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Memorandumes relating to Sr Isaac Newton given me by Mr Abraham Demoivre. in Nov.r 1727 ——

Born on Xmas day, 1642. Came to the Uni-
versity in 61.

In 63 being at Sturbridge fair bought a book of Astrology, out of a curiosity to see what there was in it.

Read in it till he came to a figure of the heavens which he could not understand, for want of being acquainted with Trigonometry.

Bought a book of Trigonometry, but was not able to understand the Demonstrations.

Got Euclid to fit himself for understanding the ground of Trigonometry. —

Read only the titles of the propositions, which he found so easy to understand that he wondred how any body would amuse themselves to write any demonstrations of them. Began to change his mind when he read that Parallelograms upon the same base & between the same Parallels are equal, & that other proposition, that in a right angled Triangle the square of the Hypothenuse is equal to the squares of the two other sides.

Began again to read Euclid with more attention than he had done before & went through it.

Read Euclids which he understood tho' not entirely, he having some difficulties about what the Author calls Scala Secundi & Tertii gradus, relating to the Solution of quadratick Cubick Equations — took Descartes's Geometry in hand, tho' he had been told it would be very difficult, read some few pages in it, then stopt began again, went a little farther than the first time, stopt again, went back again to the beginning, read on till by degrees he made himself master of the whole, to that degree that he understood Descartes's Geometry better than he had done Euclid.

Read Euclid again, & then Des Cartes's Geometry for a second time — Read next Dr Wallis's Arithmetica Infinitorum, & on the occasion of a certain Interpolation for the quadrature of the circle found that admirable Theorem for raising a Binomial to a power given. But before that time a little after reading Des Cartes Geometry, with many things concerning the vortices Axes Diameters of Curves, which afterwards gave rise to that excellent tract de Curvis Secundi generis. In 65 & 66 began to find the method of Fluxions, & with several curious problems relating to that method Easing

that date which were seen by me above 25 yea
ago, In 65 berry in the country in a garden,
it came into his thought, that the power of gravity
was not limited to a certain distance from the
earth, but that this power would extent it self
at any distance from it, & even would reach as
far as the Moon, then he drew this conclusion.
that if it was true that this power reached as
far as the Moon, it was very likely that this
power or force of gravitation towards the earth
was what conteined the Moon in her orbit,
whereupon he fell a calculating what would be
the effect of that supposition, but he found
himself disappointed for a while, the reason
of which was that he took it for granted that
a degree of the earth did contain 60 miles
exactly, which made it that his calculation
did not agree with the theory, but he entertained
a notion that with the force of gravity there might
be a mixture of that force which the Moon would
have if it was carried along in a vortex,
but when the Exact of Picard's of the measure
of the earth came out, he began his calculation
anew, & found it perfectly agreable to the theory
I believe see may gather from the Transactions
an account of a dispute that he had with Sr Isaac
a Jesuit of Liege concerning his discovery of light

& Colours &c would be very entertaining.
In 1673 Dr Hook writ to him to find him
something new for the transactions, whereupon
he sent him a little dissertation to confute that
comon objection which is, that if it were true that
the Earth moved from West to East, all fallling bodies
would be left to the West, & maintained that on
the contrary they would fall a little Eastward, &
having described a curve with his hand to repre-
sent the motion of a falling body, he drew a
negligent stroke with his pen, from whence Dr
Hook took occasion to imagine that he meant
the Curve would be a Spiral, whereupon the Dr
set to prove that the Curve would be an
Ellipsis & that the body would move according
to Kepler's notion, w^ch gave him an occasion
to examine the thing thoroughly & for the foundation
of the Calculus he intended laid down this pro-
position that the areas described in equal times
were equal, which tho' assumed by Kepler was
not by him demonstrated, of which demonstration
the first glory is due to M^r Isaac. In 1684 Dr
Halley came to visit him at Cambridge, after they
had been some time together, the Dr asked him
what he thought the Curve would be that would be
described by the Planets supposing the force of
attraction towards the Sun to be reciprocal to the square
of their distance from it. M^r Isaac replied immediately
that it would be an Ellipsis, the Doctor struck with

joy & amazement asked him how he knew it,
why saith he I have calculated it, whereupon
Dr Halley, asked him for his calculation w^ch that
way further delay, Sr Isaac looked among his
papers but could not find it, but he promised
him to renew it, & then to send it him, for
Isaac in order to make good his promise fell to
work again, but he could not come to that conclusion
w^ch he thought he had before examined with care,
however he attempted a new way which tho' longer
than the first, brought him again to his former
conclusion, then he examined carefully what
might be the reason why the calculation he had
undertaken before did not prove right, & he
found that having drawn an Ellipsis course
with his own hand, he had drawn the two Axes
of the Curve, instead of drawing two Diameters
somewhat inclined to one another, whereby he
might have fixed his imagination to any two
conjugate diameters, which was requisite he
should do, that being perceived, he made both
his calculations agree together.

after this Dr Halley was (I think)
sent down to Cambridge by the Royal
Society to prevent with Sr Isaac to
print his discoveries w^ch gave rise
to the Principia —

Dr Halley has often valued himself to me
for having been the Ulysses who produced this
Achilles —

In May-June
1684 Dr Halley went
to J. C. a visit at Cambridge
& there in a conversation the
Dr asked him what he thought
the curve would be that would
be described by the Planets
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