Notes on the Correspondence in Wallis's Works, Vol. 3

Author: Isaac Newton

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p. 258. lin 4 Facuit Newtonus pacis gratia. In epistolis suis Leibnitium vel methodi quam differentialem vocat vel methodi serierum primum esse inventorem nullibi agnovit, Certe Leibnitius series Newtonianas et Gregorianas Anno 1675 ab Oldenburgo accepit fuisse & unam earum pro sua ventavit, et anno proximo methodum primum ind. ad series illas ad se mitti postulabit, Quæ omnia Newtonum lutebant.

ib. l. 11. Quasi methodo fluxionum nihil debeatur.

ib. l 19. Quasi Leibnitius ignoraret Newtonum hæc omnia hæc omnia per methodum fluxionum præstare potuisse. Vide ejus Epistolas p   &   , et Analysin p.

ib. l. 19 Hæc Leinbitius, quo est candore, sub nomine Editorum Actorum.

p. 259. l. 3. Quadraturam per seriem infinitam a D. Brunkero inventam Mercator per divisionem Wallisianam demonstravit & nihil præterea.

Pag. 654 lin. 4. Ignoravit Wallisius Gregorium hanc seriem anno 1671 cum Collinio Oldenburgum Anno 1675 cum Leibnitio communicasse, & Leibnitium in Anglia fuisse anno 1673 ubi Collinius de methodo serierum libere loqui cœperat et series aliquas cum amicis communicare.

Pag 673. lin. 15, 16, 19. Annon Newtonus hujusmodi æquationes prius invenit qui docuit fluentem ex æquatione fluxionem simul involvente extrahere? Annon tota fluxionum methodus inversa, ubi de Curvis agitur, pendeat ab hujusmodi æquationibus ad Curvas applicatis. Annon Newtonus Curvas omnes mechanicas ad æquationes reducere docuit pergendo ab hujusmodi æquationibus finitis ad series infinitas. vide pag 86. Interea Nicolaus Mercator . . . . . non possunt.

Pag 674. Literas tuas . . . . nam secus est. — Vbi dicitur Nicolaum Mercatorem . . . . sed res eadem est. — Et ni faller (sic saltem mihi nunciatum est) . . . . præjudicio esse debet.

Ad p 675 l. 38. Series ipsa quæ N. Mercatori tribuitur a D. Brunkero primum inventa fuit – ut supra dictum est.

Pag 679 Methodum fluxionum . . . . . differunt in nonnullis.

Ad pag 679 lin 20. Quasi Leibnitius hoc non advertisset Anno 1677 ubi primum incidit in methodum Newtoni? Vide literas ejus supra impressas pag 90, 91. Cæterum Newtonum primum esse inventorem nunquam agnovit. Et quamvis D. Wallisius sæpius incul caret methodos utriusque rem eandem esse vel quam simillimam, adduci tamen non potuit Leibnitius ut differentiam aliquam realem assignaret. Si Newtonus est primus inventor, methodus ipsi debebitur. Si Leibnitius aliquid addiderit hoc erit Leibnitianum. Doceat igitur tandem Leibnitius quid addiderit huic methodo ac desinat tandem methodum **{illeg}** sibi arrogare, **{illeg}** nisi nomen m{ethodum} fluxionum New**{illeg}**

Pag. 681. Optaverim item ut . . . . . . intelligamus

Ad pag. 681 lin. 17. Vt Leibnitius quid suum sit exponat Wallisius iterum postulat sed frustra.

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Newtono relinquere. Methodum differentialem Moutoni sibi olim arrogavit. D. Pellio ob id reprehensus. Cum Gregorius et Tschunhausius in reductionibus æquationum ad radices non affectas occupati esset; ipse eos prævenire conatus est ob id reprehensus a Collinio. Cum Newtonus methodum serierum invenisset & Leibnitius sero a Collinio Oldenburgo et Mohro series aliquas accepisset & spatio omne unius methodum perveniendi ad series illas invenire non potuisset; postulavit ab Oldenburgo meth odum ad se mitti, et interea serierum acceptarum unam (quam forte per transmutationem figurarum invenire didicerat) pro sua cum amicis in Gallia communicare cœpit. Deinde accepta methodo Newtoni series alias per methodum illam inventas, (levi facta mutatione) sibi rapere conatus est, et in Actis Leipsicis se inter inventores serierum passim numerat , ob id merito reprehendus. Ex litteris Newtoni ad Collinium et Oldenburgum missis, noverat Newtonum Anno 1671 librum de methodo serierum & methodo alia huic affini solvendi problemata difficillima & cum ex characteribus & exemplis methodi illius ipse anno 1677 in eandem methodum incidit, Newtonum prævenit et methodum pro sua venditat.

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ib lin 27 Litera Newtoni primam lucem affuderant.

Ib lin 27 Hæc et quæ sequuntur Leibnitius ante annum 1677 minime advertit. Et Literæ Newtoni primam lucem afuderant. Anno 1676 credidit inversa tangentium problemata et similia ad æquationes reduci non posse.

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And the Letters & Papers which follow it appears that in the year 1671 at the desire of his friends he composed a larger Treatise on this method (p   ) that it was very general & easy without sticking at surds (p   ) & extended to problemes of Tangents direct & inverse (p   ) & to the finding the areas lengths centers of gravity & curvatures of curves & solving other more difficult problems (p   )[2] that it extended to the extracting of fluents out of equations involving their fluxions (p   )[3] & proceeded in difficulter cases by assuming the terms of a series & determining them by the conditions of the Probleme (p   )[1] that in Problemes reducible to Quadratures it proceeded by the Propositions since printed in the book of Quadratures (p   ) that it extended to mechanical curves (p   ) & was so general as to extend to almost all Problemes except the numeral ones of Diophantus & such like (p   ) [& that it extended to mechanical curves as well as others (p   ) & by consequence proeeded by the consideration of the indefinitely small particles of quantity called Indivisibles by Cavallerius Augmenta momentanea & momenta by Newton, Infinitesimas & Differences by Leibnitz. For there is no other way of drawing Tangents to Mechanical curves or of finding the areas lengths centers of gravity & curvatures of any Curves then that by considering the moments or infinitesimal particles of Quantities & their proportions to one another.] And all this was found out by Mr Newton before Mr Leibnits knew any thing of the method. For when Mr Oldenburgh had sent him some of the series found out by this method, the next year he desired Mr Oldenburg to procure him the method (p   ) & in his Letter dated 27 Aug 1676 he wrote that he did not beleive that Mr Newtons method was so general. For, said he, there are many Problemes & particularly the inverse Problems of Tangents that cannot be reduced to æquations or quadratures (p   ) & in the years 1675 he wrote a piece in a vulgar manner concerning a series which he had received that year of Mr Oldenburg & continued to polish it the next year (p   ) but after he found out the Differential method, thought it not worth publishing   In all these Letters & Papers there appears nothing of his finding or knowing the Differential Method before the year 1677. It is first mentioned by him in his Letter of 21 Iune 1677, & he began his description of it with these words. Hinc nominando IN PSTERVM dy differentiam duarum proximarum y &c. p 88.

If it be said that Mr Leibnitz notwithstanding these things might find out the method apart & have some right to it as a second Inventor: it must be considered that the first Inventor hath the sole right till a second Inventor arises, & it is an act of injustice to take away any mans right to any thing & divide it between him & others without his consent, besides that to do it in cases of this nature would encourage Pretenders & perpetually imbroyl the first inventors in disputes with contentious people. But however it doth not appear that Mr Leibnitz invented the method alone without receiving some light from Mr Newton.

For at his request Mr Newton communicated to him one half of the method in plain words in his Letter of 13 Iune 1676, namely that half which consists in the reduction of Problems to infinite series so far as he could describe it without discovering the other half. For he concealed it & his way of extracting fluents out of Equations involving their fluxions (p. 56. Mr I. Gregory by having . . . . & how he derived reciprocal series from one another.

Mr Newtons Letter of 10 Decemb 1672 was also sent him about the same time (p. 30, 47) in which Letter he had a general description of the method with its large extent & an example of it in drawing of Tangents to Geometrical curves & was told that this method of Tangents was but one particular or Corollary of the general method. And by this Letter he understood also that Mr Newtons method agreed with that of Slusius in Geometrical Curves but was more general in extending to mechanical Curves & not sticking at radicals. And after th{e} sight of this Letter, his mind ran upon the improvement of Slusius method; p 87, 88.

Mr Newton also in his two letters of 13 Iune & 24 Octob 1676 mentioned some Propositions in his book of Quadratures & gave him a notable example of his method in a Rule found by it for the squaring of Curves & another notable example in the inverse method of Tangents & let him know that this method was so general that it extended to almost all Problemes except the numeral ones of Diophantus & such like. ✝ < insertion from f 12v > ✝ He told him also that his method extended to mechanical curves as well as others. (p. 30, 52, 54) whence it was obvious to conclude that it proceeded by the consideration of . . . . . . proportions to one another. And < text from f 12r resumes > And when he had communicated one half of his method in words at length & made so large a description of the other half as endangered the losing it; to secure it to himself till he could have time to communicate it in open words he concealed it in ænigmas. And yet he discovered by circumstances what he thought to have concealed

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pag 673. Intere Nicolaus Mercator . . . . promittere non possum.

Ib. Ad lin. 15, 16, 19. Annon Newtonus hujusmodi æquationes prius invenit qui docuit fluentem ex æquatione fluxionem involvente extrahere, & Curvas Mechanicas ad æquationes numero terminorum infinitas reduxit pergendo ab hujusmodi æquationibus finititis? Annon tota fluxionum methodus inversa ubi de Curvis agitur pendeat ab hujusmodi æquationibus ad Curvas applicatis?

Pag 674 & 675. Literas tuas . . . . nam secus est. — Vbi dicitur Nicolaum Mercatorem . . . . Quod tamen neutri prejudicio esse debet.

Ad p 675 l. 38. Series ipsa quæ D. Mercatori tribuitur, a D. Brunkero primum inventa fuit ut supra dictum est.

Pag 679, 670 Methodum fluxionum . . . . sed publice quoque est professus.

Ad pag 679 lin 20. Quasi Leibnitius hoc non advertisset anno 1677 ubi primum incidit in methodum Newtoni. Vide Literas ejus supra impressas pag 90, 91. Certe methodum Newtoni ante annum 1671 inventam fuisse ex literis ejus Leibnitius intellexerit sed in Actis Leipsicis hoc nunquam agnovit. Vide supra pag. 70, 71, 72.

Ib. lin 24. Quæritur quis sit Analyseos hujus infinitesimalis addidit Nam Leibnitius methodum totam subo nomine methodi differentialis sibi assumit & nil nisi nomen nudum methodi fluxionum Newtoni relinquere conatur. Novimus quid Cartesius addidit Analysi Vietææ, dicat tandem Leibnitius quid ipse addidit Analysi fluxionum.

Ib. lin 27. Consideratio Literarum Newtoni primam lucem {Leibnitsio} affuderat Leibnitio. His admonitus et exemplis quibusdam methodi fluxionum adjutus incidit in methodum quam nomine methodi differentialis a summatorio distinxit.

Ib. lin 35. Leibnitius ante 1677 – – – – – hoc non vidit. Scripsit enim anno 167 inversa tangentium problemata & alia multa ab æquationibus non pendere. Rescripsit Newtonus hujusmodi problemata in potestate esse nempe per æquationes suas. Et tum demum Leibnitius a Newtono admonitus hæc vidit. Vide pag. 65 lin 14.

Ib lin 49. Mirum est hæc a Leibnitio dici, qui ex literas Newtoni intellexerat methodum solvendi hujusmodi problemata ante annum 1671 Newtono innotuisse, ex Principijs ejus noverat ipsum primum per hanc methodum problemata tractasse quæ ad transitum pertinet a Geometria ad Naturam.

Ib. lin 54. Hugenius Literas quæ Newtonum et Leibnitium mediante Oldenburgo intercesserant nunquam vidit.

Ib l. 24. Methodum fluxionum et Methodum differentialem licet in nonnullis differre possint esse tamen unam et eandam methodum hic agnoscit Leibnitius ideoque se communi, nomine designare solere Analyseos infinitesimalis, licet in nonnullis differre possint ut Analysis Vietæ et Analysis Cartesij in nonnullis differunt Quæritur quis sit hujus infinitesimal{illeg} inventor primus & quid alter alterius inventis addidebit. Novimus quid Cartesius addidit Analysi Vietæ, dicat tandem Leibnitius quid ipse addidit Analysi fluxionum.

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Pag 673. Secuti sunt hos Iacobus Gregorius . . . . promittere non possum .

1) Ad lin. 10. Mercator quadraturam D. Brunkeri per divisionem Wallisianam tantum demonstravit ut supra.

2) Ad lin 15, Leibnitius recitando inventa nova Mathematica, prætermittit methodum fluxionum, quasi Analsis tota infinitesimalis sola sua opera accesserat.

3) Ad lin 17, 18, 19. Annon Newtonus hujusmodi æquationes prius invenit qui docuit fluentem ex æquatione fluxionem involvente extrahere & Curvas Mechanicas ad æquationes numero terminorum infinitas reduxit pergendo ab hujusmodi æquationibus finitis? Annon tota fluxionum methodus inversa ubi de Curvis agitur, pendeat ab hujusmodi æquestionibus ad Curvas applicatis?

Pag. 674, 675 Literas tuas . . . . nam secus est, — Vbi dicitur Nicolaum Mercatorem . . . . Quod tamen neutro præjudicio esse debet.

Pag. 679, 680. Methodum Fluxionum . . . . $27 + 3 = 30$

4) Ad pag. 679 lin. 20. Quasi Leibnitius hoc non advertisset anno 1677 ubi primum incidit in methodum Newtoni. Vide Literas ejus supra impressas p. 90, 91. Certe methodum Newtoni ante annum 1671 inventam fuisse Leibnitius ex Literis ejus intellexerat, sed in Actis Lipsiensibus hoc numquam agnovit. Vide supra p. 70, 71, 72.

5) Ad lin 24. Methodum fluxionum et Methodum differentialem esse unam & eandem methodum Leibnitius hic agnoscit, ideoque communi nomine Analyseos infinitesimalis a se designari solere, licet in nonnullis differre possint ut Analysis Vietæ et Analysis Cartesij in nonnullis differunt. Quæritur quis sit Analyseos hujus infinitesimalis inventor primus & quid alter alaterius inventis addiderit. Novimus quid Cartesius, addidit Analysi Victæ: dicat tandem Leibnitius quid ipse addidit Analysi fluxionum.

6) Ad lin 27. Consideratio Literarum Newtoni primam lucem affuderat Leibnitio. His admonitus & exemplis quibusdam methodi fluxionum adjutus, incidit in methodum quam nomine methodi differentialis a methodo summatoria distinxit.

7) Ad lin 35. Leibnitius hoc non vidit ante annum 1677. Scripsit enim anno 1676 inversa tangentium problemata et alia multa ab æquationibus non pendere. Rescripsit Newtonus hujusmodi problemata in

potestate esse nempe per æquationes suas. Et tum demum Leibnitius a Newtono admonitus hæc vidit. Vide pag 65. lin 14.

8) Ad lin. 49. Mirum est hæc a D. Leibnitio dici, qui ex Literis & Principijs Newtoni intellexerat methodum solvendi hujusmodi problemata Newtono ante annum 1671 innotuisse, et ipsum primum per hanc methodum problemata tractasse quæ ad transitum pertinent a Geometria ad Naturam.

10) Ad p. 680. lin 10. Imo anno 1677. Vide pag. 94. 95.

Pag. 681. Optaverim item . . . . intelligamus.

11 Ad lin. 17. Vt Leibnitius differentiam methodorum exponat, iterum rogat Wallisius sed frustra.