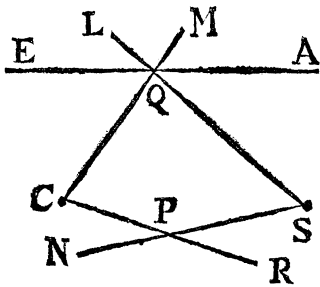


V. *Nova Methodus Universalis Curvas Omnes cujuscunque Ordinis Mechanicæ describendi sola datorum Angulorum & Rectarum Ope. Per Colliu Maclaurin in Collegio Novo Abredonensi Matheseos Professore.*

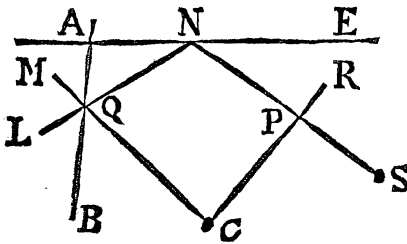
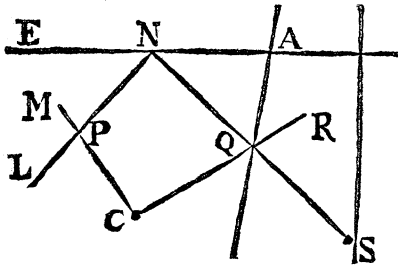
INter innumera sublimiaque Magni *Newtoni* inventa, quibus Geometria amplissime ditata in immensam excrevit luculentissimæ Cognitionis molem, Constructionem exhibuit Curvarum Mechanicam, post Enumerationem Linearum Tertii Ordinis, ad finem *Opticæ* editam, arduo summi Viri ingenio dignam; qua simpliciore & simul adeo Universalem aliam exhibuit Nemo. Methodum vero suam ad Curvas Tertii Ordinis puncto duplici carentes, aut eas altiores Ordinis puncto multiplice destitutas, non extendit; earumque descriptionem Problematibus Geometriæ difficilioribus annumerandam pronuntiat. Atque hinc in spem venit Methodum sequentem, qua Curvæ Geometricæ cujuscunque Ordinis, licet puncto duplici aut multiplice quovis destitutæ, construuntur, non fore Geometris ingratam.

I. Lineæ primi Ordinis ipsæ sunt Rectæ; quæ in uno solo puncto sibi mutuo occurrere possunt. Lineæ secundi Ordinis sunt Sectiones Conicæ; quæ in pluribus punctis quam duobus à rectâ quavis secari non possunt. Fæ vero omnes secundum Lemma 21. Lib. I. *Princip. D. Newtoni* sic construi possunt; Circa data duo puncta
C. & S



C & S moveantur Anguli dati MCR, LSN; ita ut Crurum CM SL concursus semper ducatur per rectam indefinitam positionem datam AE; tunc crurum aliorum CR & SN concursus in P describet Lineam secundi Ordinis seu Sectionem Conicam.

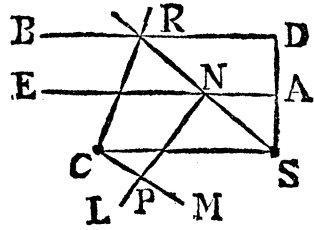
II. Moveatur ut prius Angulus MCR (v. Fig. 2.) circa datum punctum C; Angulus vero datus LNQ semper percurrat Angulari suo puncto N rectam datam AE, ita ut crus NQ semper transeat per datum punctum S. 1. Si concursus crurum CR & SN, tum punctum Q ducatur per rectam infinitam AB, concursus crurum CM & NL describet Curvam lineam Tertii Ordinis punctum duplex habentem in C. 2. Reliquis manentibus, si crurum CM & NL concursus (vide Fig. 3.) ducatur per rectam indefinitam AB: concursus crurum CR & SN in P describet Curvam Tertii Ordinis punctum duplex habentem in S.



punctum duplex habentem in S.

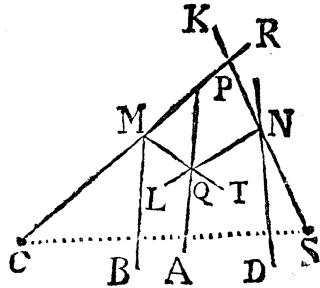
Exem-

Exemplum Casus 1. Sint anguli MCR. LNS recti, (*vide Fig. 4*) & AE, DB, CS parallelæ; sint quoque SA & SD normales respectivé in rectas AE & DB; sitque $SD = 2 SA$. Hisce positis, si SD sit minor recta CS, Curva secundum regulam Casus primi descripta, erit Parabola Notata cum Ovali, Speciei 68^{væ} Curvarum D. *Newtoni*;

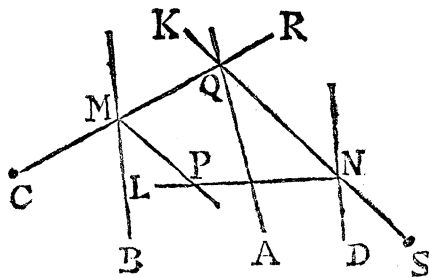


Quod si $SD = CS$, Ovalis evanescit & nodus evadit Cuspis, atque Curva descripta erit Parabola *Neiliana* seu fémicubica; Si vero sit SD major quam CS, erit Curva Parabola punctata Campaniformis Speciei 69^{na}.

III. Moveantur Anguli dati RMT, KNL, ita ut puncta M & N percurrant rectas indefinitas BM, DN respectivé; & crura RM, KN semper transeant per data puncta C & S. Si primo Crurum MT & NL concursus Q ducatur per rectam indefinitam AQ; tunc concursus crurum MR & NR in P describet

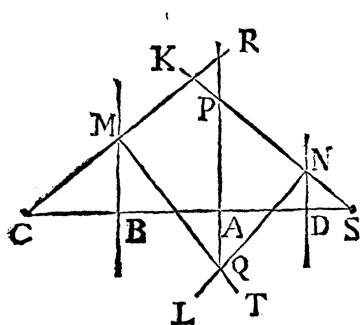


lineam Quarti Ordinis puncta duo duplicia habentem, alterum in C alterum vero in S. Sed secundo si crurum MR & NK (*vide Fig. 6.*) concursus ducatur per rectam indefini-



ram AQ ; tunc concursus crurum MT & NL describet Lineam Quarti Ordinis puncto duplici carentem.

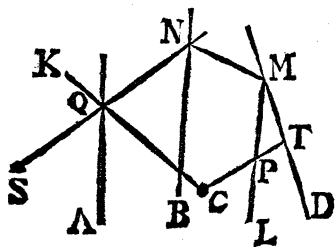
IV. Quod si in primo casu hujus Constructionis (v. *Fig. 5.*) rectæ CMR , SNK , una coincident cum CS ; tunc puncta C & S evadunt simplicia & Curva erit Tertii Ordinis absque puncto duplici. Exemplum. Sint



rectæ BM , AQ , DN , sibi mutuo parallelæ atque omnes perpendiculæ in CS . Sint quoque Anguli RMT , KNL recti, & si secundum regulam primi Casus describatur Curva, Crura CMR , SNK una coincident cum CS ; & hac constructione describi possunt Curvæ *D. Newtoni*

10, 11, 20, 21, 40, secundum varias positiones punctorum C & S respectu trium rectarum BM , AQ , DN ; Omnes vero hæ Species puncto duplici carent.

V. Lineæ vero Quarti Ordinis quæ punctum triplex habent sic construi possunt. Sint tres rectæ AQ , BN , DM positione datæ; sint etiam Anguli QCT , SNM

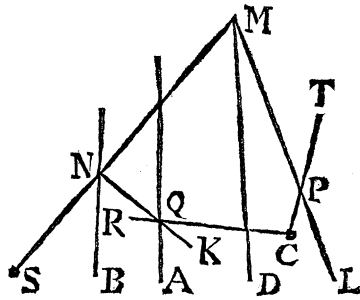


& NML dati & invariabiles; percurrant puncta N & M rectas BN & DM , ita ut crus NQ semper transeat per datum punctum S : Revolvatur QCT circa C ita ut concursus crurum CK , SN percurrat tertiam rectam AQ ; tunc concursus

sus crurum CT, ML describet Lineam Quarti ordinis punctum triplex habentem in C.

VI. Ostendi quo pacto Lineæ Quarti Ordinis describi possunt, quæ punctum triplex habent aut duo duplicia; Aliæ quæ unicum habent punctum duplex sic commode describuntur.

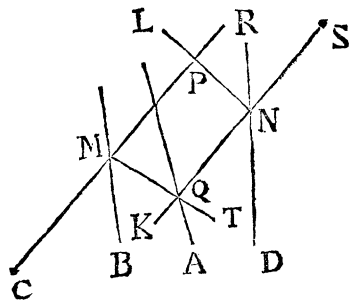
Sint tres rectæ ut prius positione datæ, AQ, BN, DM, dentur etiam Anguli SNK, SML, RCT; sint puncta N, M & S semper in eadem recta linea; Moveantur puncta N & M ut prius per rectas BN, DM;



Si concursus crurum CR, NK ducatur per rectam indefinitam AQ, tunc concursus crurum CT, ML describet Lineam Quarti Ordinis habentem punctum duplex unicum in C. Hæ vero duæ ultimæ Propositiones novas Methodus suppeditant lineas Tertii Ordinis describendi, tum quæ puncta duplicia habent, tum quæ iis destituuntur; Ex vero in brevi hoc Methodus Nostræ specimine sunt omittendæ.

VII. Maneant Anguli atque rectæ ut in Prop. III.

Concursus vero nunc recitarum MT, NK ducatur per indefinitam rectam AQ; & Concursus crurum MR & NL describet Lineam Quinti Ordinis punctum quadruplex habentem in S. Habeo etiam alias Methodus curvas describendi



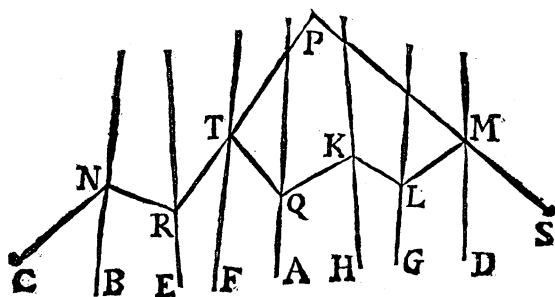
Quinti Ordinis, quæ punctum habent triplex, duplex, aut duo duplicia, vel nulla nisi puncta simplicia; sed

G g g g g g g

hæc

hæc sufficient ad simplicitatem & universalitatem Methodus demonstrandam. Notandum vero in specialibus simplicioribus Angulorum & rectarum circumstantiis, Lineam aliquando migrare in curvam ordinis inferioris quam in *Prop.* explicatur; Imo singulæ Propositiones Methodus suppeditant particulares, curvas aliquas ordinis cujuscunque inferioris describendi.

VIII. *Propositio Generalis.* Sumantur ad libitum Rectæ in eodem plano ubicunque positæ, quarum sit numerus (n) ut BN, ER, FT. Sumantur etiam ad libitum aliæ rectæ ut DM, GL, & HK &c. quarum sit numerus



(m). Sint Anguli CNR, NRT, RTQ &c. atque anguli SML, MLK, LKQ &c. invariati, dum puncta angularia N, R, T, M, L, K, percurrant rectas indefinitas BN, ER, FT, DM, GL, HK; Ducatur concursus crurum TQ & KQ per rectam indefinitam AQ; Invenire ordinem curvæ quam concursus cruris SM cum aliqua rectarum CN, NR, RT, TQ &c. ex. gr. cum RT, perpetuo tanget.

In Serie rectarum CN, NR, RT, TQ &c. denotet s numerum rectæ RT, cujus concursu cum SM Curva est describenda, à CN inclusive; qui in hoc casu est ternarius: erit Curva ordinis quem exprimit nume-

rus. $s + m + s + n + 1$: unde in casu quem figura designat, cum $s = m = n = 3$ erit Curva ordinis 16^{ta}.

In his descriptionibus Rectas solummodo atque Angulos dari postulavimus; sed facilius sæpe simpliciorum Curvarum ope complexiores describuntur; atque Propositiones his non minus Universales huc pertinentes investigavi: Eas vero cum harum demonstrationibus utpote prolixis impræsentiarum omitto; Easdem postea publici juris facturus, si luce non videantur hæc Geometris indigna.

VI. *Extract of a Letter of the Reverend Mr. William Rice, Rector of Caerleon upon Usk, to Charles Williams Esq. giving an account of an ancient Roman Inscription lately found there. With some Conjectures thereon, by the Reverend Dr. John Harris, S. T. P. and R. S. S.*

Sir,

A Person last Week being at Plow in a Close near the Bank of the River *Usk*, which the Ancients called *Isca*, (which glides by us about a quarter of a Mile off and in sight of this Town) came thwart a Stone, and finding Letters thereon, took it up whole; 'tis about a Yard in length, and about three Quarters broad. I went to the place, and took a true Copy thereof, which I here make bold to send you. There was underneath it some seeming Oblong Square Sepulcher of Stones, rude in order. A little further in that Close, where that River wears out the Land, there was, some time before, a large Earthen Pot taken out of the Bank by the River-side, which had therein the Scull and Bones of some Person, by some thought to be a Child Murther'd; But I rather conjecture it a Roman Urn.

Caerleon, March 21.

1717.

Your humble Servant,

William Rice.

D