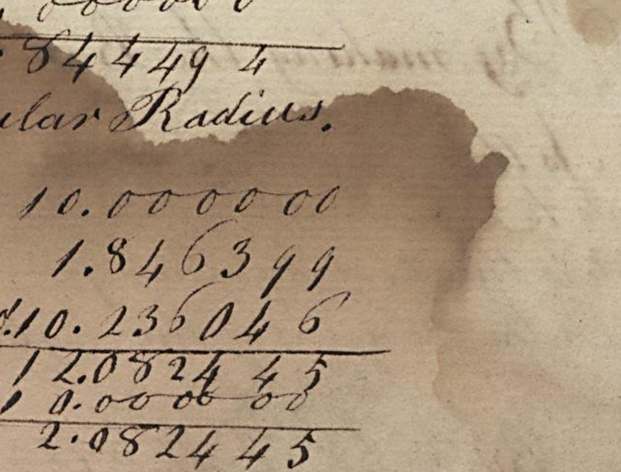
As Radius ~~ 10.000000
Is to the perpendicular, 70.21 1.846399
So is the Secant of the Angle A 54°30. 10.236046
To the Hypothenuse. 120.9 (or 121)

12.082445
10.000000
2.082445

Problem 3. (Case 4-5) The Hypothenuse and one Leg given: to find the Angles and the other Leg.

The {Hyp 121 / Leg AB 69} Leags given

{Cor A / and Leg BC} reqd



By making the Hypothenuse Radius

As the Hypothenuse 121 2.082785
Is to Radius 10.000000
So is the Perpendicular 69 1.838849
To the sine of the Angle C 34°46

11.838849
2.082785
9.756064

(1.2)

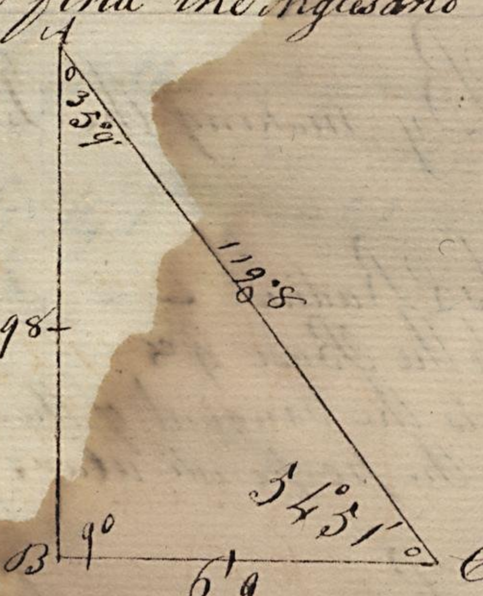
Continued Febr 23d 1810

By making the Perpendicular Radius.

As Radius 10.000000
Is to the perpendicular 69 1.838849
So is the Tangent of Angle A 35°14' 10.158543
To the Base 99.4
11.997392
10.000000
1.997392

Case 6th = 7th

Problem 4 The Legs given. To find the Angles and Hypothenuse



The Leg $\left\{ \begin{array}{l} AB\ 98 \\ BC\ 69 \end{array} \right\}$ given

$\left\{ \begin{array}{l} \text{Angle A or C} \\ \text{\& Hypothenuse AC} \end{array} \right\}$ reqr

By making the Base Radius.

As the Base 69 1.838849
Is to Radius 10.000000
So is the perpendicular 98 1.991226
To the Tangent of the Angle C. 54°51'
11.991226
1.838849
10.152377

By making the Perpendicular Radius.

As Radius 10.000000
Is to the Perpendicular 98 1.991226
So is the Secant of the Angle A 35.9 10.087434
To the Hypothenuse. 119.8
12.078660
10.000000
2.078660

(√3)

Three other Axioms with the six Cases of Oblique Plane Triangles thereunto belonging.

In all Plane Triangles, the Sides are in such Proportion one to another, as are the Sines of their opposite Angles. That is, 1. As the Sine of any one Angle, is to its opposite Side; so is the Sine of any other Angle, to its opposite Side. 2 As a side, is to the Sine of its opposite Angle; so is any other Side to the Sine of its opposite Angle. Note; To find a Side, begin with an Angle; but to find angle, begin with a Side.

Case 1st

Problem 5. Of Obliquangles. Two Angles, and one side given; to find either of the other sides.

In the Oblique Triangle BCD.

The Angle D. 101°25' and B 44°42' given; Side BC 76 yards

Side CD and BD req'd

As the Sine of the Angle D. 101°25'	9.991321
Is to the Side BC 76	1.880814
So is the Sine of the Angle B 44°42'	9.847199
	11.728013
	9.991321
To the Side CD 54.53	1.736692

As the Sine of the Angle D 101°25'	9.991321
Is to the Side BC 76	1.880814
So is the Sine of the Angle C 33°53	9.746248
	11.627062
	9.991321
To the Side BD 43.23	1.635741

Continued Febr 28th 1810.

Problem 6. Two Sides, and one Angle opposite to one of them (Case 2 & 3) given; to find the other opposite Angle and the third Side

Side { BC 106 / DB 65 } yards } given
Angle { C. 31°.49′ }

Angle { D Obtuse } and Side { CD } reqt

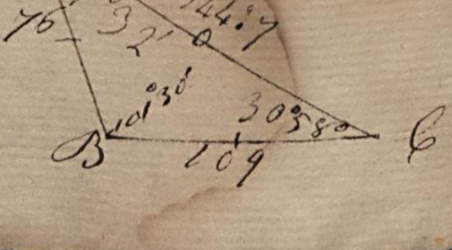
As the Side BD 65	1.812913
Is to the Sine of the Angle C 31°49′	9.721978
So is the Side BC 106	2.025306
To the Sine of the Angle D 120°43′	11.747284
	1.812913
	9.934371

As the Sine of the Angle C 31°49′	9.721978
Is to the Side BD 65	1.812913
So is the Sine of the Angle B 27°28′	9.663920
To the Side CD 56.87	11.476833
	9.721978
	1.754855

Axiom 3 In all Plane Triangles; as the Sum of two Sides is to their Difference; So is the Tangent of the Half Sum of their two opposite Angles, to the Tangent of the half Difference of the said two opposite and unknown Angles. Then, Add the half Difference of the Angles to their half-Sum finds the greater Angle; and subtract the half Difference from the half-Sum, finds the lesser Angle.

Problem 7 (Case 4th & 5th) Two Sides and their contained Angle given; to find either of the other Angles, and the third Side.

Side { BC 109 / BD 76 } Leags } given
Angle { B 101°30′ }



Continued March 3d 1810

As the Sum of the two Sides 185 2.267172 — 109 − 76 = 33; 109 + 76 = 185

Is to their Difference 33 1.518514

So is the Tangent of the half Sum of the Angles opposite those two

Sides 38°15 9.912240 — 180 − 101.30 = 78.30; 78.30 ÷ 2 = 39.15

To their ½ Difference

11.430754
2.267172
9.163572

38°15 − 8°17 = 30°58

39°.15 + 8°17 = 47°32

As the Sine of the Angle C 30°58 9.711419

Is to the Side BD 76 1.880814

So is the Sine of the Angle B 101°30 9.991193 — 180° − 101°30′ = 78°30

To the Side CD 144.7.

11.872007
9.711419
2.160588

---

4 From the half Sum of the three Sides, subtract each Side (but first that side opposite to the Angle required the the rest) Severally noting the remainders. Then, As the Product of the half Sum of the sides and the first Remainder, is to the Product of the other two Remainders; so is the square of Radius, to the square of the Tangent of half the Angle opposite to that first Remainder. This Axiom finds an Angle at one operation yet not being applicable to the instrumental way of working Proportions, you have this fourth Axiom in other Terms; which finds an Angle at two proportions, and may be wrought both Instrumentally and Logarithmetically.

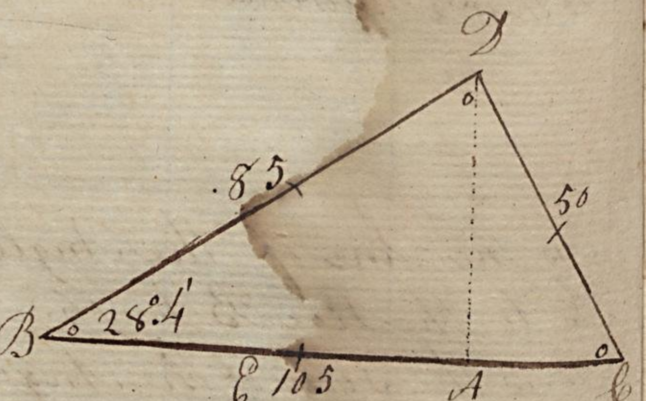
Axiom 4th Useful, when three Sides of a Triangle are given to find an Angle. As the Longest Side, is to the Sum of the two shortest; so is the Difference of the two Shortest to the Difference of the Segments of the Base or Longest Side. Note; Let fall a perpendicular (from the Angle opposite) to the Longest Side, which divideth it into two Segments; and the Oblique Triangle into two Right-angled Triangles. As in the afore said Triangle BCD. Let fall the perpendicular DA,

Continued March 6th 1810.

– which makes the Segments of the Base to be B A and A C and the two Right-Angled Triangles B A D and C A D, and the Difference of the Segments B E.

Problem 8. Three Sides given to find an Angle.

Case 6 In the Triangle B C D



The Side { B C 105, B D 85, C D 50 } Feet given:

Angle { B D C, B C D, C B D } req^d.

	105
	85
	50
Sum of Sides	2)240
½ Sum	120

120	120	120
50	105	85
70	15	35

The Half Sum 120 co. ar. 7.920819
The First Remainder 70 co. ar. 8.154902
The other 2 Remain { 35 Logar. 1.544068, 15 Logar. 1.176091 }
Sum 18.795880
Tangent – 14° 02′ – ½ Sum 9.397940
Double – 14° 02′
Produceth – 28° 04′ The Angle B.

As the Longest Side	2.021189
Is to the Sum of the two Shortest	2.130331
So is the Difference of the two Shortest	1.544068
To the Difference of the Segments of the Base	3.674402

Diff. Segments B E 45 Feet
Side B C ~~105~~ 105
Added is – 150 } the half is { 75 B A the greater } Segment
Subtracted is – 60 } the half is { 30 A C the lesser } Segment
Feet

The Angles C or B may be found by the 4th Case of Right-Angle Triangles, in Thus as Hypothenuse B D to Radius So is the Leg A B to the S of Angle D

Navigation.

Plane Sailing the First part.

Case 1. In {North / South} Sailing to the {North / South} ward, the Latitude increaseth, add.

Case 2. In {North / South} Latitude Sailing to the {South / North} ward the Latitude decreaseth, Subtract

And here Note, When the Latitude decreaseth, and the Difference of Latitude is greater than the Latitude sailed from, the Ship hath Crossed the Equater and Changed her Latitude; either from North into South or South into North. 4 General Rule. The Sum of the three Angles of every Plane Triangle, is equal to 16 Points of the Compass For

{1 Point / 8 / 16 / 32 Points} of the Compass is equal to {11d. 15m / 90 / 180 / 360} Degrees.

5 General Rule. If a Ship sails East or West, she keeps in the same Lattitude; and if a Ship sails North or South she keeps in the Same Longitude. Note Plane Sailing is Divided into three Parts viz 1. In a Right-Angle-Triangle relating to a single Course in which there are six Cases 2. In a Right-Angled-Triangle relating to several Courses Called a Traverse 3. In an Oblique Triangle in which are but four Cases tho a multitude of various Questions. The first part of Plane Sailing is contained in Six Problems or Cases following.

Case 1. Course and Distance sailed given; to find the Difference of Lattitude, and the Departure from the Meridian.

Example. Admit a Ship runs 496 Minutes S.W. by W from the Lizard in 49d 57m North Latitude; I demand the Latitude she is in and how far she has departed from the Meridian.

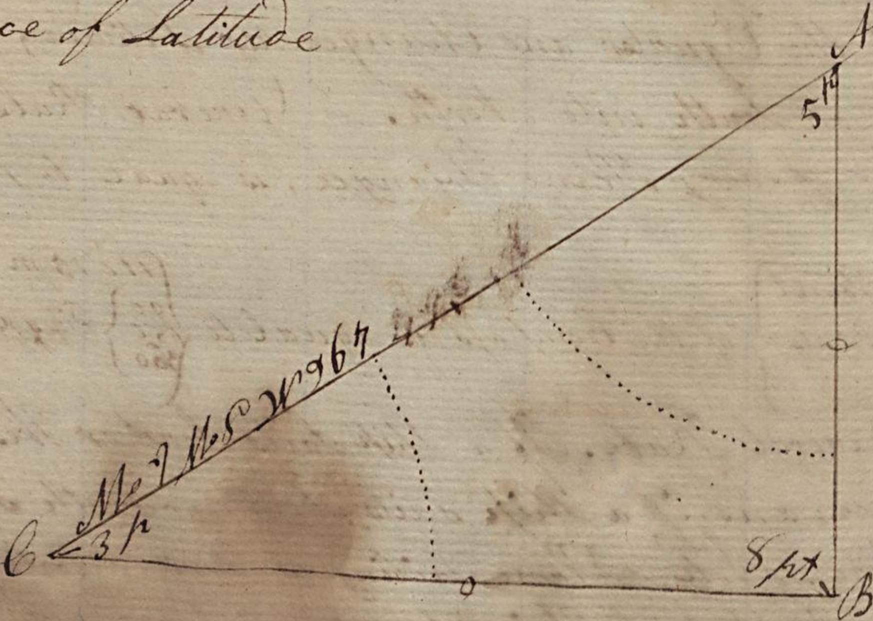
Observe That in all Problems of Navigation make the upper end of the Book or Slate to be North Then the Right hand is to the East the Left hand to the West and the Lower end to the South.

Plane Sailing Continued March 12th 1800

Note 1. The Hypothenuse AC represents (the Point of the Compass the ship hath steered and) the ships Distance run.
.2. The Leg AB (the Meridian the North or South Point of the Compass) the Difference of Latitude.
3 The Leg BC (the East or West Point of the Compass, and a parallel of Latitude) the Departure from the Meridian.
4. The Angle A (the Angle of) the Ships Course
5. The Angle C (the Angle of) the Complement of the Ships Course

For the Difference of Latitude

Case 1.



As Radius — 10.000000
Is to the Distance 496 — 2.695482
So is the Sine of the Course 56°.15′ — 9.744739
To the Difference of Latitude 275.6

12.440221
10.000000
2.440221

As Radius — 10.000000
Is to the Distance 496 — 2.695482
So is the Sine of the Course 56°15′ — 9.919846
To the Departure 412.4

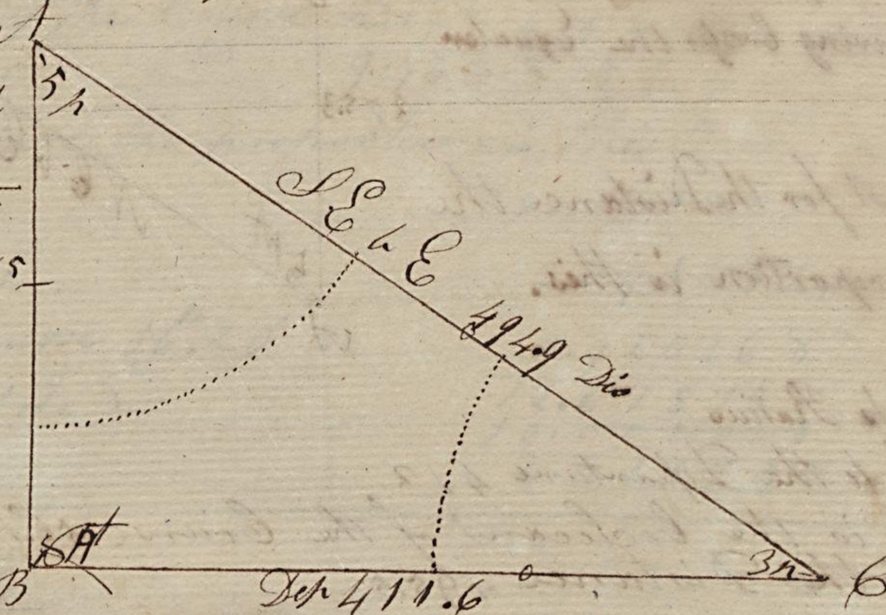
12.615328
10.000000
2.615328

Continued March 13th 1810

Case 2. Course and Difference of Latitude given, to find the Distance run and the Departure from the Meridian.

Example. If a Ship runneth S E by E from 1d 45 m North Latitude, and then (by Observation) is in 2° 50' South Latitude. What is her Distance and Departure.

Lat Sailes from —— 1° 45' North
Lat by Observation is —— 2° 50' South
The difference of Lat 4° 35' or 275 Minutes; found by multiplying by 60, the minutes in a degree 275



1st For the Departure the proportion may be thus
Case 2

As Radius	10.000000
Is to the Difference of Latitude 275	2.439333
So is the Tangent of the Course 56° 15	10.175107
To the Departure 411.6	12.614440
	10.000000
	2.614440

2 For the Distance the proportion may be thus.

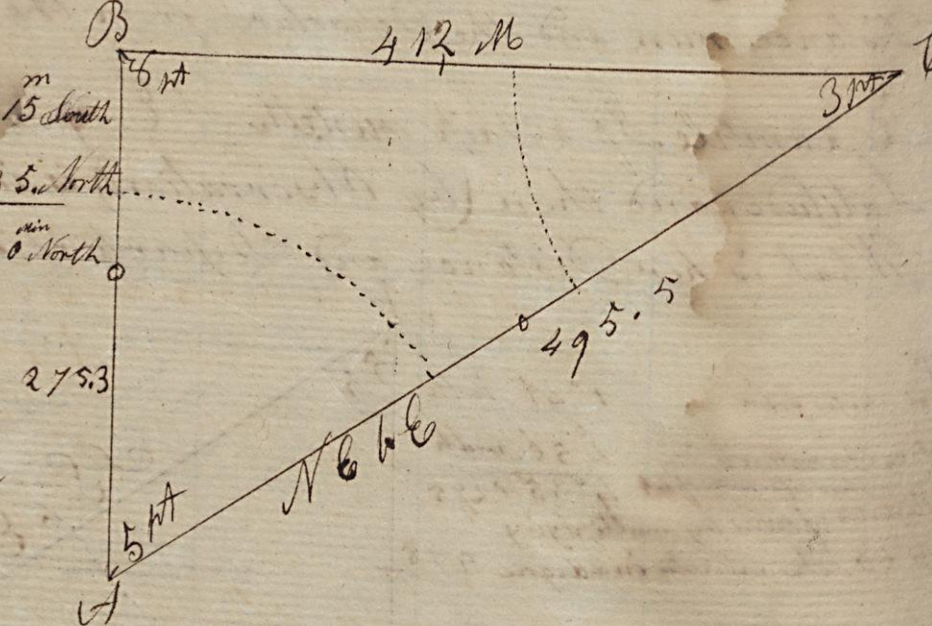
As Radius	10.000000
Is to the Difference of Latitude 275	2.439333
So is the Secant of the Course 56° 15	10.255264
To the Distance 494.9	12.694594
	10.000000
	2.694594

Case 3. Course, and Departure from the Meridian given; to find the Distance and Difference of Latitude.

Example. If a Ship Sails N E b E from a port in 3° 15 South Latitude until she depart her first Meridian 412 Min Demand her distance and the Latitude she is in.

Plane Sailing Continued March 13th 1810

Latitude sailed from is 3d..15m South
Diff of Lat is 275.3 Min or — 4. 35 North
Subtract, giveth the Lat the Ship's in 0°. 20min North
having crossed the Equator



1st for the Distance the
proportion is this.

As Radius	10.000000
Is to the Departure 412	2.614897
So is the CoSecant of the Course 56°.15'.	10.080154
To the Distance 495.5	12.695051
	10.000000
	2.695051

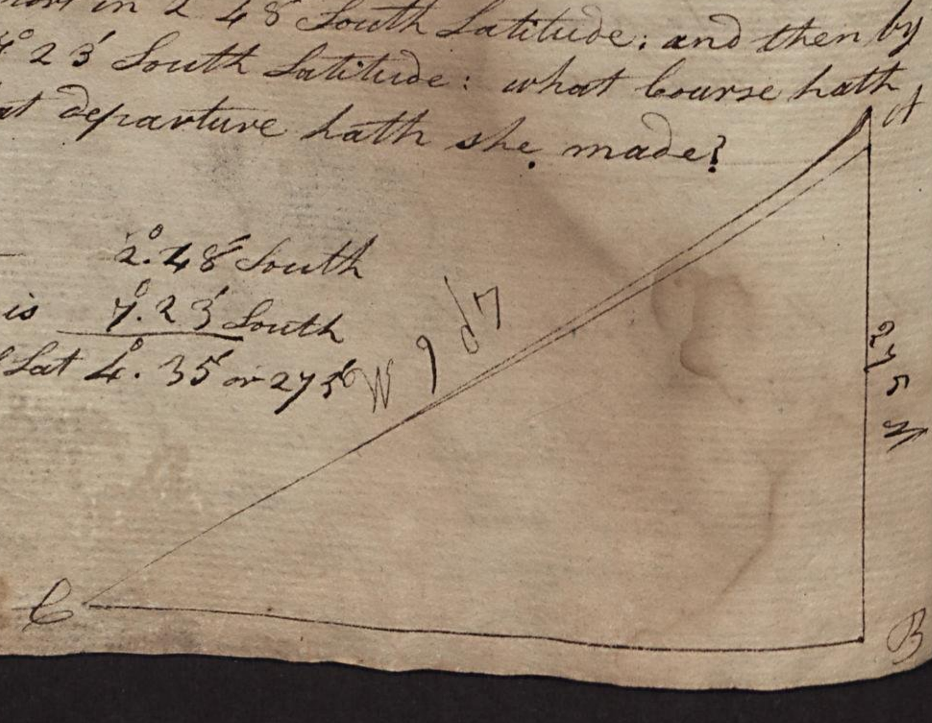
As Radius	10.000000
Is to the Distance 495.5	2.695044
So is the Cosine of the Course 56°.15'	9.744739
To the Difference of Latitude 275.3	12.439783
	10.000000
	2.439783

Case 4.

Distance and Difference of Latitude given to find the Course and Departure.

Example. Suppose a Ship sails 496 Min. between the South and the West, from a port in 2° 48' South Latitude; and then by Observation is in 7° 23' South Latitude: what course hath she steered, and what departure hath she made?

Latitude sailed from is — 2°.48' South
Latitude by Observation is 7°.23' South
Subtract; gives the Diff of Lat 4°. 35' or 275



(2.8)

Continued March 14th 1810

1st for the Course the proportion is this:

As the Distance 496	2.695482
Is to Radius	10.000000
So is the Diff of Latitude 275	2.439333
To the Sine Complement of the Course 56	12.439333
	2.695482
	9.743851

2d. for the Departure the proportion is this

As Radius	10.000000
Is to the Distance 496	2.695482
So is the Sine of the Course 56°.20'	9.920268
To the Departure 412.8	12.615750
	10.000000
	2.615750

Case 5.

Distance and Departure given; to find the Course and Difference of Latitude.

Example. Admit a ship sails 496 Minutes between the North and the West from the Island Bermudas, in Lat 32° 25' North until her Departure is 412 Minutes; What Course hath she steered, And what Lat is she in

1st For the Course take this proportion	2.695482
As the Distance 496	10.000000
Is to the Radius	2.614897
So is the Departure 412	12.614897
	2.695482
To the Sine of the Course 56°15	9.919415

2. For the Diff of Lat the Proportion is this

As Radius	10.000000
Is to the Distance 496	2.695482
So is the Sine Complement of the Course	9.945683
To the Diff of Latitude 276.1	12.441165
	10.000000
	2.441165

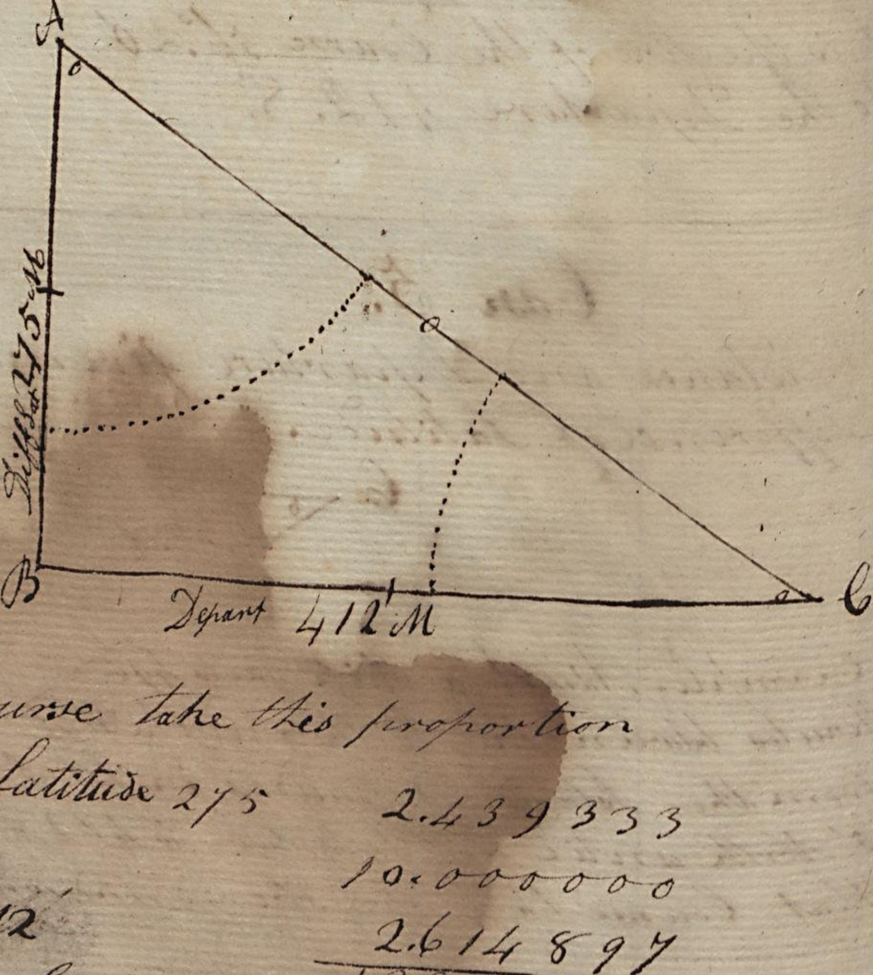
Plane Sailing Continued March 15th 1810.

Latitude sailed from	32°.25' North
Diff of Latitude 276 Minutes or	4°.36 nearly
Latitude the Ship is in	37°.01' North

Case 6.

Difference of Latitude and Departure given; to find the Course and Distance.

Example. If a Ships Southing be 275 Min and her Easting 412 Min. What is her Course and Distance.



1st For the Course take this proportion

As the Difference of Latitude 275	2.439333
Is to Radius	10.000000
So is the Departure 412	2.614897
To the Tangent of the Course 56°17	12.614897
	2.439333
	10.175564

2d For the Distance the proportion is this

As Radius	10.000000
So to the Difference of Latitude 275	2.439333
So is the Secant of the Course 56°17	10.255639
To the Distance 495.4	12.694972
	10.000000
	2.694972

Continued March 15th 1810.

Quest

1st. A Ship in 2° 10'. South Latitude sails N. by E 89 Leagues; what Latitude is she in; and what is her Departure? Lat 2° 12 N Dep Leag 17.36 part of Hundrd

2d. A ship sailing S S W. from a port in 41°30'. North Latitude; and then by Observation the Ship is in 36°57'. North Latitude: I demand the Distance Run, and Departure?

Ans. Distance Run 98 Leag 5 Tenths Dep 37. Leags 7 Tenths.

Example 1. For Question 1st

89 × 3 = 267

(3)261 / 4 = 21 (87)

As Radius	10.000000
Is to the Distance 267 Min	2.426511
So is the Sine of the Course 11°15	9.290236
	11.716747
	10.000000
To the Departure 17.36	1.716747

2° 10
Diff Lat 4° 21
Lat in 2° 11

As Radius	10.000000
Is to the Distance 267 Min	2.426511
So is the Co Sine of the Course 11°15	9.991574
	12.418085
	10.000000
To the Diff of Latitude 261.9	2.418085

For Question 2d

3)295.5
Distance 98.5

41°30
36°57
4°33
60
273

As Radius	10.000000
Is to the Diff of Latitude 273	2.436163
So is the secant of the Course 22°30	10.034385
	12.470548
	10.000000
To the Distance 295.5	2.470548

As Radius	10.000000
Is to the Distance 295.5	2.470557
So is the Sine of the Course 22°30	9.582840
	12.053497
	10.000000
To the Departure 113.1	2.053497

3)113.1
37.7 Tenths

J o h n M a r c h
D o m i n y 1 6

Plane-Sailing, the second Part; shewing how to resolve a Traverse or bring several Courses into one.

Having learn'd those necessary Problems concerning a single Course, the next in order is a Compound Course, commonly called a Traverse; in order to the right Understanding whereof, observe the following Definitions.

1 A Traverse, is when a Ship (meting with a contrary Wind) saileth on several Courses in 24 Hours.

2 To resolve a Traverse, is to Reduce or bring several Courses into one; the Courses are known by the Compass, and the Distance by the Log, which in common Voyages is heav'd once in two Hours, but in ships of War or to the East Indies every Hour.

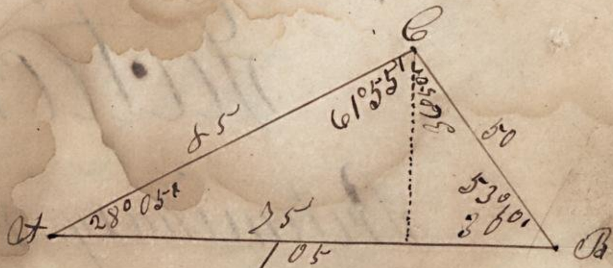
The Log is a piece of wood about seven Inches Long with an arm Like a flounder with the Head cut off and so fastened with a Small Cord (or Line called the Log Line) at one end with so much Lead at the other that when it is put into the Sea it may Swim upright or endwise.

Example. A Ship bound to a Certain Port, meeting with contrary Winds sails first S E b S. 67 Min: then South E by E 53 then W S W. 45: then N E b N. 74, then W. 57; and then S b E. 83 Minutes: I demand the Difference of Lat, Departure from the Meridian and Direct Course, and Distance from the place first departed from.

Traverse Table.

Courses.	Dis. in Min	Points from the Meridian	Points from Sayling Course	Diff Latitude in Minutes North.	South.	Departure in Minutes. East.	West.
S E b S	67	3	3		55.7	37.2	
S E b E	53	5	14		29.4	44.1	
W S W	45	6	5		17.2		41.6
N E b N	74	3	3	61.5		41.1	
W	57	8	5				57.0
S b E	83	1	7		81.4	16.2	
Sum'd up				61.5	183.7	138.6	98.6
Subtract					61.5	98.6	
Diff of Latitude					122.2	40.0	Depart.

Case IV.



The three Sides given to find the Angles

In the Triangle ABC given the Side AB 105 the Side AC 85 and the Side BC 50 to find the Angles

Side AC – 85 AC – 85	Half Side AB — — 52.5
BC. – 50 BC. 50	Half Differance of Segments 22.5
Sum of the two Sides 135 Differance 35	Add Segment AD 75.0
	30.0

As Longest Side AB. 105 — 2.02119 Subtract Segment BD

: Sum of the other two Sides 135 — 2.13033

:: Differance between those two sides 35 — 1.54407

3.67440

2.02119

Differance of Segments 45 — 1.65321

To find the Angle DCA	To find the Angle DCB
As Hyp AC 85 — — 1.92942	As Hyp BC 50 — 1.69897
: Radius — — 10.00000	: Radius — — — 10.00000
:: Seg AD 75 — 1.87506	:: Seg BD 30. — 1.47712
11.87506	11.47712
1.92942	1.69897
Sine DCA 61°55' 9.94564	Sine DCB 36°50' 9.77815

Section II.

Preliminary. Problems.

Problem II

To reduce Two rod Chains to Four Rod Chains

Ch lk
316 - 37
8 - 37

Ch lk
317 - 42
8 - 42
50
8 - 92

Problem II.

To reduce Two Rod Chains to Rods and Decimal Parts

Ch Lks
12 24
54 84

Ch Lks
15 = 384
31 - 52

Probleme III

To Reduce Four Rod Chaines to Rods and Decimal Parts

Ch Lks
8 - 64
54 - 56

Ch Lks
4)105 - 12
26 - 28

Problem IV

To reduce Square rods to Acres

160)746(4 - 2 - 26
640
1064
4)424(2
320
10440
4)160(26
320
960
960

Problem V.

To reduce Square Chains to Acres

10)460(46
48
60
60

19)846(84.6
80
46
40
6

Problem VI

To reduce square links to Acres

Acres 15,63274
Roods 2,53096
40
Rods 21,23840

Problems for finding the Area of Right Lined Figures and also of Circles

Problem VIII

To find the Area of a Square or Paralelogram

Rule. Multiply the length into the breadth the product will be the Area

Problem VIII.

To find the area of a Rombus or Romboides

Rule Drop a Perpendicular from one of the Angles to its oppo Side and multiply that side the Perpendicular the Prod will be the Area

Problem IX

To find the Area of a Triangle

Rule 1st Drop a Perpendicular from one of the Angles to its opposite Side which may be called the Base then multiply the Base by half the Perpendicular or the Perpendicular by half the Base the Product will be the Area Or multiply the whole Base by the whole Perpendicular and half the Product will be the Area

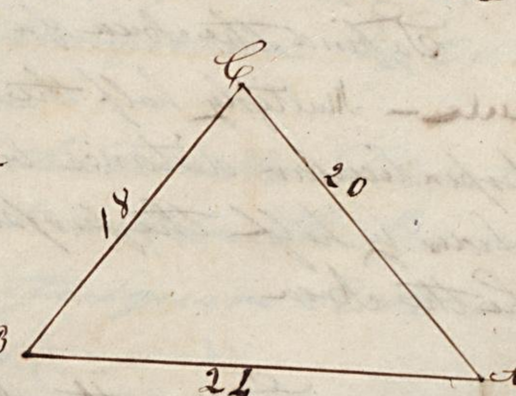
Rule 2d If it be a Right Angled Triangle multiply one of the Legs into half of the other the Product will be the Area Or multiply the two Legs into each other and half the product will be the Area

Rule 3 = When the three Sides of a Triangle are known the Area may be found Arithmetically as follows

Add togeather the three Sides from half their Sum Subtract each side noting down the Remainders multiply the half sum by one of those Remainders and that product by another Remainder the Square Root of the last Product will be the Area

Example

Suppose a Triangle whose three sides are 24.20 and 18 Chains Demand the Area




```
 24      31       31          3.10311(176.1
 20      18        7          1                24.4
 18      --      ----       27)210              4
2)62     13      217           189             ----
 --      31       11        346)2131           17.6
 31      20      ----            2076
 24      --      217        3521)5500
 --      11      217              3521
  7              ----             ----
                 2387              1979
                   13
                 ----
                 7161
                2387
                -----
                31031
```

By Logarithms

Half sum — — 35 — — 1 . 49136

The First remainder — 7 — — 0 . 84510

The Second remainder — 11 — — 1 . 04139

The third remainder — 13 — — 1 . 11394

2)4 . 49179

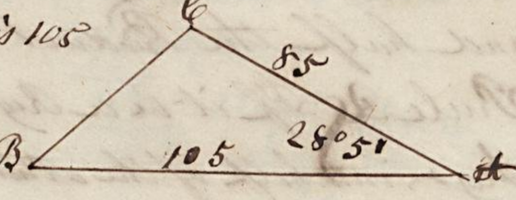
2 . 24589

Area 176.1 Square Chains

Rule 1. When two sides of a triangle and their contained Angle that is the Angle made by those Sides are given the Area may be found as follows Add togeather the Logarithm of the two sides and the Logarithmetical Sine of the Angle from their sum subtract the Logarithm of Radius the Remainder will be the Logarithm of double the Area

Example

Suppose a triangle one of whose Sides is 105 Rods and another 85 and the Angle contained between them 28° 5' Demand the Area



One side	105	2.02119
The other side	85	1.92942
Sine Angle	28° 5'	9.67280
		13.62341
Subtract Radius		10.00000
Double Area 4200 Rods		3.62341

Answer $\frac{2)4200}{2100}$ Rods

Problem X.

To find the Area of a Trapezoid

Rule — Multiply half the Sum of the two parallel Sides by ~~half~~ the perpendicular distance between them or the sum of the two parallel Sides by half the perpendicular distance the Product will be the Area

Problem XI

To find the Area of a Trapezium or irregular Foursided fig

Rule — Draw a Diagonal between two opposite Angles which will div the Trapezium into two Triangles Find the Area of each Triangle and add them togeather Or multiply the Diagonal by half the sum of the two Perpendiculars let fall uppon it or the Sum of t two Perpendiculars by half the Diagonal the Product will be the A

Problem XII

To find the Area of a Figure containing more than Four Sides

Rule — Divide the figure into Triangles and Trapezia by drawing a many Diagonals as are necessary which Diagonals must be so dr as not to intersect each other Then find the area of ~~the~~ each several Triangles of Trapezia and add them together the sum will be the Area of the

Problem XIII.

Respecting Circles.

Rule I If the Diameter be given the Circumferance may be found by one of the following Proppositions As 7 is to 22 or more exactly as 113 is to 355 or in Decimals as 1 is to 3.14159 so is the Diameter to the Circumferance

Rule II. If the Circumferance be given the Diameter may be found by one of the following Proportions As 22 is to 7 or as 355 is to 113 or as 1 is to 0.31831 so is the Circumferance to the Diameter

Rule III. The Diameter and Circumferance being known multiply half the one into half the other and the Product will be the Area

Rule 4. From the Diameter only to find the Area Multiply the Square of the diameter by 0.7854 and the product will be the Area

Rule 5. From the Circumferance only to find the Area Multiply the Square of the Circumferance by 0.07958 and the product will be the Area

Rule 6 The Area being given to find the Diameter Divide the Area by 0.7854 and the quotient will be the Square of the Diameter from this Extract the Square Root and you will have the Diameter

Rule 7 The Area being given to find the Circumferance Divide the Area by 0.07958 and the quotient will be the square of the Circumferance from this extract the square Root and you will have the Circumferance

Section II.

The following Cases teach the most usual methods of taking the Survey of Fields also how to protract or draw a Plot of them and to calculate the Area

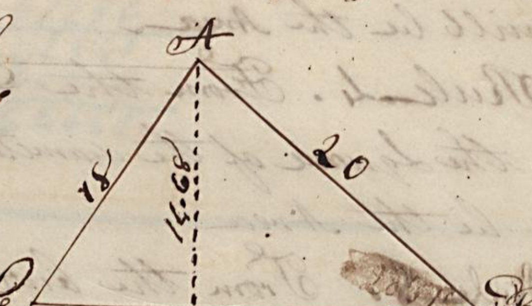
Case I.

To Survey a Triangular Field

Measure the Sides of the Field with a Chain and enter their several lengths in a Field Book protract ~~or draw a plot of~~ the field on Paper and then find the Area by Problem IX. Rule I Or without plotting the Field calculate the Area by Ry Prob IX Rule 3

Field Book,

	Chains
AB —	20
BC —	24
CA —	18



To Find the Area

	Ch L
Base BC	24.00
Half Perp AD	7.34

9600
7200
16800

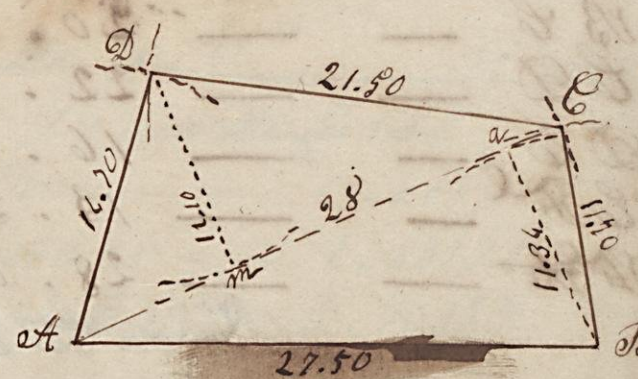
Acres 1|7616 00
4
Roods 2|46400
40
Rods 18|56000

Case II.

To survey a field in the form of a Trapezium
Measure the several sides and a Diagonal between two opposite Angles protract the Field and find the Area by Problem XI Or without protracting the Field calculate the Area according to the Note at the end of that Problem

Field Book

	Ch	L
AB — —	27 .	50
BC — —	11 .	70
CD — —	21 .	50
DA — —	14 .	70
Diagonal AC	28 .	00



To find the Area

Perpendicular Ba — — 11.34
— Dm — — 11.10
22.44
Half Diagonal AC — — 14.00
8976
2244
Acres 3|14160
4
Roods 1|6664
40
Rods 26|560

A good one
York

Case III.

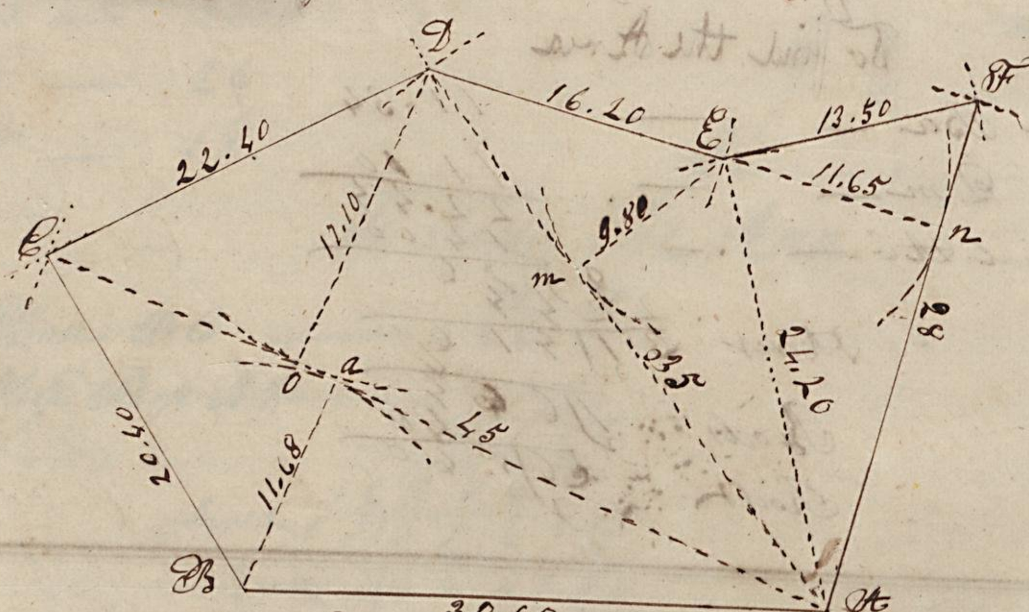
To survey a Field which has more than four Sides by the Chain only.
Measure the several Sides and from some one of the Angles from which the others may be seen measure Diagonals to them draw a plot of the Field and find the Area by Problem XII

Field Book

			Ch	L
AB	—	—	30	.60
BC	—	—	20	.40
CD	—	—	22	.40
DE	—	—	16	.20
EF	—	—	13	.50
FA	—	—	28	.00

Diagonals

			Ch	L
AC	—	—	45	.00
AD	—	—	35	.00
AE	—	—	24	.20



To find the Area

The Trapezium ABCD
Perpend Ba — — 11.68
— DO — — 17.10
28.78
Half Diag AC — — 22.50
143900
5756
5756
Square Chains 647.5500

The Triangle AFE
Perpend En — 11.65
Half side AF — 14
4660
1165
Square Chains 163.10

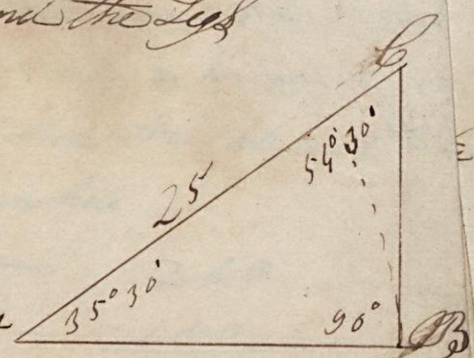
The Triangle ADE
Half Perpend Em — 4.90
Diag AD — 35
2450
1470
Square Chains 171.50

Trapezium ABCD — 647.55
Triangle ADE — 171.50
Triangle AFE — 163.10
Acres 98|2.15
4
0r.860
40
Rods 34|400

Rectangular Trigonometry

Case II.

The Angles and Hypothenuse given to find the Legs



Making the Hypothenuse Radius the proportion will be

To find the Leg AB

As Radius — —	10.00000
Hyp AC 25 — —	1,39794
Sine 54°30' — — —	9.91069
	11.30863
	10.00000
Leg AB 20.35	1.30863

To find the Leg BC.

As Radius — —	10.00000
Hyp AC 25 — —	1,39794
Sine ACB 35°30'	9.76395
	11.16189
	10.00000
Leg BC 14.52 —	1.16189

Making the Leg AB Radius the Proportion will be

To find the Leg AB

As Secant CAB 35°30 —	10.08931
Hyp 25 — —	1.39794
Radius — —	10.00000
	11.39794
	10.08931
Leg AB 20,35 —	1.30863

To find the Leg BC

As Secant CAB 35°30'	10.08931
Hyp AC 25 — —	1.39794
Tangent CAB —	9.85327
	11.25121
	10.08931
Leg BC 14.52	1.16190

Making the Leg BC Radius the Proportion will be

To find the Leg AB

As Secant ABC 54°30'	10.23605
Hyp AC — 25 —	1.39794
Tangent ACB 54°30'	10.14673
	11.54467
	10.23605
Leg AB 20.35	1.30862

To find the Leg BC

As Secant ACB 54°30'	10.23605
Hyp AC — 25 —	1.39794
Radius — —	10.00000
	11.39794
	10.23605
Leg BC 14.52	1.16189

Continued

To survey a
Measur
whi
a p

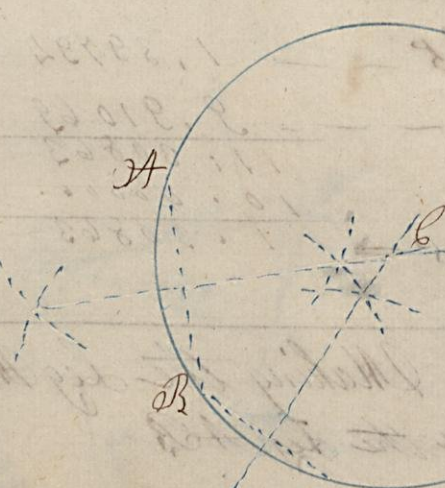
A
B
C
D
E

Problem XVIII

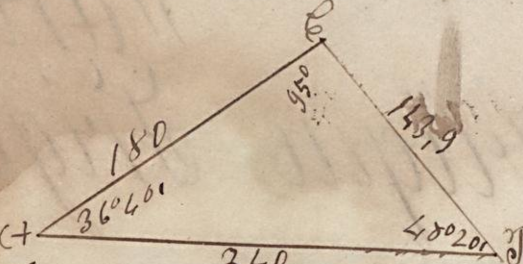
[illegible] describe a circle which shall [illegible]s through any three given Points [illegible] lying in a Right-line as AB

Problem XIX

To find the center of a circle



Case III.



Two Sides and their Contained Angle ~~and their bottom~~ given to find the other Angles and Sides

In the triangle ABC given the side AB 240 the Side AC 180 and the Angle at A 36°40' to find the other Angles and Side

Side AB —	240		Side AB —	240
AC —	180		AC —	180
Sum of the two sides	420		Difference	60

& the given angle BAC 36°40' subtracted from 180° leaves 143°20' the Sum of the other two Angles the half of which is 71°40'

As the sum of two sides 420 — 2,62325

: Their difference 1,77815

: : Tangent half unknown Ang 71°40' — 10,47969

12,25784

2,62325

Tangent Half Difference 23°20' — 9,63459

The half sum of the two unknown Angles — 71° 40'

The half Difference between them — — 23° 20'

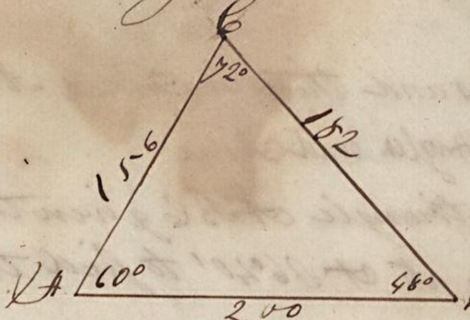
Add gives the greater Angle ACB — — 95 — 00

Subtract gives the lesser Angle ABC — — 48 — 20

The Side BC as found by Case II

Part II.

Oblique Trigonometry



Case I

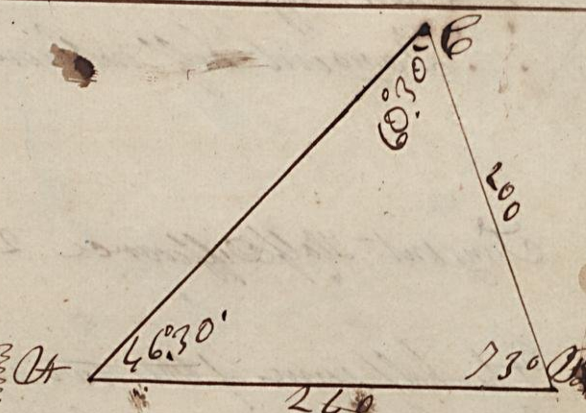
The Angles and one Side given to find the other Sides

To find the side AC

As Sine ACB, 72°	9,97821
Side AB, 200	2,30103
Sine ABC, 48°	9,87107
	12,17210
	9,97821
Side AC 156	2,19389

To find the side BC

As Sine ACB 72°	9,97821
Side AB 200	2,30103
Sine BAC, 60°	9,93753
	12,23856
	9,97821
Side BC 182	2,26035



Case II

Two Sides and an Angle opposite to one of them given to find the other Angles and Side

To find the Angle ACB

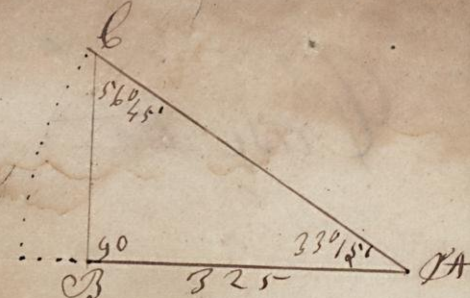
As Side BC 200	2.30103
: Sine BAC 46°30'	9.86056
:: Side AB 240	2.38021
	12.24077
	2.30103
Sine ACB 60.30	9.93964

Angle at A 46°30'
C 60.30
107.00
180.00
107.00
73°0

To find the Side AC

As Sine BAC 46°30'	9.86056
! As Side BC 200	2,30103
:: Sine ABC 65°30'	9.98060
	12,28163
	9,86056
Side AC 263,35	2,42107

Case III.



The Angles and one Leg being given to find the Hypothenuse and the other Leg

Making the given Leg Radius the Proportions will be

To find the Hypothenuse		To find the Leg BC	
As Radius	10.00000	As Radius	10.00000.
Leg AB 325	2,51188	Leg AB 325	2.51188.
Sec CAB 33°15'	10,07765	Tan CAB 33°15'	9.81666
	12,58953		12.32854
	10,00000		10.00000
Hyp 388.6	2,58953	Leg BC 213.1	2.32854

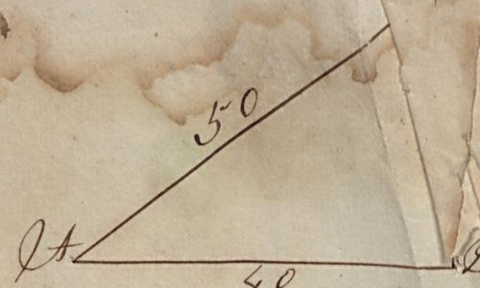
Making the Leg BC Radius the proportions will be

To find the Hypothenuse		To find the Leg BC	
As Tangent ACB 56°45'	10,18334	As Tan ACB 56°45'	10.18334
Leg AB 325	2,51188	Leg AB 325	2.51188
Sec ACB 56°45'	10,26099	Radius	10,00000
	12,77287		12,51188
	10,18334		10,18334
Hyp 388,6	2,58953	Leg BC 213,1	2,32854

Making the Hypothenuse Radius the Proportions will be

To find the Hypothenuse		To find the Leg BC.	
As Sine BCA 56°45'	9,92235	As Sine BCA 56°45'	9,92235
Leg AB 325	2,51188	Leg AB 325	2,51188
Radius	10,00000	Sine BAC 33°15'	9,73901
	12,51188		12,25089
	9,92235		9,92235
Hyp 388,6	2,58953	Leg BC 213,1	2,32854

Case III.



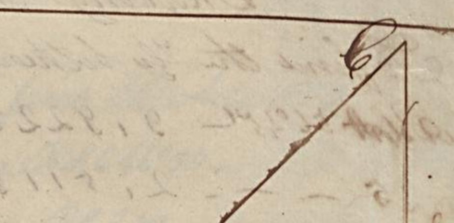
The Hypothenuse and one Leg given to find the Angles and the other Leg
Making the Hypothenuse Radius the proportion to find the Angle A C B will be

As Hypothenuse — 50 — 1.69897
: Radius — — — 10.00000
:: Leg A B — 40 — — 1.60206
11.60206
1.69897
Sine A C B 53°10′ — 9.90309

The Angle A C B being 53°10′ the other is consequently 36°50′
Making the ~~Leg~~ A B Radius the Angle B A C may be found
by the following Proportion

As leg A B 40 — 1.60206
: Radius — 10.00000
:: Hyp. 50 — 1.69897
11.69897
1.60206
Sec 36°50′ 10.09691

Case IV.



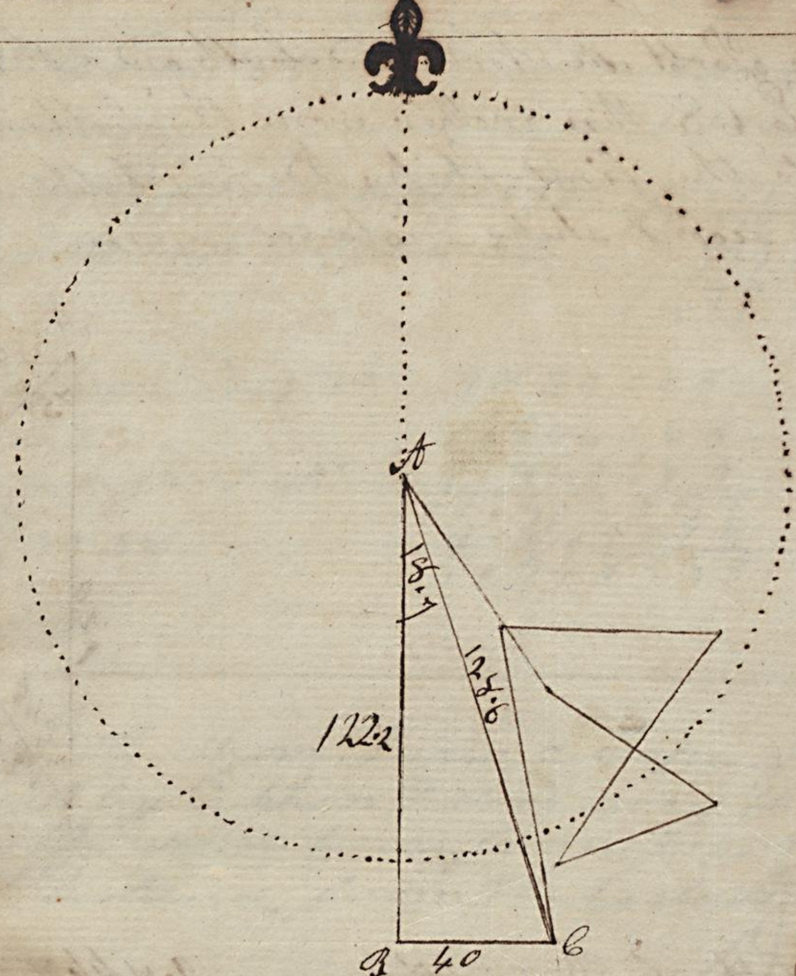
The Legs given to find the Angles and Hypothenuse
Making the Leg A B Radius the Proportion to find
the Angle B A C will be

As Leg A B 78.7 — 1.89597
: Radius — — 10.00000
:: Leg B C 89 — — 1.94939
11.94939
1.89597
Tan B A C 48°30′ — 10.05342

Making the leg B C Radius the proportion to
find the Angle B C A will be

As Leg B C 89 — 1.94939
: Radius — — 10.00000
:: Leg A B 78.7 — 1.89597
11.89597
1.94939
Tan A C B 41°30′ 9.94658

Continued March 28th 1800

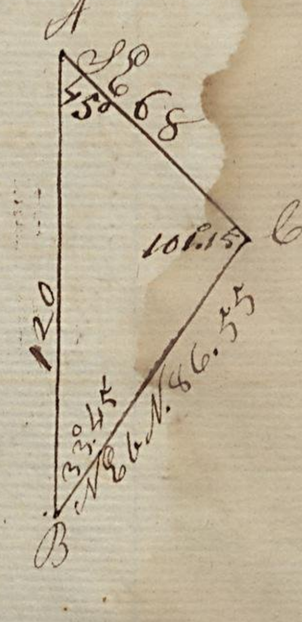


As Diff of Lat 122.2	2.087071
Is to Radius 90°	10.000000
So is the Dep 40.	1.602060
	11.602060
To the Tangent of Course 18.7	2.087071
	9.514989

As the Sine of the Course 18.7	9.492695
Is to the Dep 40.	1.602060
So is Radius 90°	10.000000
	11.602060
To the Distance 128.6	9.492695
	2.109365

Plane Sailing the Third part. M April 12^d 1810

1 Suppose two Ports lie North and South and a ship Sails from the Nothermost S E 68 Min another from the Southermost sails N E b N till she meets the first Ship: I demand the Distance of these Ports and the second ships Distance run

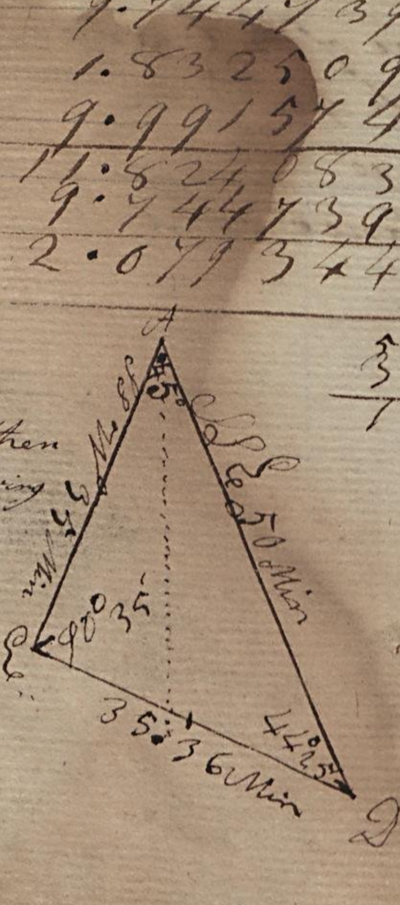


As the Sine of Angle B 33°45	9.744739
Is to the Side A C 68	1.832509
So is the Sine of Angle A 45	9.849485
To the Side B C 66.55	11.681994
	9.744739
	1.937255

As the Sine of Angle B 33°45	9.744739
Is to the Side A C 68	1.832509
So is the Sine of Angle C 101°15	9.991574
To the Side A B 120	11.824083
	9.744739
	2.079344

3 Two Ships sail from a Certain road one sails S S E 50 Min the other S S W 35 Min. I demand their bearing and distance?

180
45
135
67°30



50
35
15

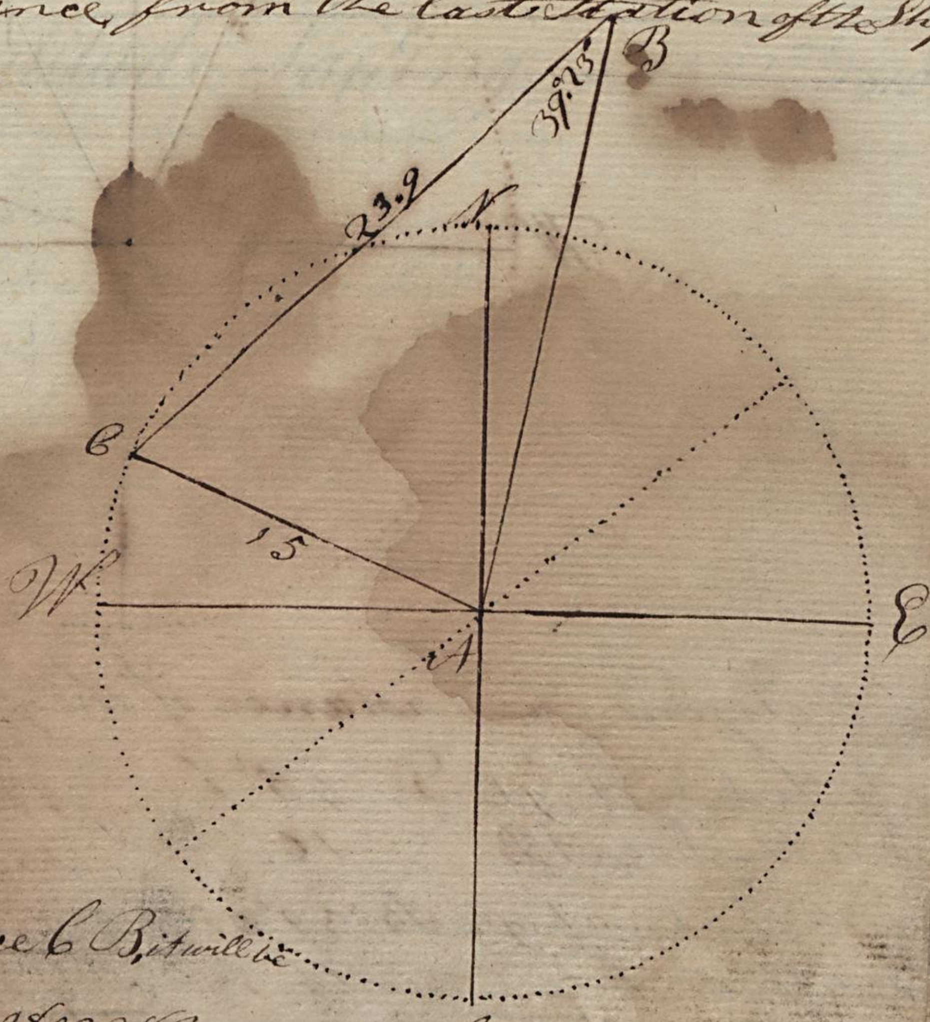
50
35
85

Continued April 4th 1810.

As the Sum of the Sides 85	1.929419	
Is to their Difference 15	1.176091	
So is the Tangent of the half Sum of the opposite Angles 67.30	10.382776	
	11.558867	
To the Tangent of the half Difference	1.929419	
	9.629448	

As the Sine of the Angle D 44°35′	9.845018	
Is to the Side A C 35.	1.544068	67°30′
So is the Sine of the Angle A 45°	9.849485	23°05′
	11.393553	90°35
To the Side C D 35.36	9.845018	67°30′
	1.548535	23°5′
		44°25

Coasting along the Shore, I saw a Cape of Land which bore from me N by E. then I stood away W. N. W. 5 Leags or 15 Miles and the same bore from me N E half E. I demand the Distance from the last Station of the Ship to the Cape?

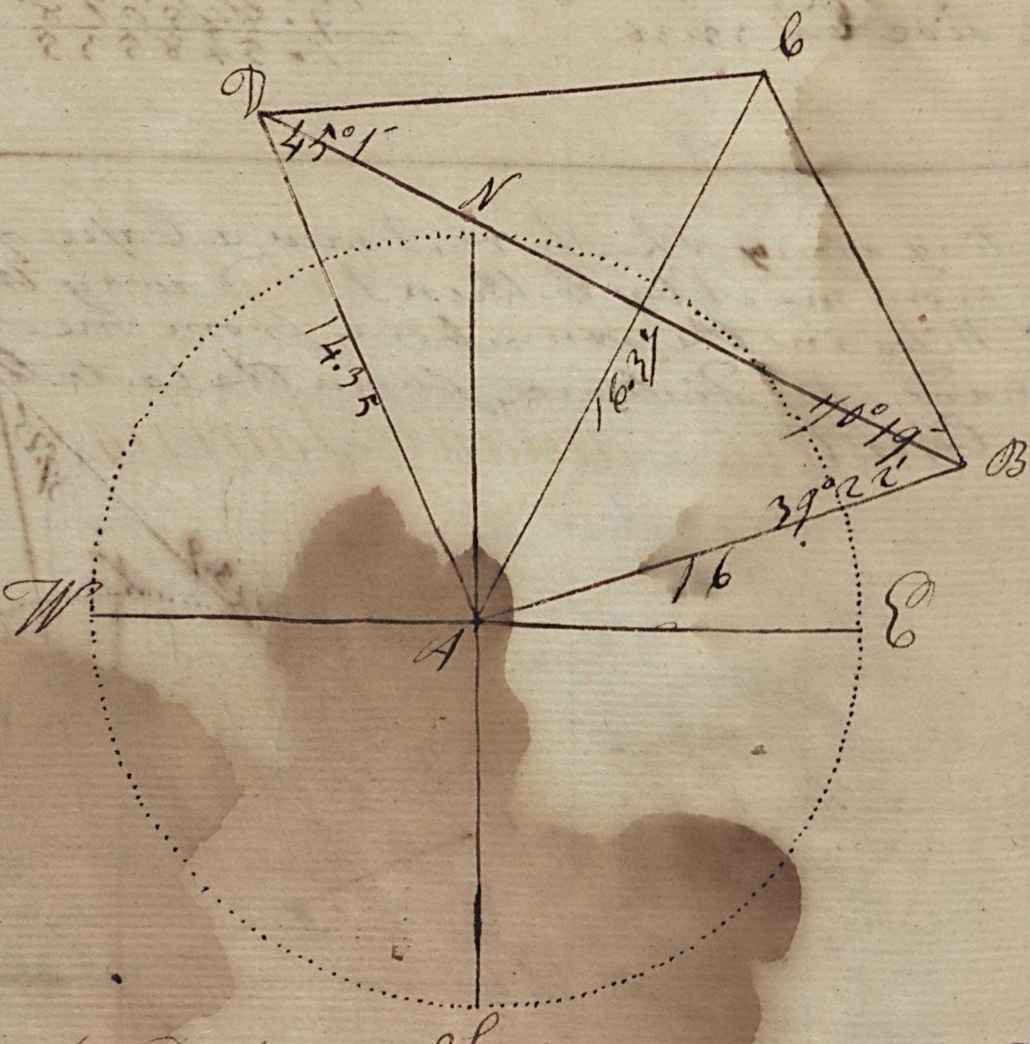


To find the Distance C B it will be

As the Sine Angle B	39.23	9.802282
Is to the Side A C	15 Min	1.176091
So is the Sine Angle A	78.45	9.991576
		11.167667
To the Side C B	23.19	9.802282
		1.365385

Oblique Sailing Continued April 9th 1810

Coasting along the shore I saw two Headlands the first bore N N W. the second N N E. 3/4 Easterly then standing away E by N ½ Northerly 16 Miles the first bore from me W N W. the second N W by N 1/4 Westerly. I demand the distance of each of these Headlands from the first place as also their bearing and distance from each other? - - - - - - - -



To find the Distance of the first Headland.

As the Sine Angle D	45° 1'	9.849611
Is to the Side AB	16.	1.204120
So is the Sine Angle B	39°22'	9.802282
To Side A D —	— 14.35	11.006402
		9.849611
		1.156791

To find the Distance of the second Headland.

As the Sine Angle C	67°30'	9.965615
Is to the Side A B	16.	1.204120
So is the Sine Angle B	70° 19'	9.973852
To the Side A C	16.31	11.177972
		9.965615
		1.212357

Continued April 10th 1810

To find the bearing and Distance of the Headlands.

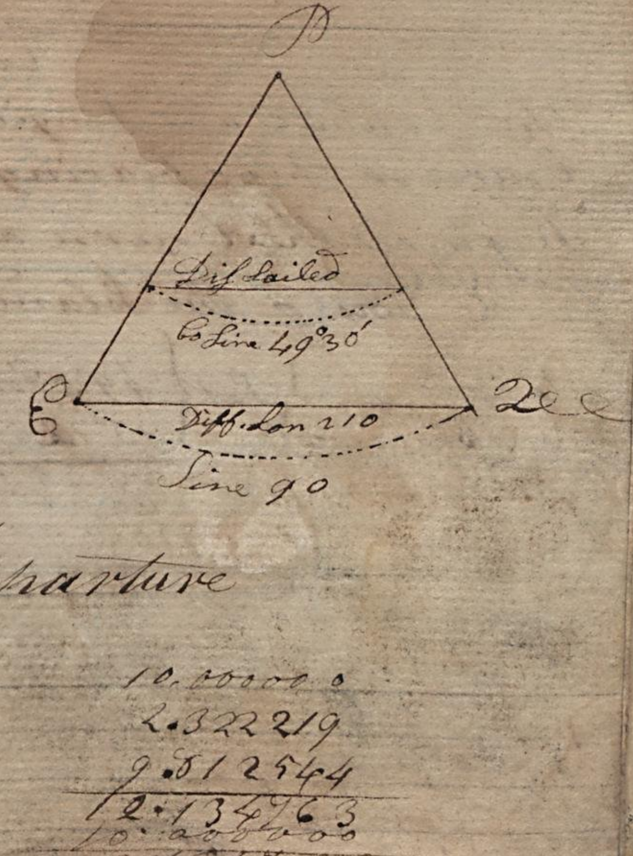
As the Sum of the Sides A C and A D	30,66	1.48657
Is to their Difference	1,96	0.29226
So is the Tang of ½ the Sum of Angles D and C	63°,14'	10.29816
To the Tang of ½ their Difference 7°.14'		10.59042
		1.48657
		9.10385

Then 63°17' added to 7°31, the 70°31' the greater Angle D and 63°17'-7°14'-56°3' the Angle C.
Now the Angle D 70°14' added to 22°30' the Angle contained between the N N W. Line A D and the Meridian, gives 93°1' which being more than a Right Angle, shews that D bears from C W 3°1' Southerly and consequently C bears from D East 3°1' Notherly.

Middle Latitude Sailing. April 11th 1810

Problem 1st.

The Diff of Longitude between two Places both in one Parallel of Latitude being given, to find, the Distance between them.
Suppose a Ship in the Latitude 49°30' N or S. Sails directly E. or W. until her Difference of Longitude be 3°30'. and the Distan Sailed be required.



To find the Departure

As Radius	90°	10.00000
Is to the Diff of Longitude	210.	2.322219
So is Co-sine Latitude	49°30'	9.812544
To the Departure	136.4	12.134763
		10.00000
		2.134763

Middle Latitude sailing Continued April 18th 1810

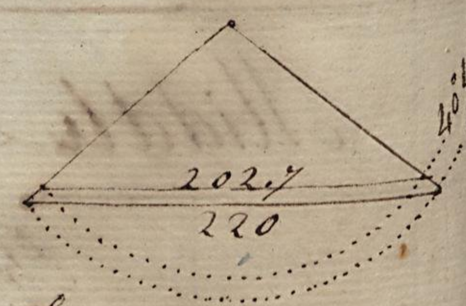
Suppose a Ship in Lat 49°30' N or S. Sails directly E or W. 136.4 Miles and her Diff of Lon be required.

As Cosine of Lat	49°30'	9.812544
Is to the Distance	136.4	2.134814
So is Radius	90°	10.000000
		12.134814
To the Diff of Lon	210	9.812544
		2.322270

Problem 2.

Suppose two Ships in the Latitude 45° N. Distance 220 Miles sail both directly North 260 Miles and if it be required to find their distance asunder.

By Calculation.



As the Cosine of Lat sailed from	45°	9.849485
Is to their Distance asunder	220.	2.342423
So is the Cosine of the Lat Come to	49°20'	9.814029
To the Distance required	202.7	12.156442
		9.849485
		2.306967

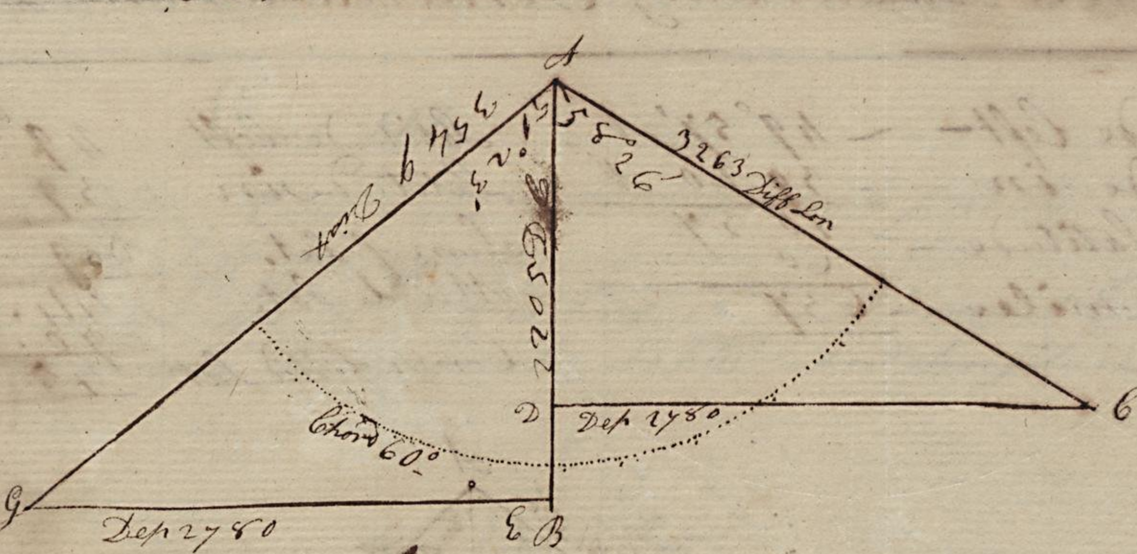
Case 1

The Latitude and Longitude of two places given, to find the Course or their bearing and Distance.

Required the Course and Distance from the Lizard to the E End of the Island of Barbadoes?

Lizard	Lat	49°57' N.	49°57'		Long.	5°14' W.
E. End Barbadoes		13°12' N.	13°12'			59°37' W.
Diff of Latitude		36°45'	S. Lat 63°09'		Diff Lon.	54°23'
		60	M. Lat 31°34'			60
In Miles		2205	90°00'			
	Comp. Mid. Lat		58°26'		In Miles	3263

Continued. April 20th 1810.



To find the Dep it will be,

As Radius	.......90°	10.000000
Is to the Diff of Long	.3263	3.513627
So is the Cosine Mid Lat	31°34	9.930466
		13.444083
To the Departure	...2780	10.000000
		3.444083

To find the Course

As the Diff of Lat	2205	3.343409
Is to Radius	90°	10.000000
So is the Dep	2780	3.444045
		13.444045
To the Tang of Cou	51°35'	3.343409
		10.100636

To find the Distance

As Radius	90°	10.000000
Is to the Dif Lat	2205	3.343409
So is the Secant Cou	51°35'	10.206646
		13.550055
		10.000000
To the Distance	3549	3.550055

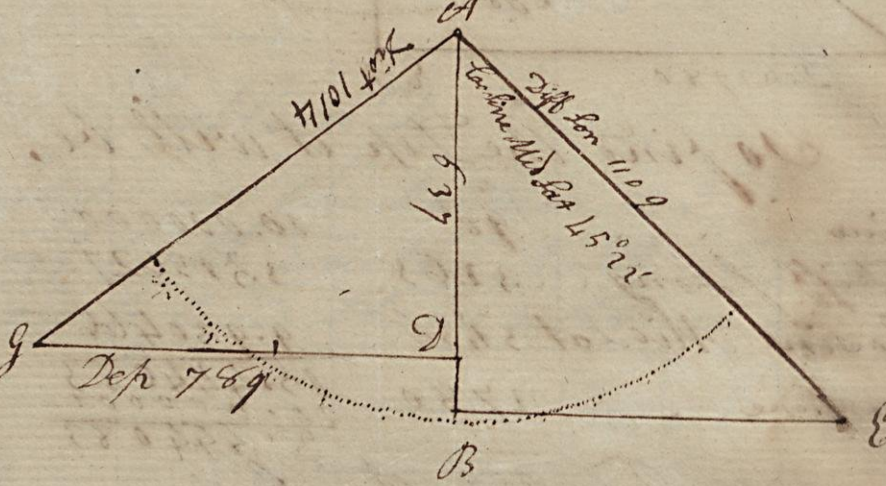
Case 2

Both Latitudes and Departure from the Meridian given to find the Course and Distance and Diff of Longitude. A Ship in Latitude 49° 57' N and Longitude 5° 24' W Sails Southwesterly till her Dep is 789 Miles and she be in Latitude 39°20' N. I demand the Cours Distance and and Longitudes she is in?

Middle Latitude Sailing Continued April 21st 1810.

Latitude left —	49° 57' N
Latitude in —	39 20 N
Diff of Latitude —	10 37
	60
In miles —	637

Latitude left	49° 57' N
Latitude in	39 20 N
Sum of lat.	89 17 N
Middle lat.	44.38
	90.00
Comp of Mid Lat	45 22



To find the Course

As the Diff of Lat	637	2.804148
Is to Radius	90°	10.000000
So is Dep	789	2.897087
		12.897087
To the Course Tan	51° 5'	2.804148
		10.092949

To find the Distance.

As the Sine Course 51° 5	9.891013
Is to the Dep. 789	2.897087
So is ~~the~~ Radius 90°	10.000000
	12.897087
	9.891013
To the Distance 1014	3.006074

To find the Diff of Lon

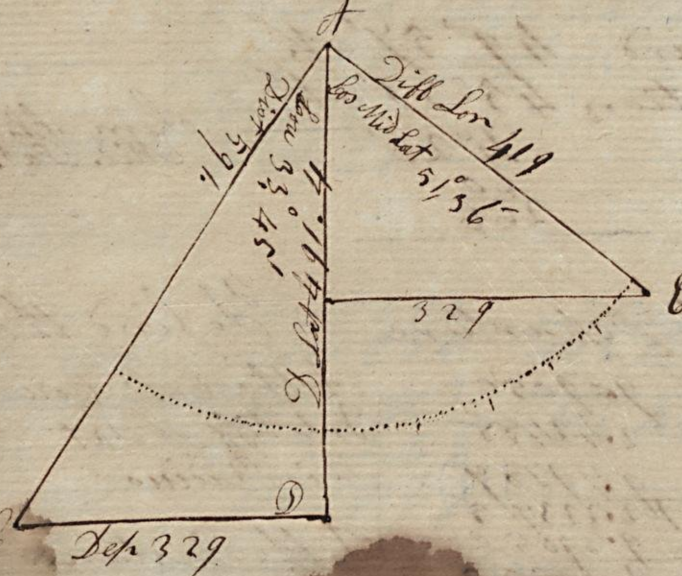
As Co-Sine Middle Latitude	44° 38'	9.852257
Is to Dep	789.	2.897087
So is Radius	90°	10.000000
		12.897087
		9.852257
To Diff of Longitude	1109.	3.044830

Longitude Ship sailed from	5° 24 W
Diff Long 1109 Miles or	18 29 W
Longitude in	23 53 W

Continued April 23d 1810.

Case 17th.

One Latitude, Course and Distance given, to find the Diff of Latitude and Diff of Longitude.
A Ship in Lat 42°30' N and Long 18°31' W sails S E by S 591 Miles or 197 Leagues, I demand the Latitude and Longitude the Ship is in?



Lat. left	42°30' N		Long. left	18°31' W
Diff. of Lat.	8 11 S		Diff of Long.	6°59' E
Lat in	34°19' N		Long. in	11°32' W
Lat Left	42 30			
Sum	76 49			
Mid. Lat.	38 24			

To find the Diff of Lat.			To find the Departure		
As Radius	90°	10.000000	As Radius	90	10.000000
Is to the Distance	591.	2.771597	Is to the Dist	591.	2.771597
So is the Co Si Cou	33°45'	9.919856	So is the Si Cou	3 pt	9.744749
		12.691443			12.516336
To the Diff. of Lat.	491.	10.000000	To the Dep	328.3	10.000000
		2.691443			2.516336

To find the Diff of Long

As Co Si ne Mid. Lat.	38°24'	9.89415
Is to Dep	328.3	2.51627
So is Radius	90°	10.00000
		12.51627
To Diff of Long	419.	9.89415
		2.62212

The Ship is in Lat 34°19' N and Long 11°32' W.

Midle Latitude Sailing Continued April 24th 1810

Case 4th

Course and Diff. of Lat. given to find the Dep. Distance and Diff. of Long.

Suppose a Ship sailing from the Lizard, makes when the Variation Lee way, &c are allowed for her Course S 39° W or S W by S ½ W and then by Observation is in Lat 45°31' N What is her Distance run and Long in?

Lat. of the Lizard	49°57' N.		49°57' N.
Lat. by Observation	45°31' N.		45.31 N.
Diff. of Latitude	4°26'	Sum of Latitudes	95.28
	60	Mid. Lat.	47.44
In Miles	266		

To find the Departure

As the Co Si Cou	39°	9.89050
Is to Diff Lat	266	2.42488
So is Si Cou	39°	9.79887
		12.22375
		9.89050
To Dep	215.4	2.33325

To find the Distance

As the Co Si Cou	39°	9.89050
Is to Diff of Lat	266	2.42488
So is Radius	90°	10.00000
		12.42488
		9.89050
To the Distance	342.3	2.53438

To find the Diff of Long

As Co Si Middle Lat	47°44'	9.82774
Is to the Dep	215.4	2.33325
So is Radius	90°	10.00000
		12.33325
		9.82774
To the Diff of Lon	320.3	2.50551

To find the Long in

Lizard's Long	5°14' W
Diff of Long 320 Miles	5°20' W
Longitude in	10°34' W

The Dist is 342.3 Diff Long 320.3 Long in 10°34' Dep 215.4

Case 5th

Suppose a Ship runs 300 Miles N Westerly from a port in 37° N Lat and Long 10°25' W until she be in Lat 41° N what is her Course and Longitude in?

60)232(3 52

Lat Left	37° N	37 N	Long left	10°25' W
Lat in	41° N	41 N	Diff of Long	3°52' W
Diff of Lat	4	Sum of Lat 78	Long in	14°17' W
	60			
In Miles	240	Mid Lat 39		

To find the Course

As the Dist	300	2.47712
Is to Radius	90°	10.00000
So is the D Lat	240	2.38021
		12.38021
		2.47712
To the Co Si Cou	36°52'	9.90309

To find the Diff of Long

As Co Si Middle Lat	39	9.89050
Is to Tang Course	36°52'	9.87501
So is Diff Sat	240	2.38021
		12.25522
		9.89050
To the Diff of Long	231.8	2.364

Continued. April 25th 1810.

A Ship in Lat 49° 30' N and Long 14° 40' W Sails S.E ward 645 Miles until her Depart from the Meridian be 500 Miles; I demand the Course Latitude and Long she is in

To find the Course

As the Distance 645	2.80956	Lat. left is	49° 30' N
Is to Radius 90°	10.00000	Diff. of Lat 407 or	6. 47 S
So is the Depart 500	2.69897	Lat in	42. 43 N
	12.69897		
	2.80956		
To the Sine Course 50° 56'	9.88941		

To find the Diff. of Lat.

As Radius 90	10.00000	Lat Left	49° 30'
Is to the Distance 645	2.80956	Lat. in	42. 43
So is the Cosine Course 50° 56'	9.80043	Sum is	2) 92. 13
	12.60999	Mid. Lat.	46°. 6'
	10.00000		
To the Diff. of Lat. 407.3	2.60999		

To find the Diff of Long.

As Co Si Mid. Lat. 46.6	9.84098	Long. left	14° 40'
Is to the Dep. 500	2.69897	Diff. of Long 721 or	12°. 1'
So is Radius 90°	10.00000	Long. in	2°. 39'
	12.69897		
	9.84098		
To the Diff of Long. 721.1	2.85799		

Mercator Sailing.

Case 1.

The Latitudes and Longitudes of two Places given to find the Direct Course and Distance between them.

What is the Course and Distance from the Lizard to the East part of Barbadoes?

Lizard Lat.	49°57′ N.	Mer. Parts 3470	Long.	5°14′ W.
Barbadoes Lat.	13°12′ N.	Mer. Part 799	Long.	59°37′ W.
Difference	36°45′ = 2205	M. Diff. 2671	Diff	54°23′ = 3263 M.

To find the Course

As Mer. Diff. of Lat.	2671	3.42667
Is to Radius	90°	10.00000
So is Diff. of Long.	3263	3.51362
		13.51362
		3.42667
To the Tang. of Cou.	50°42	10.08695

To find the Distance

As Co Si. Cou.	50°42′	9.80166
Is to P. Diff of Lat.	2205	3.34341
So is Radius	90°	10.00000
		13.34341
		9.80166
To the Distance	3481.	3.54175

Whence the Direct Course from the Lizard to the Barbadoes is S 50°42′ W. or nearly S W by W ½ W. Distance 3481 M.

John Doming. Easthampton. April 27th 1810.

Continued April 28th 1806

Case 2d.

Both Latitudes and the Dep from the Meridian given to find the Course Distance and Diff of Long.

A Ship in Lat. 49°57' N and Long 5°14' W, sails S. Westward until her Depart. from the Meridian be 789 Miles and then by Observation is in the Lat. 39°20' N required her Course steered Dist. run, and Long. in?

Lat. left	49° 57'	Merid. parts 3470	
Lat. in	39 20	Merid. parts 2571	
Diff. of Lat.	10 37	= 637	M. Diff 899

To find the Course

As the Pr Diff. of Lat	637	2.80414
Is to Radius	90°	10.00000
So is the Dep.	789	2.89708
To Tang. Cou.	51°	12.89705
		2.80414
		10.09294

As Radius	90°	10.00000
Is to Mer. Diff. Lat.	899	2.95376
So is Tan. Cou.	51°	10.09294
		13.04668
		13.04668
To Diff. of Long.	1114	3.04668

Mercator Sailing Continued May 4th 1800

As Radius 90° 10.00000
Is to Diff. of Lat. 637 2.80414
So is Tan. Cou. 51° 5° 10.20191
13.00605
10.00000
To the Distance 1014 3.00605

Long. left 5° 14 W
Diff. of Long. 1114 = 18 34 W
Long. in 23° 48 W

Her Course is S. 51° 5 W and
Dist. 1014 Miles

Case 3.

Both Latitudes and Course given to find the Distance and Difference of Longitude.

A Ship from the Lizard makes her Course S. 39° W. and then by Observation is in Lat 45°31' N. Req.d her Dist. run and Longitude in?

Lat. of the Lizard 49°57' N Mer. Parts 3470
Lat. by Observation 45°31' N Mer. Parts 3074
Diff. 4.26 = 266 M. Diff. 396 M.

As the Co Si Cou 39° 9.89050
Is to the Diff. of Lat 266 2.42488
So is the Radius 90° 10.00000
12.42488
9.89050
To the Dist. 342.3 2.53438

As Co Si Cou 39° 9.89050
Is to Mer. Diff. of Lat. 396 2.59770
So is Course 39° 9.79887
12.39657
To the Diff. of Long 320.7 9.89050
2.50607

Longitude left 5°14 W
Diff. of Long 5°21 W
Longitude in 10°35 W

John Dominy. Easthampton. June 6th 1800.

Continued June 6th 1810.

Case 4.

One Latitude, Course, and Distance given to find the Diff. of Latitude, and Difference of Longitude,?

A Ship in Latitude 42°30' N. and Longitude 18°31' W. Sails S. W. by S. 591 Miles. I demand the Latitude and Longitude the Ship is in?

To find the Diff. of Lat.

As Radius	90	10.00000	
Is to the Dist.	591	2.77159	
So is Co Si. Cou.	33°45'	9.91985	
		1269 1 44	
		10.00000	
To Diff. of Lat.	491.4	2.69144	

Lat. left	42°30	M. Parts	2822
Diff. Lat.	8.11		2194
Lat. in	34.19	M. Diff. Lat.	628

To find Diff. of Long.

As Co Si. Cou	3 pts	9.91985	
Is to the M. Diff. Lat.	628	2.79796	
So is T. Cou.	3 pts	9.74474	
		12.54270	
		9.91985	
To M.s Di. Long.	419.6	2.62285	

Lon. left	18°31' W
Di. Lon. E	7°0' W
Long in	25°31' W

Case 5.

Both Latitudes and Dist. given to find the Cou. and Diff. of Lon.

If a Ship runs 300 Miles N. W. from a port in Lat. 37° N and Long. 10°25' W. until she be in Lat. 41 N. Required the Course steered and Long. in?

Lat. left	37 N.	M. Parts	2393
Lat. in	41 N.	M. Parts	2702
Diff.	4 = 240	M. Diff.	309 M.

As the Dist.	300	2.47712
Is to Radius	90°	10.00000
So is Diff. Lat.	240	2.38021
		12.38021
		2.47712
To Co Si. Cou.	36°52'	9.90309

Long. left		10°35
Diff. of Long.	231	3°51
Long. in		14°16 W

As Co Si. Cou.	36°52	9.90317
Is to the M. D. Lat.	309	12.48996
So is T. Cou.	36°52	9.87482
		12.26899
		9.90317
To M.s Diff. Long.	231.7	2.36497

Mercator Sailing Continued. June 7th 1810

Case 6th

One Latitude, Course, and Dep. given, to find the Distance, Diff. of Lattitude and Diff. of Long.

A Ship sails E.S.E. from a certain Port in Latitude 50°10' S. and Long. 10°16' E until her Depart from the Meridian be 957 Miles. I demand the Distance sailed, and the Lat. and Long. she is in?

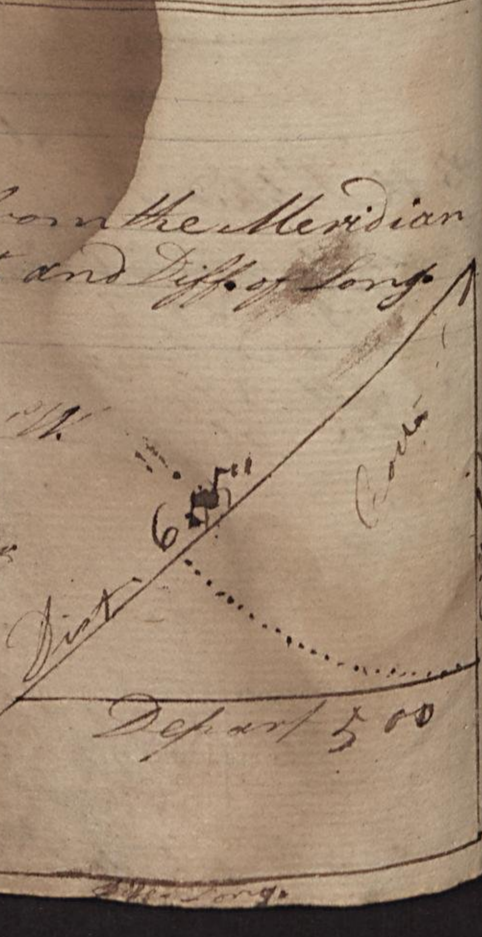
As the S. Cou. 6 Pts		9.96562	As S. Cou 6 Pts	9.96562
Is to Dep.	957	2.98091	Is to Dep 957	2.98091
So is Radius		10.00000	So is Co-Si. Cou. 6 Pts	9.58284
		12.98091		12.56375
		9.96562		9.96562
To the Dist.	1036	3.01529	To Diff. of Lat. 396 = 6°36'	2.59813

As Co-Si. Cou.	6 Pts	9.58284	Lat. left	50° 10' S.	M. Par. 3490
Is to M. Diff. of Lat.	667	2.82413	Lat. in	56 46 S.	M. Par. 4157
So is S. Cou.	6 Pts	9.96562	M. Diff.		667
		12.78975	Long. left		10°16' E
		9.58284	Diff. of Long.	1610	26 50 E
To Diff. of Lon.	1610	3.20691	Long. in		37° 6' E.

Case 7th

One Lat. Dist. sailed, and Dep. from the Meridian given to find the Cou. Diff. of Lat. and Diff. of Long.

A Ship in Lat. 49°30' N. and Long. 14°40' W. sailed East Ward 645 Miles, until her Dep. from the Merid. be 500 Miles. Req. the Course steered and the Lat. and Long. she is in?



Continued. June 13th 1810

To find the Course
As the Dist. 645 2.80956
Is to Radius 90° 10.00000
So is Dep. 500 2.69897
12.69897
2.80956
To S. Cou. 50°50' 9.88941

To find the Diff. of Long.
As Co. S. Cou. 50°50' 9.80043
Is to M. Diff. Lat. 588 2.76938
So is S. Cou. 50°50' 9.88948
12.65886
9.80043
To Diff. Long. 721.8 2.85843
1440
Long. in 2.38° W.

To find the Diff. of Lat.
As S. Cou. 50°50' 9.88948
Is to Dep. 500 2.69897
So is Co. S. Cou. 50°50' 9.80043
12.49940
9.88948
2.60992
To Diff. Lat. 407.3
= 6°47
Lat. left 49°30 N. M. Pts. 3428
Lat. in 42°43 N M. Pts. 2840
M. Diff. Lat. 588

Journal of a Voyage from London to Madeira,

In the Hamilton of London, A.B. Commander, kept by James Jameson, Mate.

Departure taken from the Lizard in Lat. 49°57 N. Long. 5°14 W.
Bound for Funchal, in Madeira in Lat. 32°38 N. Long. 17°5 W.
Bearing from the Lizard Point S. 27°1 W. Distance 1156 Miles

H	K	F	Courses	Winds	Lee Way	Remarks on Board Monday May 12 1810
2						These 24 Hours Moderate gales and fair Weather.
4						
6						At 6 P.M. the Lizard bore N.E. ¾ E. Dist. 6 Leags, from which I take my Dep. it being in the Lat. of 49°57 N. and Lon. 5°14 West of London
8	4		S.W. W ¾ W	N.E.		
10	4	5				
12	5					
2	5					Unbent the Cables and stowed Anchor
4	5	5	S.W. ¾ W			
6	5	5				Several Sail in sight standing to Westward
8	5	5				
10	5	5				Variation 2¼ Point Westerly.
12	6					

Course	Dist.	S	W	Lat. by D.R.	Lat. by Obs.	Mer. Di.	Diff. Lon.	Long. in	Bearing and Dist.
S 26° 30' W.	107	1°6	48	48.2 N.		0°48'	1°14'	6°28' W.	Ushant S. 80° 30 E. 54 M.

Continued. June, 27th 1810

Traverse Table					
Courses.	Dist.	N.	S.	E.	W.
S½E	16	17.9	17.9	1.8	
SWbS½W	37		28.6		23.5
SSW½W	56		49.4		26.4
			95.9		49.9
					1.8
					48.1

Now to Diff. of Lat. 95.9 S. and Dep. 48.1 W. the Course is S. 26° 30' W. Dist. 107 Miles; then Lat. Sailed from, or Lizards

Lat. 49°57' N	49° 57' N
Diff. of Lat.	1° 36 S
Lat. in or Ships Lat	48 21 N
Sum of Lats.	98° 18'
Mid. Lat.	49 09
Com. of Mid. Lat.	40 51

Then with this Comp. of Mid. Lat 40°51' or 41° found as a Course among the Degrees and the Dep. 48.1 in its column in the Dist. Col. Stands 74 which is Diff. of Lon. Or with the Course 26° 30 and Mer Diff. of Lat 147 the Diff. of Long. is found to be nearly 74 by Mercators Sailing

Long. Sailed from or Lizards Long.	5° 14 W	This being the first Day since leaving the Land the Diff. of Long. is the Mer. Dist.
Diff. of Long. 74 Miles	1° 14 W	
Long. in or Ships Long	6 28 W	

To find the Bearings and Dist. of Ushant.

Lat. in	48° 21' N.	Mer. Parts	3323	Long in	6° 28' W
Ushants Lat.	48 30 N	Mer. Parts	3337	Ush. Long.	5 5 W
Diff. of Lat.	9	Mer. Diff. of Lat.	14	Diff. Long	1° 23

With the Mer. Diff. of Lat. and Diff. Long. Ushant is found to bear N. 80° 26' E. and with that Bearing taken as a Course, and the proper Diff. of Lat. the Dist. is found 54 Miles.

H.	K.	F.	Courses.	Winds.	Lee way	Remarks on board, Monday, May 12th 1810
2	6		SW b W ¾ W	N.		These 24 hours moderate gales and
4	5	5		N. W.		Cloudy weather.
6	5		SW ¾ W			At 4. P.M. Spoke the Charming
8	5					Nancy from Carolina, bound
10	3	6				to London.
12	3	4				
2	3	4				
4	4	5				
6	4	6	SW b S ¾ W	N b N.W.		
8	5					At 6 A.M. got the Bower anchors on the Gunnel, and unbent
10	4	5				the Cables and stowed them.
12	4					Variation 2¼ Point Westerly.

Course	Dist.	S.	W.	Lat. by D. R.	Lat. by Obs.	Mer. Dist.	Diff. Long.	Long. in	Bearings and Dist.
S. 30° W.	106	93	53	46.40		1° 41' W.	1° 19' W.	7° 49' W.	E. Integal S.80°26' E. Dist. 183 M.

Continued. June 30th 1810.

Courses.	Dist.	N.	S.	E.	W.
S.W.b S. 1/2 W.	43		33.2		27.3
S.S.W. 1/2 W.	39		34.4		18.4
S.b W. 1/2	27		25.8		7.8
		Diff. Lat.	93.4	Dep.	53.5

With the Diff. Lat. and Dep. the Course is found S. 30° 0' W. and the Dist. 106 Miles.

Diff. of Lat.	1° 33' S.		Mer. Parts
Lat. Left	48 21 N.		3323
Lat. in	46 48 N.		3185
Sum Lat.	95 09	Mer. D. Lat.	138
Mid. Lat.	47 34		
	90 00		
Com. Mid. Lat.	42 26		

The Diff. of Long. is found by Mercators or Middle Lat. Sailing to be 1° 19' W.

Yesterdays Long.	6 28 W.
Long. in	7 47 W.

To find the Bearings and Dist. of Cape Ortegal.

Lat. in	46° 48' N.	Mer. Parts	3185	Long. in	7° 47' W.
Cape's Lat.	43 46 N.	Mer. Parts	2926	Cape's Long.	7 36 W.
Diff. of Lat.	3 02 N.	Mer. Diff. Lat.	259	Diff. Long.	11
	60				
In Miles	182				

With the Meridional Diff. of Lat. and Diff. of Long. the Direct Course to Cape Ortegal is S. 2° 26' E. and with that Course and the proper Diff. of Lat. the Dist. is 183 Miles.

H	K	F	Courses	Winds	Lee Way	Remarks on Board Tuesday May 1?th 18..
2	2		S. W.	W.N.W.	0	These 24 Hours moderate
4	4					Gales and Clear Weather.
6	4					at 6 P.M. Saw a ship to the
8	4	4	S. W.b S.	W.b N.	1/2	westward.
10	4	5				Observed the Suns Mer. Alt. at
12	4	6				Noon 9 0
2	4	5				31 40
4	4		S.S.W.	W.	1	Zenith Dist. 58 20
6	4					Declination 17 30 N
8	4					Lat. 45 23 N
10	4					
12	4					Variation 1/2 Point Westerly

Course	Dist	Diff Lat	Dep.	Lat. by D. Ra	Lat. by Obs.	Mer. Dist.	Diff. of Long.	Long. in	Bearings and Dist.
S. 8 30' W.	97	96	14	45° 12'	45° 23'	53'	0 21	8. 01	C. Ortegal S. 10° 11' E. Dist. 99 Miles.

By allowing for Variation and Lee way the work will be as

Courses.	Dist.	N.	S.	E.	W.
S.S.W. 1/2 W.	24		21.2		11.3
S. b W.	36		35.3		7.0
S. 1/2 E.	40		39.8	3.9	
	Diff.	Lat.	96.3	3.9	18.3
					3.9
				Dep.	14.4

With the Diff. of Lat. and Dep. the Course is found S. 8° 30' W. and the Dist. 97 Miles.

Diff. Lat.	1° 36' S.		Mer. Parts	
Lat. Left	46 48 N.		3185	
Lat. in by D.R.	45 12 N.		3047	
Sum Lat.	92 00	Mer. Diff. Lat.	138	
Mid. Lat.	46 00			
	90 00			
Com. Mid. Lat.	44 00			

Long. Left	7° 47' W.
Diff. Long.	21 W.
Long. in by Account	8° 08'

by

(44)

Continued. July 5th 1810.

Here the Lat. by Obs. differing from the Lat. by Account I correct for the true Long. and as this is the first Obs. got since Leaving the Land I Correct by Case 1, as follows.

Liz. Lat.	49° 57' N.	Mer. Ps.	3470
Lat. by D. R.	45 12 N.	Mer. Ps.	3047
Mer. Diff. Lat. by Account			423
Liz. Long.	5° 14' W.		
Long. in by Account	8 8 W.		
Diff. of Long. by Account	2 54 W		
	60		
In Miles	174		
Liz. Lat.	49° 57' N.	M. Parts	3470
Obs. Lat.	45 23 N.	M. Parts	3063
Mer. Diff. Lat. by Obs.			407

With the Mer. Diff. of Lat. and Diff. of Long by Account the Ships Direct Course from the Lisard is found to be S. 22° 2' W. or S. 2 W. With that Course and the Mer. Diff. of Lat. by Obs. the Diff. of Long since Leaving the Lisard is found 167 Miles equal to 2° 47' W.

Liz. Long.	5 14 W.
Long. in	8 01

With the Course 22° 2' or 2 Ps. the proper Diff. of Lat. 274 Miles the true Mer. Dist. is found 113 Miles.

To find the Direct Cou. and Dist. to Cape Ortegal.

Lat. in.	45° 23' N.	Mer. Parts	3063	Long. in	8° 01' W.
Capes Lat.	43 46 N.	Mer. Parts	2926	Capes Long.	7 36 W.
Diff. Lat.	137	Mer. Diff.	137	Diff. Long.	25.

With the Mer. Diff. of Lat. and Diff. of Long. the Direct Cou. to C. Ortegal is found S. by E. and with that Course and the proper Diff. of Lat. 97 the Dist. is found to be 99 Miles.

H.	K.	F.	Courses.	Winds.	Lee Way.	Remarks on Board Wednesday May 4th 1810
2	3	5	S. b W. 3/4 W.	W.	1	These 24 hours moderate Gales and clear weather.
4	3	5				
6	3	5				At 8 P. M. set up mizen top mast Shrouds and back stays.
8	3					
10	3	5				
12	3					
2	3		S. b W.	W. b S.	1	
4	3					
6	3					
8	3					
10	3					
12	3					Variation 1 1/4 Point Westerly per Amplitude.

Course	Dis.	Diff. Lat.	Dep.	Lat. by D. R.	Lat. by Obs.	Mer. Dist.	Diff. of Long	Long. in	Bearings and Distance
S. 9 E.	76	75 S.	12 E.	44° 08'	1. 41	54 E.	17 E.	7° 44' W.	C. Ortegal S. 14° E. Dist. 23 Miles.

With the [illegible] Diff. of Lat. and Dep. the Course [illegible] 9° E. and the Dist. 76 [illegible] Diff. Lat. 1. 15. [illegible]

[illegible] 45 [illegible] 3063

44 [illegible]

Traverse Table.

Courses	Dist.	N.	S.	E.	W.
S. 1/2 E.	46		45.8	4.5	
S. b E. 1/4 E.	3.0		29.1	7.3	
	Diff. Lat.		74.9	118	Dep.

Continued. July 13th 1810.

Yesterdays Long. 8° 01' W.
Diff. Long. 17 E.
Long. in 7° 44' W.

This Days Dep. being subtracted from the Mer. Dist. of Yesterday gives 1° 41' the Mer. Dist. to-day.

To find the bearings and Dist. of Cape Ortegal

Lat. in	44° 8' N.	Mer. Parts	2957	Long. in	7° 44' W.
Capes Lat.	43 46 N.	Mer. Parts	2926	Capes Long.	7 36 W.
Diff. Lat.	22	Mer. Diff. Lat.	31	Diff. Long.	8

With the Mer. Diff. of Lat. and Diff. of Long. Cape Ortegal is found to bear S. 14° 28' E. and with that bearing taken as a Course and the Proper Diff. of Lat. the Dist. is found 23 Miles.

H	K	F	Courses	Winds	Lee Way	Remarks on board Thursday May 15 1810
2	3	5	W.	S.S. W.	3	These 24 Hours hard Gales
4	3	5				and squally with small
6	3	5				rain Handed the Fore and main
8	Lay to at	N. W. b N.		of N. b E.	5	Courses. At 8 P.M. saw a ship
10	Drift 1½	Mile per Hour		W.		to Windward with jury masts
12				W. b S.	5	up. Set the Courses close reef
2	Up	N.W. off North				ed – more moder[illegible]
4	Drift 1½	Mile per Hour				[illegible] topsails [illegible]
6			S. W.	N.W. b W. W.		
8	3					Variation 1¼ Point Westerly
10	5					
12	5					

Course	Dist	Diff. Lat.	W.	Lat. by D. R.	Lat. by Obs.	Mer. Dist.	Diff. of Long.	Long. in	Bearings and Distance
S. 81° 21' W.	25	4	25	44° 04'		[illegible]6	36	8° 20' W.	C. Finistere S. 28° 37' W. Dist. 82 Miles.

Taking the [illegible] points (Viz. N. b W. and N. N. W.) between the Point to which the ship comes up to and the Point she fell off to for the second and third Courses as taught in the rules for lying too and then allowing as before for Variation and Leeway the Traverse Table will stand as follows;

With the Diff. of Lat. and Dep. the Course is found S. 81 21 W. and the Dist. 25 Miles.

Diff. of Lat.	00° 04' S.	Mer. Parts		
Yest. Lat.	44° 08' N.	2957		
Lat. in	44 04 N.	2951		
Sum. Lat.	88 12	Mer. Dif. Lat. 6		
Mid. Lat.	44 6			
	90 00			
Com. Mid. Lat.	45 54			

A Traverse Table					
Courses	Dist.	N.	S.	E.	W.
W. N. W. ¼ W.	21	7.1			19.8
N. N. E. ¾ E.	9	7.7		4.6	
N. b E. ¾ E.	9	8.5		3.0	
S. S. W. ¼ W.	30		27.1		12.8
		23.3	27.1	7.6	32.6
			23.3		7.6
	Diff. Lat.	3.8	Dep.		25.0

The Dep. to day being added to the Mer. dist. [illegible] gives [illegible] the Mer. Dist. to day. With the Cou. and Mer. Diff. of Lat. the the Diff. of Long. is found by Mercator to be 37 Miles or with the Mid. Lat. and Dep. the Diff. of Long. is found by Mid. Lat. Sailing 36 Miles. W.

Continued. July 19th 1810

Diff. Long.	3 6 W.
Yest. Long.	7°44 W.
Long. in	8 20 W.

Here the Diff. of Long. found by Mid. Lat. differs considerably from that found by Mercator's Sailing but if the Mer. Parts were taken from a Table of Miles and Tenths it would agree nearer with Mid. Lat. Sailing; but in all Cases where the Course is so great, that the Diff. of Lat. is in Miles and Tenths, Mid. Lat. should be depended on.

To find the Bearings and Dist. of Cape Finisterre

Lat. in	44° 04' N.	Mer. Parts	2951	Long. in	8° 20' W.
Capes Lat.	42 52 N.	Mer. Parts	2852	Capes Long.	9 14 W.
Diff. Lat. 72 =	1 12	Mer. Diff. Lat.	99	Diff. Long.	54

With the Mer. Diff. of Lat. and Diff. of Long. Cape Finisterre is found to bear S. 28° 37' W. and with that bearing and the proper Diff. of Lat. the Dist. is found 82 Miles.

H	K	F	Courses.	Winds.	Lee Way.	Remarks on board Friday May 16th 1810
2				Calm.		The first 8 Hours calm and foggy.
4						
6						
8						
10	3	5	W.b.W.	S.	1	Fresh gales and Clear
12	4	4				
2	4	6				
4	4	8				
6	4	6				
8	4	8				A Current setting N.W.b.N. 1 Mile per Hour all Day.
10	4	8				
12	4	5				Variation 1½ Point Westerly.

Course.	Dist.	Diff. Lat.	Dep.	Lat. by D. R.	Lat. by Obs.	Mer. Dist.	Diff. of Long.	Long. in.	Bearings and Dist.
S.70°57'W. or 80°	54	15	83	43°49'	43°34'	5°19'	1°55'	10.2	C. Finisterre S.71°57'E. Distant 54 Miles.

The Variation and Lee Way being allowed on the Course steered, and the setting of the Current and its Drift in 24 Hours being made a Course and Dist. the work will be as follows:

With the Diff. of Lat. and Dep. the Course is found S. 69° 57' W. and the Dist. 64 Miles.

Diff. Lat.	0°14'.7 S.	Mer. Parts.	
Lat. left	44 04 N.		2951
Lat. in	43 49 N.		2931
Sum of Lat.	87 53	Mer. Diff. Lat.	20
Mid. Lat.	43 56		
	46 04		
Comp. Mid. Lat.	46 04		

Traverse Table					
Course.	Dist	N.	S.	E	W
N.W. ¼ W.	24	16.1			17.8
S.W.b.W. ¼ W.	52		30.6		65.1
		16.1	30.8	Dep.	82.9
			16.1		
	Diff. Lat.		14.7		

The Diff. of Long. is found by Mercator's Sailing 113 M. and by Mid. Lat. it is 115 M. equal to 1°55' W.
Long. left 8 19 W.
Long. in by Account 10 14 W.

Continued. July 19th 1810.

The Diff. of Long. found by Mid. Lat. still differs from that found by Mercators Sailing; the cause is the same as before and as the ship has made so great a Course we will still depend on Mid. Lat. — The Lat. by Obs. differing from the Lat. by Account I correct for the true Long. as follows it being three Days since I had an Observation before.

		Mer. Parts.
Last Obs. Lat.	45°23'N.	3063
Ship's Lat. by Acc.	43 49N.	2931
Mer. Diff. Lat. by Acc.		132
Ship's Long. at Last Obs.		8°1'W.
Ship's Long. by Acc. to-day.		10 14 W
Diff. Long. since Last Obs.		2 13 W
Last Obs. Lat. 45°23'N.		3063
Ship's Lat. by Obs. 43°34N.		2910
Mer. Diff. Lat. by Obs.		153

The Course found since Last Obs. 45°13' is of no farther use than to know what case to correct by. With the true Course since last Obs. 38°20' and the Proper Diff. of Lat. 109, the Dep. is 1°26' ... 3°19.

With the Mer. Diff. of Lat. by Account 132 and Diff. of Long. by Account 133 the Direct Cou. since the last Obs. is found S. 45°13'W. or 45° and the Dist. 187 Miles. — With that Dist. and the Mer. Diff. of Lat. by Obs. 153, the Diff. of Long. is found 108, this added to the Diff. of Long. by Account 133, gives 241 which divided by 2 gives the true Diff. of Long. since Last Obs. 121 M. nearly equal to

Long. in at Last Obs.	2°1W.
~~Long.~~	8 1W.
Long. in	10 2W.

To find the Bearings and Dist. of Cape Finistrre.

Lat. in	43°34	Mer. Parts	2010	Long. in	10°02'W.
Cape's Lat.	42 5[illegible]	Mer. Parts	2852	Cape's Long.	9 14W.
Diff. Lat.	4[illegible]	Mer. Diff. Lat.	58	Diff. Long.	48

With the Mer. Diff. of Lat. and Diff. of Long. the Direct Course to Cape Finistrre is found S. 39° 57' E. and with that Course and proper Diff. of Lat. the Dist. is found 54 Miles.

John Denny.

Easthampton

Continued. July 20th 1810.

H	K	F	Courses.	Winds	Lee Way	Remarks on Board Wednesday May 2d 1810
2	4	3	W.b.S.½W.	S.b.W.½W.	½	These 24 Hours moderate weather with rain.
4	4	5				
6	4	7				
8	5		W.S.W.½W.	S.½W.	½	
10	5	2				
12	5	3				
2	5	5	W.S.W.	S.	½	
4	5	5				
6	5					
8	5	4				
10	5		S.W.b.W.	S.b.E.	½	
12	4	5				Variation ¾ P. W. per: equal alt. of the Sun

Course.	Dist.	Diff. Lat.	Dep.	Lat. by D. R.	Lat. by Obs.	Mer. Dist.	Diff. of Long.	Long. in	Bearings and Dist.
S.65°W.	119	50.	108	35.52	35.46	9.05	2.13	17.36	Funchal S.7°14'E. Dist. 196 Miles.

With the Diff. of Lat. and Dep. the Cou. is S.68°10'W. and the Dist. 118.6 Miles

Traverse Table					
Courses.	Dist.	N.	S.	W.	E.
W.b.S.½W.	27		4.0	26.7	
W.S.W.½W.	31		10.4	29.2	
S.W.b.W.½W.	43		18.4	38.9	
S.W.¾W.	19		11.3	15.3	
			Diff. Lat. 44.1	Dep. 110.1	

Yest. Lat. 36°36'N.
Diff. of Lat. 44.1
Lat. by Acc. 35 52 N.

Yest. Lat. 36 36 N. M. Parts 2363
Obs. Lat. 35 46 N. M. Parts 2301
Diff. Lat. by Obs. 50 M. Diff. Lat. 62

Sum Lats 72 22
Mid Lat. 36.11
90.00

Com. Mid. Lat. 53 49

The Lat. by Obs. not agreeing with the Lat. by Acc. I correct as follows by Case 3d

With the Proper Diff. of Lat. by Obs. 50 and the Dist. 118.6 the true Course 65°4', and the Dep. 108 Miles nearly.
The Dep. 108 being added to the Mer. Dist. yest. gives 9 5 W. the Mer. Dist. today
With the Comp. of Mid. Lat. and Dep. or with the Cou. and Mer. Diff. of Lat. 62 the Diff. of Long. is found by Mid. Lat. or Mercator's Sailing to be 133 Miles = 2°13'W.
Diff.

Yest. Long. 15 23 W.
Long. in 17 36 W.

To find the Bearings and Dist. of Funchal in Madeira
Lat. in 35 46'N. M. Parts 2310 Long. in 17°36'W.
Funchal's Lat. 32 32 N. M. Parts 2066 Funchal's Long. 14 05 W.
Diff. Lat. 3 14 Mer. Diff. Lat. 244 Diff. Long. 3 31
With the Mer. Diff. of Lat. 244 and the Diff. of Long. 3 1, Funchal is found to bear S. 7° 14' E. and with that bearing taken as before and the proper Diff. of Lat. the Dist. is found 196 Miles

Continued July 21st 1810.

H	K	F	Courses	Winds	Lee Way	Remarks on board Thursday May 22d 1810
2	6	6	S.b.E. 1/2 E.	S.W.1/2 W.	1/2	These 24 Hours moderate gales and clear Weather.
4	6	8				
6	5	8				
8	5	8				
10	5		S.S.E.	S.W.	1/2	
12	5	2				
2	5	5				
4	5	5	S.S.E.1/2 E.	S.W.b.S.1/2 W.	1/2	
6	5	5				
8	5	5				
10	5	6	S.E.b.S.	S.W.b.S.	1/2	Variation 3/4 Point Westerly.
12	5	4				

Cours	Dist	Diff. Lat.	Dep.	Lat. by D. Re.	Lat. by Obs.	Mer. Dist.	Diff. long.	Long. in	Bearings and Dist.
S.35°30′E.	135	110	78	34.01	33.56	7.47	1.35	16°01	Funchal S.32° E. Dist. 99. Miles.

With the Diff. of Lat. and Dep. the Cou. is found S. 37 48′ E. and the Dist. 153 Miles.

Traverse Table.					
Courses.	Dist.	N.	S.	E.	W.
S.S.E. 3/4 E.	45		41.2	24.9	
S.E.b.S. 1/4 E.	31		24.9	18.5	
S.E.b.S. 3/4 E.	33		24.4	22.2	
S.E. 1/4 E.	22		14.8	16.3	
	Diff. Lat.		105.3	81.7	Dep.

Yest. Lat. 35° 46′ N.
Diff. of Lat. 1 45 S.
Lat. by Acc. 34 1 N.
Obs. Lat. 33° 56′ N. M. Parts 2167
Yest. Lat. 35 44 N. M. Parts 2301
Prop. Diff. Lat. Obs. 1 50 M. Dist. 134
Sum of Lat. 69 42
Mid. Lat. 34 51
90 00
Com. Mid. Lat. 55 09

The Lat. by Obs. differing from the Lat. by Acc., I correct as follows by Case 2.

With the Diff. of Lat. 110 and the Dist. 133, the Dep. is found to be 75, which being added to the former Dep. 82 gives 157, half this Sum is the true Dep. 78 Miles: With the Diff. of Lat. 110 and the Dep. 78, the true Course is found S. 35° 30′ E. and the Dist. 135 Miles.

The Dep. 78, being subtracted from the Mer. Dist. Yest., gives 7° 47′ W. the Mer. Dist. To-day.

The Diff. of Long. is found by Mercator or Mid. Lat. Sailing to be 1° 35′ E.

Yest. Long. 17 16 W.
Long. in 16 21 W.

To find the Bearings and Dist. of Funchal.

Lat. in 33° 56′ N. Mer. Parts 2167 Long. in 16° 01′ W.
Funchal Lat. 32 32 N. Mer. Parts 2066 Funchal Long. 17 05 W.
Diff. Lat. 1 24 Mer. Diff. of Lat. 101 Diff. of Long. 1 04

With the Mer. Diff. of Lat. and Diff. of Long., the direct Cou. to Funchal is S. 32° W. and with that Cou. and the Prop. Diff. of Lat. it is found 99 Miles.

Continued. July 21st

H	K	F	Courses	Winds	Lee Way	Remarks on Board Fryday May 28th 1810
2	5	1	S.3/4 W.	E.b.N.		Moderate Gales and hazy.
4	5		S.b.W.3/4 W.	E.		At 6 P.M. wore clear saw Porto Santo bear
6	4	9				ing N.W. About 7 or 8 leagues.
8	4	5				At 10 P.M. saw Funchal, bearing N.W.b.N.
10	4	4	S.S.W.1/4 W.	E.S.E.		1/4 W. Distant 15 Miles.
12	4	8				Clear weather.
2	5	2	S.W.3/4 W.	N.E.		At 10 P.M. came to Anchor off Funchal,
4	5	2				the Westernmost point W.b.N. the Loo
6	5	1				Rock North b.W. the brazen head E.b.S.
8	5					the Desertas from E. to S.E. Distant
10	4	4				about 4 Leagues.
12						Variation 3/4 Point.

Course.	Dist.	Diff. Lat. S.	Dep. W.	Lat. by D. R.	Lat. by Obs.	Mer. Dist.	Diff. Long.	Long. in.	Bearings and Dist.
S.32°W.	99	84	53	32°32′		8.40	1.4	17.5	Funchal N. 1 Mile.

Example III.

Field Booke.

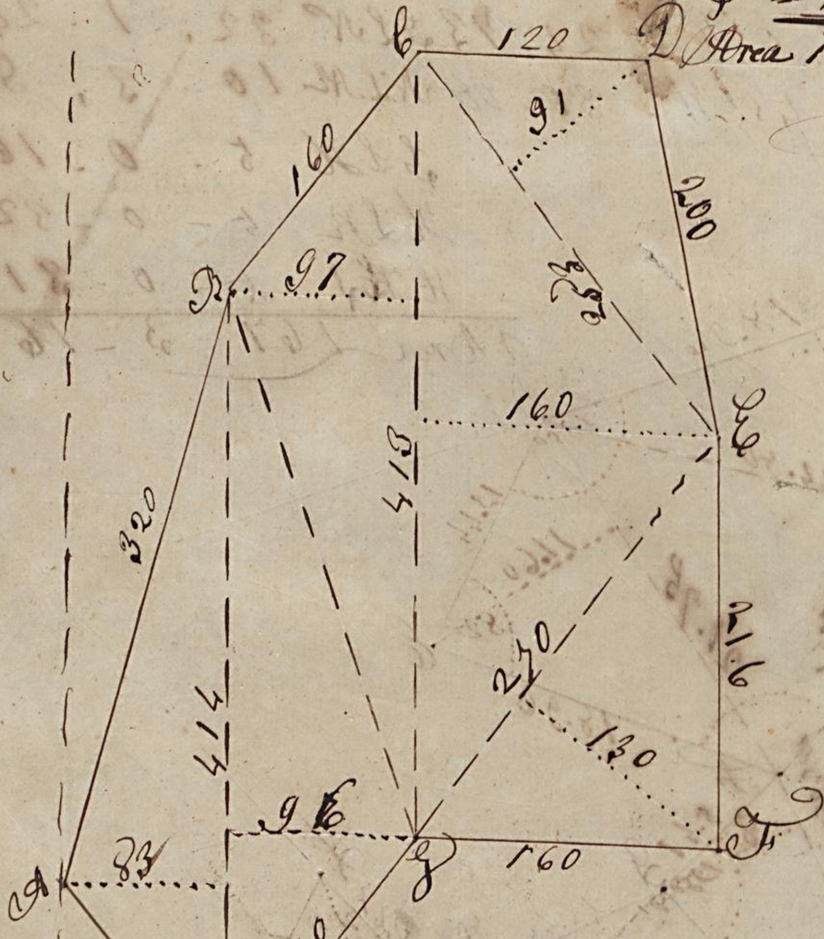
				Ch L
AB.	N.	36° 15'	E.	21.60
BC.	N.	26° 30'	E.	13.44
CD.	S.	71° 30'	E.	18.96
DE.	S.	26° 30'	E.	13.44
EF.	S.	71° 30'	W.	18.96
FG.	S.	45° 0'	E.	8.47
GH.	S.	63° 30'	E.	13.44
HI.	N.	45° 0'	E.	8.47
IK.	S.	26° 30'	E.	13.44
KL.	S.	45° 0'	W.	8.47
LM.	S.	63° 30'	W.	13.44
MN.	N.	76° 0'	W.	24.73
NA.	N.	36° 45'	W.	30.00

Triangles	acrs	roods	rds
ABN	33	2	27
BCD	12	1	27
DEF	12	2	18
BFD	18	0	32
BFN	22	0	3
FGN	10	0	38
GLN	32	1	24
NLM	10	3	8
GLH	5	0	16
HLK	5	0	32
HKI	5	0	31
Area	167	3	16

Example IV.
Field Book

		Rods
N°	15° 0'	E 320
N	37° 30'	E 160
East	0° 0'	120
S	11° '	E 200
South		216
West		160
S	36° 30'	W 160
N°	33° 15'	W 136

Triangles	Acres	Roods	Poles
ABH	107	1	21
BGH	124	0	32
GBC	123	0	30
CEG	206	2	0
CDE	71	3	31
EFG	109	2	30
Area	744	3	24



second the
[illegible] not
[illegible]

[illegible] missioners of the sinking fund must hav-
credit, having debited themselves for the
amount on hand at the commencement of
the year, will, after deducting [illegible] 1,387,6[illegible]

the 1st of Jan. 1803, to which [illegible] settled, between
timate refers, and the period the ex-
month. the third of the next
[illegible] these bills moreover being appli[illegible]

[illegible] very ably argued at the [illegible], on the side of
In rendering the opinion of the bar.—
will be [illegible] of the court, there
not [illegible] in form, though not
[illegible] the points [illegible]
In the o[illegible]

The Spectator.

NEW-YORK, WEDNESDAY, MARCH 30, 1803. [NUMBER 591.

DEBATE ... Representatives of the United States ... to institute an in... Commissioners of ...

...nesday, March 2.

applicable to the payment of the Dutch debt falling due in the year 1802, after deducting the guilders on hand at the close of the year 1801, which were applicable to the payment of the debt falling due in that year 1802. This excess amounting to more than 3,600,000 guilders, for which the commissioners of the sinking fund must have credit, having debited themselves for the amount on hand at the commencement of the year, will ...

upon estimate. The report was dated on the third of February, 1803, purchases had been made from Savannah to Portland, and could it be expected that all the accounts of the agents for making those purchases were ... received, much less settled, between the 1st of Jan. 1803, to which period the estimate refers, and the third of the month ...

...ples on which the opinion to be given by the court, is founded.

These principles have been, on the side of the applicant, very ably argued at the bar. In rendering the opinion of the court, there will be ... form, though not ...

Her's is the ...
Her's is the censure, justly thine ...
The polish'd form, the air of graceful ease,
The wit refin'd and converse skill'd to please;
These maid, are thine, in modest light display'd,
Nor affectation dares a charm to shade.

Then view Belinda, in her native air,
Drawn a first emblem of the courtly fair;
Before the idol glass, survey her toil,
T'adjust a ringlet or assume a smile;
Array'd in glit'ring gems, behold her rise,
The gaze and wonder of a thousand eyes,
And issue forth in beauty's borrow'd pride,
Her train of beaus attending at her side;
See her at ombre seated next in state,
And watch the various turns of doubtful fate;
See all the furies cloud her dismal face,
Till falls her king, in vengence on the ace.

The tea-cups rattle—soon the board is crown'd
The shining train the sumptuous board surround
Belinda, heedless of the turns of chance,
Beams the soft smile and deals the deathful glance;
Too thoughtless maid!—the Lock that hung behind,
Clasp'd her fair neck, or wanton'd in the wind.
See the rude Baron, in a breath, invade,
And crop forever, from the beautious head!
Ah wretched fair! her shriek assails the skies;
She faints!—the shaddows darken o'er her eyes;
While nimble beaus assert the generous strife,
Raise her fall'n head and call her back to life.
The Sylphs meantime, fit emblems of her heart,
In sad despair, their favorite maid desert,
Light mount with feeble cry, the yielding air,
And bid a last adieu to Briltan's fair.

Such were the scenes, the swain of Twitnam sung,
While listening nymphs on every accent hung.
Still may the song, while courtly follies rage,

---

nor ... appression, or tyranny ... up to it as the mercy seat of Royalty, as the sanctuary of truth and justice.

"Still my Lord, we cannot blot from our minds the records of our school-books; nor erase the early inscriptions written on the first pages of our intellects and memories.—Hence we must be mindful that the mercy seat of Royalty, and the sanctuary of justice have been polluted by a Tressilian, Scroggs: and a Jefferies. [*Here a frown from the Bench.*] Nay, my lord, I am a poor man, but I am a free-born subject of the kingdom of Ireland, a member of the Constitution; nay, I am now *higher*, for I am a *representative* ... I therefore do claim for m... jurors, the liberty of speech ... refused it here I shall resume it before the people at the door of this Court House, and tell them why I deliver my mind there, instead of in this place.

[*Here the Bench resumed complacency.*]

"I say, my Lord, we have nothing to do with your private character; we know you here only in that of judge; and as such we should respect you; you know nothing of us but as a jury; and in that we should look to you for reciprocal respect, because we know of no man, however high his titles or his rank, in whom the law and the Constitution would warrant the presumption of an unprovoked insult towards that tribunal, in which they have vested the dearest and most valuable privilege they possess. I before said, my lord, that we are here met, not *individually*, nor do we assume pre-eminence; but in the sacred character of a *jury*, we should be wanting in reverence in the constitution itself, if we did not look to the respect of eve-

---

to the very ... more agree... weaver, but likewise more durable than when blacked with the blacking at present in common use; and the shoes that are blacked with it will neither soil the fingers in putting on or the stockings in wearing.

If the brushes have been used to the common blacking, they must be washed with soap and hot water and dried by the fire, otherwise it will spoil the shine.

Smith's Vegetable Rouge, for giving a natural color to the complexion; likewise, his Vegetable or Pearl Cosmetic, for immediately whitening the skin; these are choice articles, and should be found on every lady's toilet—2, 4 and 8s. each.

His fine Cosmetic Cold Cream, for taking off all kinds of roughness, and leaving the skin smooth and comfortable—3 and 4s. per pot.

Smith's Almond Powder, for washing and cleaning the skin, 5s. per lb.

All kinds of sweet-scented Waters and Essences, with every article necessary for the toilet, warranted.

Smith's Savonnette Royal Paste, for washing the skin, making it smooth, delicate and fair, to be had only as above, with directions, 4 and 8s. per pot.

Smith's Circassia Oil, for glossing and keeping the hair in curl.

His highly improved Chemical Milk of Roses, so well known for clearing the skin from scurf, pimples, redness or sun-burns, has not its equal for whitening and preserving the skin to extreme old age, and is very fine for gentlemen to use after shaving—with printed directions—3s. 6d. 6s. and 12s. per bottle, or 3 dollars per quart.

Ladies and gentlemen will please to notice, that Smith's improved Chymical Milk of Roses is the only efficacious wash that can be depended on for its innocence and safety, warranted; I have none of those pernicious or corrosive qualities which too often form a part of that trash termed "Lotions for the Skin," and which will ever end in the destruction thereof, if not the constitution also.

Smith's superfine white Hair-Powder, 1s. per lb. warranted.

His beautiful Rose Powder, 2s. 6d. do.

... TO HEALTH, or Ad... nervous and Consumptive ... ers liable to be impru... ntaining an essay on ... Seminal Weakness, ... private nature, an Ad... Tutors, and the ... cation of Youths with a ... s, never before inserted in ... n's Guide to Health.

ANTI-IMPETIGINES, the long ... ly for all stages of the Venereal ... ten mercury or antimony, nitrous and ... medicines, so fashionable of late, prove ... The Anti-Impetigines being founded on chemical and philosophical basis, proves of the highest utility in all cases of depraved habit with affections of the skin; hence its efficacy in cases of Scurvy, Scrofula or Leprosy, as well as the confirmed Lues, and hence by its sanative power it expels the virus out of the system and restores it to convalescence, when impaired by disease or the deleterious preparations of mercury, antimony, aquafortis.

The above medicines are offered for sale by R. Bach & Co. sign of the Phoenix, No. 128 Pearl street; J and M Paff, No. 127 Broadway; and Samuel Dexter, Druggist, Albany.

June 7 6t

LEFT the parish of Kinloss in Morayshire in Scotland, and came to America, in the year 1783, JAMES GRAY and his family. He is said to have come to New York or Philadelphia, as he had then two brothers in the British artillery at New York; but the peace, which about that time took place, prevented him from meeting them.—His brother, Robert Gray, is now in America, and through the channel of the Spectator may come to the knowledge of his family. Should James Gray be living, it will be very much to his advantage to write to his brother, or if possible visit him. Any person who may have known ... Gray, or some branch of his family ... information respecting him and his family, will confer a distinguished favor, by writing to Robert Gray

Letter to be directed as follows:

ROBERT GRAY,
Sergeant in the Royal Artillery at Isle aux Noix, Lower Canada.

COPARTNERSHIP.

JOHN GRENELL & JOSEPH SQUIRE, jun. have commenced business under the firm of GRENELL and SQUIRE, and offer for Sale, at No. 3 Burling-Slip, a general assortment of INDIA GOODS, by the bale or piece.

New-York, 30th March, 1803.—Sp 2m

TO BE SOLD,

FOUR FARMS ...

... of Gilead, though many remedies ... the faculty, as well as those advertised ... My spouse also derived ... and several of the first ... of Bristol have declared ... of their health solely to this valuable restorative. I therefore ... generally known.

D PHILLIPS B A.

...ly, an entire new edition

100 lb do. powder
1000 lb Manna Flake
1000 lb do. sorts
600 lb Cantharides
500 lb Antimony
600 lb Camphire
150 lb Opium
500 lb Assafoetida
500 lb Ceylon Cinnamon
300 lb cloves, 200 lb mace
300 lb Nutmegs
2000 lb Lignum Quass.
100 dozen choice Castor ...
... Terra ...
... Rosar
25 lb Flor. Chamomile
Alum
25 lb Ol. Menth. pip
25 lb Ol. Cinnamon
100 lb Ol. Juniper
100 lb Ol. Origani
100 lb Ol. Succinum
200 lb Essence of Orange
100 lb Ol. Anthos
100 lb Gum Benzoin
100 lb Frankincense
100 lb Rad. Jalap
500 lb powdered do.
500 lb Rad. Rhei
250 lb Cort. Peruv. Flava
500 lb Liquorice Ball
2000 lb Cort. Peruv. Rubr
1000 lb powdered do.
56 lb Uvi Ursi
200 lb Gum Sandrac
150 lb Balsam Capivi
50 lb Gum Styrax Calam
150 lb Merc Precep Rub
25 lb —— Alb
75 lb —— Corrosive Sublim
200 lb Sarsaparilla, Hispan.
150 lb Centauri Min.
15 lb Extract Cort. Peruv.
10 lb —— Catharctic
20 lb —— Gentian
200 lb Argent Vivum
100 lb Terra Japonica
125 large pint Syringes, in separate boxes

Also, Shop Furniture, Vials, and a large and general assortment of fresh imported PATENT, GLASS and SURGEON'S INSTRUMENTS, MEDICINE CHESTS of various sizes for ships, with approved directions; and every article in the Drug Line will be sold low for cash or credit.

Orders from the Country or West-Indies executed with care and dispatch.

... 1500 lb Orpiment ... Aqua Fortis ... Nitri ... Oil Vitriol ... White Lead ... Litharge ... 6 tons Whiting ... Verdigrease ... 2 casks Rotten-stone ... 1000 lb Lapis Calaminaris ... 500 lb Black Lead ... 500 lb Curcuma ... 1 cask Dutch Pink ... Prussian Blue ... Pulvis Helebore ... Calomel ... Lemon ...

FOR SALE,

A VALUABLE FARM, lying in Fishkill, county of ... miles east of Fishkill-Landing ...

[illegible]		[illegible]	50
[illegible]		[illegible]0—	9
[illegible]		—	
[illegible]	lb.	22—	24
[illegible]	cwt.	10 —	
[illegible]	lb.	17—	
[illegible]		28—	30
[illegible]		—	none
[illegible]	bolt	12 50—	
		16 50—	22
		9 50—	10
[illegible]	sh.	14 —	14 25
		6 37—	6 50
		6 12—	6 75
		5 37—	6
		[illegible]	5 25
Rye,		3 —	3 25
Cod,	quin.	3 75—	4 25
Salmon,	bbl.	10 —	
Mackarel,	bbl.	6 —	6 75
Herrings,		3 —	4
[illegible] Beaver, north,	lb.	1 25—	2 87
[illegible]			
Holland 1st proof	Gall.	1 6—	
[illegible]ain,		—	
Wheat, N. R,h. (new)		1 25—	1 25
		66—	
Rye,		1 —	
Barley,		65—	
[illegible], North,			
[illegible]p, Russia,	ton,	275	—300
[illegible]	lb	10—	11
[illegible], Spanish		2 —	2 37
French,		2 50—	[illegible]
Carolina,		1 44—	[illegible] 50
[illegible]	ton	28	— 30
[illegible]		95	—100
[illegible] Refined,		100	—105
[illegible] Russia,		92 50—	97 50
[illegible], best		105	—110
[illegible]		210	—215
[illegible] oak,	M ft.	17 50—	
[illegible] Pine,		15 —	
[illegible] Boards, ps.		18—	19
[illegible] wh. oak. pip.	M.	65 —	
[illegible] hhd.		38[illegible] —	
[illegible]	bbl.	20 —	
[illegible] oak hhd.		23 75 —	
[illegible] new		25 —	30
[illegible], bay,	ton	55 —	
[illegible]der, soal,	lb.	20—	25
Molasses, Surrinam,	gal.	37—	40
Martinique,		35—	38
Havannah,		35—	37
Port-au-Prince,		33—	
[illegible], 10 to [illegible]d.	lb.	11 —	12
[illegible]	30 fts.	7 50—	8
[illegible]	[illegible]d.	1 37—	
[illegible]		45—	
[illegible]		95—	1

[illegible] cord was [illegible] circumstance [illegible] new [illegible] was, in all ass[illegible] to [illegible] and perplex any [illegible] faced [illegible] not been previou[illegible] by a select comm[illegible] How[illegible] easy then to take acceptions to [illegible] and to puzzle the house with long and calculations prepared for the occa[illegible] is not to be expected that he should [illegible] pany the gentleman from Connecticut [illegible] such a series of figures, nor could [illegible] done with any benefit to the house. [illegible] professed object of the gentleman is [illegible] ry. He has declared that he had no design to cast any imputation of misconduct on the commissioners of the sinking fund—[illegible] be hoped they would be able to give a sat[illegible] factory explanation of those points [illegible] he felt dissatisfied, and yet, said Mr. R. the observations of the gentleman would seem to be the effect of an unsatisfactory inquiry. If investigation alone were the object, where-fore delay until now? would not the regular and natural course of a substantial inquiry have been to move a resolution to that effect—to have instructed the committee of ways and means as to certain specific objects of investigation—and to have reserved observations which (whatever be their motive) do tend to impeach the conduct of administration, until the report of the committee should be made, in case it should prove unsatisfactory? The course which has been pursued, so far from leading to inquiry seemed eminently calculated to preclude, or to stifle it. A motion is brought forward on the eve of our dissolution, prefaced with observations as-[illegible] culated to excite much discussion, and to exhaust the little time that was left, and this inquiry instead of being confined to one or two facts embraced a great variety of intricate details.

Mr. R. said, that he would examine into some of the statements made respecting the application of the sum appropriated by the act of last session to the reduction of the debt. [illegible] evidence of the unaccounted balance of 114,000 some hundred dollars, stated by the gentleman, with the representations contained in a printed circular letter (of which he obtained a casual sight yesterday) addressed by a gentleman from North Carolina to his constituents; although the writer of the letter did and the gentleman from Connecticut did not give credit for the proceeds of the sale of the bank shares. [Here Mr. Griswold said that he was misunderstood—that in making out the balance of 114,000 dollars he had given credit for the bank stock.] Mr. R. [illegible] proceeded—[illegible]

[illegible] al ex[illegible] copy of [illegible] mentioned [illegible] easy it [illegible] found [illegible] had [illegible] settled [illegible] more [illegible] count, [illegible] icate [illegible] es. It [illegible]

dollars (exclusive of the proceeds of [illegible]) more than the commissioners were bound by law to pay.*

But the gentleman from Connecticut has said [illegible] no credit should be given in the year 1802, for any payments made in the year 1803. He would strike out therefore, the 3,600,000 guilders from which credit is taken since; according to him, credit may be as well taken for monies to be paid six years hence as during the next year—and yet he gives credit for the reimbursement of the 6 per cent and deferred stock, payable on the 1st January, 1803. Let not the house ascribe this to the generosity of the gentleman—he knew that if credit was not given for the eighth and second instalments of those stocks, payable on the 1st January, 1803, credit must be taken for the payment of the seventh and first instalments of those stocks respectively, and the last instalments of the subscription loan due the bank, paid the first January 1802, amounting to 160,000 dollars more than the sum which he has admitted. He knew that one or the other of those payments must be credited, and he has taken [illegible] lest, although upon his own principle, being payable in [illegible] 1803, it ought not to be admitted in advan[illegible]. An objection is however made to allowing credit for the guilders in advance for paying the Dutch debt falling due in the course of the present year. The gentleman seems to rely upon a construction which he gives the law of the last session, and contends that it was the duty of the commissioners to *pay* for interest and principal of the debt the whole amount of 7,300,000 *with*-in the year 1802. Out of what fund did he suppose the necessary advances were to be made for the Dutch debt falling due this year, if they were bound to pay the whole appropriation within the year 1802, and the purchase of bills to meet the debt in Holland in 1803 was not considered as a payment under the provision of the law. The gentleman knows, as does every member of the house, that provision must be made at least six months beforehand to meet that debt.—All our estimates tell us so; all the calculations of the treasury are bottomed upon it; [illegible] say so; at this time we are nine months in advance, and yet he would construe the law so as to prevent the commissioners from making the provision. The law explicitly directs them to make good the engagements of the public, in the first place, out of the appropriation, and the surplus, after having done so, is applicable at their discretion.—But upon his construction the public engagement would be broken, the commissioners would fail to perform a duty where no [illegible] left them, and [illegible]

[illegible] have been settled at the treasury, the exact sum cannot be stated—but although an estimate, it cannot properly be called a loose estimate as it has been termed.

With respect to the 114 thousand and some hundred dollars said to be unaccounted for, this must be "the sundry protested bills and of unexpended balances in the hands of agents" specified in the report.—So far from finding cause of surprise and suspicion at such an unaccounted balance, he was astonished that including protested bills and advances to agents, yet to be recovered or accounted for, so small a sum should appear unaccounted for, on the payment of 9,300,000 dollars, the sum disbursed, inclusive of the bank stock. The purchases of bills for government are the cashier of the several banks. Some of these institutions are precluded by their charters—the bank of the United States for example, from making any advance beyond a small amount to government, unless expressly authorised by a positive law. Advances must be made therefore to their cashiers, and although the money may remain in bank, which is effectively the public treasury although, substantially, not a dollar has been removed, yet lying at the order of the cashiers to enable them to make purchases from time to time, it is considered as *advances* to them.—Gentlemen have complained of the unfairness of considering any department as debtor to the amount of advance made to it, because the accounts have not been *settled*, although every shilling may have been fairly paid for the public service—yet this is what they are now doing.

Mr. R. said, that he had no doubt that the money stated to have been paid, had been actually disbursed, because he had all the evidence which the case admitted. When he read a law he could not undertake to answer that the printed copy corresponded, verbatim, with that passed by Congress. The committee of enrollment, and those who collated the printed laws, must be relied upon for that. But wishing to give every attainable satisfaction to the house and the public, he hoped the resolution would pass, and he gave notice that, in case it did meet [illegible] approbation of the [illegible], he should immediately move for leave for the committee of ways and means to sit during the sitting of the house, and, if granted, would convoke them immediately, that the chairman might put his hand to any letter which the mover of the resolution should devise, and that the secretary of the treasury might be enabled to furnish all the information attainable at this period.

[*Debate to be Continued.*]

[illegible] the opinion of the Supreme Court of the [illegible]

1st. [illegible] a right to the commission he [illegible]

2dly. If he has a right, and that right has been violated, do the laws of his country afford him a remedy?

3dly. If they do afford him a remedy, is it a Mandamus issuing from this court?

The first object of enquiry is,

1st. Has the applicant a right to the commission he demands?

His right originates in an act of Congress passed in F[illegible], concerning the district of Columbia.

After dividing the district into two counties, the 11th section of this law, enacts 'that there shall be appointed in and for each of the said counties, such number of discreet persons to be justices of the peace as the President of the United States, shall, from time to time, think expedient, to continue in office for five years.

It appears, from the affidavits, that in compliance with this law, a commission for William Marbury as a justice of peace for the county of Washington, was signed by John Adams, then President of the United States: after which the seal of the United States was affixed to it; but the commission has never reached the person for whom it was made out.

In order to determine whether he is intitled to this commission, it becomes necessary to enquire whether he has been appointed to the office. For if he has been appointed, the law continues him in office for five years: and he is entitled to the possession of those evidences of office, which, being completed, became his property.

The 2d section, of the 2d article of the Constitution, declares, that 'the President shall nominate, and, by and with the advice and consent of the Senate, shall appoint ambassadors, other public ministers and consuls, and all other officers of the United States, whose appointments are not otherwise provided for.'

The 3d section, declares, that 'he shall commission all the officers of the United States.'

An Act of Congress, directs the Secretary of State, to keep the seal of the United States, 'to make out and record, and affix the said seal to all civil commissions to officers of the United States, to be appointed by the President, by and with the consent of the Senate, or by the President alone; provided that the said seal shall not be affixed to any commission before the same shall have been signed by the president of the United States.'

These are the clauses of the constitution and laws of the United States, which affect this part of the case. They seem to contemplate three distinct operations—

1st. The nomination. This is the sole act of the President, and is [illegible]