

About ‘WOOLSTHORPE TO WEST MINSTER ABBEY’
– **A skit on Sir Isaac Newton**

VENKATESHA MURTHY; **Published in** MATHEMATICAL EDUCATION, *a quarterly journal of Higher Education sponsored by UGC*, Vol. 9, No.2, Dec 92 (pp 77-86), No.3, Jan 93 (pp-166-175), No.4, April 93, (pp 229 – 238), and Vol.10, No.1 July 93 (pp 39 –48)

Editorial Board

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In the Editorial of MATHEMATICAL EDUCATION, *a quarterly journal of Higher Education sponsored by UGC*, Vol. 9, No.2, Dec 92.

Editorial writes in a Para thus:

“ . . . In one article we are giving part I of a four-part drama on the Life and times of the great scientist and mathematician Isaac Newton. This gives an important chapter in the history of mathematics and shows how the surrounding culture of a society effects the development of mathematics. It is hoped that not only the readers will enjoy reading it but even some colleges will arrange to play the drama on the stage. It is also hoped that some other authors would like to write similar dramas on the lives and times of Indian Mathematicians, both of ancient times and of the 20th century. . . .”

Earlier, it was published in Kannada by a quarterly - VIJNANA KARNATAKA of University of Mysore. The Editorial Board decided to publish the drama, withholding 1-4 No’s, and publishing the full drama on *Yugapurusha Sir Isaac Newton* (Kannada) is available in a single Volume to the readers.

i) VENKATESHA MURTHY; *Yugapurusha Sir Isaac Newton* (in Kannada) - VIJNANA KARNATAKA University of Mysore, Vol. 17, (1985), No.1-4, (pp 87-166)

The reason is *Ganitamedhavi Ramanujan* (a Drama in Kannada) was published in two different No’s; *viz*; Vol.16, No.2, (pp 51- 63) and No.3 (pp 43-67) of VIJNANA KARNATAKA by University of Mysore. The Editorial Board felt the continuity of the drama was lost then.

The drama on Bhaskaracharya II - “The Pearl” (in English) *though staged many a times in different parts of India during important events, and “Muthinamani”* (in Kannada) *during an important event, but it is not yet printed or published.*

VENKATESHA MURTHY has Introduced Mathematical concepts, writing and staging skits on Srinivasa Ramanujan, Sir Isaac Newton, Bhaskaracharya – II and some others during his service as a teacher, a principal and in different capacity in educational institutions in many parts of India:

(a) On Srinivasa Ramanujan - “Where There is will there is a way”

- in Sainik School Amaravatinagar, (TN) on Dec. 22, 1976.
- in Sainik School Amaravatinagar, (TN) on Oct. 13, 1981 during “All India Sainik School Principals’ Conference”.
- in Kendriya Vidyalaya SARNI, Betul District (MP) during HINDI SAPTAH in Hindi.
- During Tetric conference conducted by Swadeshi Vijnana Andolana Karnataka at Heritage Centre, Bangalore on Dec. 22, 2006 by *IACT* students.

(b) On Sir Issac Newton - “Woolsthorpe to Westminster Abbey”

- in Sainik School Amaravatinagar, (TN) on Sept. 16, 1983 during Youths festival sponsored by Rotary Club, Udumalpet (TN)
- in MPEB Senior Staff Club Sarni (MP) on Feb. 02, 1985 during Science Week.
- in Regional College of Education, Bhubaneswar on Oct 31, 1989 during Silver Jubilee Celebrations of Kendriya Vidyalaya Sangatham.

(c) On Bhaskaracharya II - “The Pearl” and “Muthinamani”

- in Sainik School Amaravatinagar, (TN) on Aug. 16-17, 1977
- in Kendriya Vidyalaya No.1, Bhubaneswar on Feb 03, 1990 during KVS Regional Science Exhibition.
- In Regional College of Education, Bhubaneswar on Oct, 14, 1992. during a “Work-shop on Improvement of Mathematics Education at Secondary Level” conducted by ‘Association of Mathematics Teachers India’ and ‘Ministry of HRD, Govt. of India’ supported by ‘SCERT Orissa’.
- At Kancheepuram on Dec. 31, 1994 during Annual Conference of ‘Association of Mathematics Teachers India’
- In Kendriya Vidyalaya, Malleswaram, Bangalore on Feb 18, 1995 sponsored by LIONS CLUB, Sundernagar, Bangalore.
- At Gayana Samaja, K.R.Road, Bangalore on 20th Sept 2004. Kannada version “*Muthinamani*” of “*The Pearl*” as a part of cultural programme during a three day Symposium on Vedic Sciences presided over by H. H. Sri Vijnananidhi Teertha Swami - galavaru, Sri Sripadaraja MaTha, conduced by *National Institute of Vedic Sciences, Mulabagal* from 20th – 22nd September 2004, enacted by students of *International Academy for Creative Teaching, Hebbal, Bangalore*.
- at Dr. HN Hall, *National College, Basavanagudi, Bangalore – 560 004*, on 27th Oct. 2004 during a weekly meeting of *Bangalore Science Forum* presided over by *Revered Dr. H Narasimhaiah* and enacted by students of *International Academy for Creative Teaching, Hebbal, Bangalore*.

FROM WOOLSETHORPE TO WEST MINSTER ABBEY

A Skit on Sir Isaac Newton

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I. Historical Characters coming on the stage:

1. Isaac Newton
2. Isaac Barrow: Professor of Mathematics, Cambridge University.
3. Edmond Haley: Astronomer Financed ‘Principia’.
4. Robert Hooke: Royal Philosopher, critic of Isaac Newton.
5. Sir Christopher Wren: Philosopher, Architect.
6. Charles Montagu: Parliamentarian, founder ‘Bank of England’.
7. Queen Anne: Conferred Knighthood on Isaac Newton.
8. Hanna: Mother of Isaac Newton.
9. Catherine: Stepsister of Isaac Newton.
10. Ayscough: Maternal uncle of Isaac Newton.
11. Oldenberg: President of Royal Society.
12. David: School-day friend of Isaac Newton.
13. Stokes Jr. Son of Head Master of King’s School.

II. Other Characters:

Old man, Claudius, Christopher, Andria, Stephen, Drummers, Royal servants,
maidservants, citizens,
Narrator etc.

Narrator (Upto 1642 AD)

Isaac Newton was born on an epoch-making era of three memorable revolutions; Intellectual, Scientific and Political.

It was a period of intellectual revolution. Investigations on any other subjects, other than on astronomy, were encouraged all over the world. Countries following Roman Catholic faith frowned on Helio-centric theory propounded by Nicholaus Copernicus (1473-1553 AD) an Italian Professor of Mathematics in Rome. His work ‘De Revolutionibus Orbium Co-elestium’ (Planets move steadily in circles) was opposed by Lutherans and Roman Catholics. Astronomers propagating Copernican theory were tortured. One such astronomer Galileo of Galilee (1564-1642 AD), who was made to suffer for propagating the Copernican theory, died in 1642 AD, the year in which Isaac Newton was born.

It was a period of scientific revolution. Science was then pursued with a fervour for which there was no precedent in human History. New insights were to be had by the device of drawing parallels between nature and mechanical toys whose workings were already to be understood. A new respect grew up for mathematics, particularly among physicists, who took it upon themselves to develop it wherever it could help them. Galileo of Galilee promoted the spirit of scientific observation by turning the telescope (hitherto used as only a toy) towards the sky which confirmed the Helio-centric theory of Copernicus by revealing satellites of Jupiter and other fascinating secrets of heaven.

It was a period of political revolution too. Parliamentary system that established in England by King Edward I during 13th century AD underwent many setbacks and triumphs under the

successive rulers. In 1297 AD, King Edward-I had agreed to the right of parliament either to approve or reject the proposal of the King to levy taxes. Founder ruler of the Tudor Dynasty in England King Henry-VIII (1491-1547 AD) made the parliament to pass a law declaring the King of England as the Supreme Head of the Church of England in 1534 AD; when the Pope refused permission to the King for divorcing his Queen Catherine of Aragon. Protestants gained supremacy over the Roman Catholics. But in 1583 AD Queen Mary-I (1516-1558 AD), a devout Roman Catholic tried to convert England into a catholic country. She persecuted the Protestants without mercy. Queen Elizabeth-I (1533-1603 AD) tried to heal the religious wounds of the past years. She encouraged the maritime community of England to venture across the ocean and permitted some London merchants to set up 'The East India Company' to deal with trade in India. When Queen Elizabeth-I died in 1603 AD, without leaving an heir to the throne of England, the throne was offered to her distant cousin King James-VI of Scotland of "House of Stuarts". He failed in his attempt to rule England and Scotland forming an united parliament. He had to rule them as two separate countries. He established the rule of "House of Stuarts" in England under the title James-I (1566-1625 AD). King James-I neglected the Royal Navy of England and England ceased to be a naval power. When he levied taxes on the people of England without the consent of its Parliament, dissent against the Ruler surfaced. The deep and lasting resentment of the mariners and merchants against the "House of Stuarts" increased by the strong Protestant feelings of those who went down to the sea in ships.

After the death of King James-I in 1625 AD, his son Charles-I (1600-1649 AD) became the King of England and Scotland. When he called parliament to get its approval for levying taxes and to raise money as loan from the people of England, parliament did not accede to his demand. Enraged King dissolved the parliament three times in the first four years of his rule. He levied taxes and raised money as loans without the consent of parliament. He dismissed all judges who dared to interpret the laws impartially. 'Ship money', a tax levied only on the coastal people was forcefully collected by all the people of England. John Hampden, a Buckingham shire Squire and a Member of Parliament refused to pay 'ship money'. He was arrested. He argued in the court against the collection of 'ship money' from all the people of England and its misuse instead of using it for the defiance of the coastal people from the pirates. He lost his case and was imprisoned. But he enjoyed a moral victory as the people thought he was right. In 1639 AD, people of Scotland rebelled against the King Charles-I. The King had to call the parliament to raise the money needed to curb the rebels, for its approval as the people refused to pay taxes without the approval of the parliament. When parliament did not accede to his demand, he ignored it and ordered to collect taxes forcibly. Royalists supported by most of the nobility, clergy and the gentry were up with the arms to protect the 'Divine Rights' of the King to rule the country as he liked. Puritans, lawyers and merchant community supported the parliament. Civil War broke out in 1642 AD, when the King tried to seize five prominent parliamentarians. The same year Isaac Newton was born.

Isaac Newton was born in a small village Woolsthorpe near Lincolnshire in England on 25 Dec 1642 (Old style, the Roman calendar). But as per the present International Calendar (Gregorian Calendar) his date of birth is 5 Jan 1643.

Historical Note: Present International calendar (Gregorian calendar) is an improved (Julian calendar) introduced by Julius Ceasar during 46 BC, adapting Egyptian calendar with necessary modifications.

Easter is the name of the 'God of Spring'. The people of northern countries celebrated the arrival of spring on the day of spring equinox. The festival was 'Easter'. Easter of the year 325 AD had come on 21. But it came on March 11 in the year 1582. Pope Gregory-XII, the chief of the Roman Christian Church, was able to reason out for the error of ten developed in 1257 years. The reason was Julian calendar had considered the length of a year as 365.25 days

whereas its true length is approximately 365.2422 days, this mistake had caused an error of one day in 125 years'. Pope Gregory ordered 'to consider only those centurial years by 400 as leap years and other centurial years'. The error of ten days developed till then was rectified by renaming 05 Oct. 1582 as 15 Oct 1582. Gregorian Calendar was accepted by those countries, which were under the influence of the Roman Catholic Church. But the Britain and its American colonies accepted the Gregorian Calendar only from 03 Sept 1752 (Julian Calendar) by renaming it as 14 Sept 1752. And therefore the historical events between 1582 and 1752 AD is recorded giving both the dates as per Julian calendar as old style, and as per Gregorian calendar as new style.

Scene I

(December 25, 1642 AD. A Street in Woolsthorpe village, an elderly man enters groping his way due to old age and poor vision. Two sturdy young men enter from the other side).

Claudius, one of the young men: (looking at old man) Aye, uncle, why are you out in the streets? ... (Rushes towards the old man and helps him to sit on a stone bench on the road side.)... Don't you know... the king's troops may ravage streets any time? Couldn't you wait for us?

Christopher: (assisting old man) Uncle, what made you to come out now? Why didn't you wait for us?

Old James: (with shaky voice) Poor children, how much you care for me... I'm not so weak, as you think.... I'm alright, my dear sons.... Early morning, Sister Hannah sent words for me.... Poor child, she was in the labour pain.... I had been to see her..., poor girl.

Claudius: What a pity. Her husband Newton left this world when she was pregnant.... How sad.

Christopher: Uncle, How is she now? Does she need any help?

(In the meanwhile, Rhythmic footsteps of a marching army are heard from the background.)

Claudius: (with fear) Oh, the Royal army.... The wretched army has come.... Christopher, they won't leave us. They will force us to join the army.

Christopher: (with contempt) Royal army, hell with it.... (Conspires) Look my friend, we should plan something... I don't like to serve the King. (Sound increases)

Old James: Children, listen to me.... Behave like handicapped... Pretend, pretend well.... They won't take you in the army. (Sound becomes louder) Hurry up children, they are here.

(Claudius bends both his knees and acts like a polio-struck youth. Christopher distorts his mouth and bends his arms to look like a paralytic youth. In the meanwhile a few Royal soldiers enter. Two of them go near the youths and drag them.)

Soldiers: Aye, you wretched dogs, we know your tricks. Stand erect, don't pretend, move on, you brutes. (Drags them)

Claudius: mm... Mm... Mmy... LL... LL... Lord. .. From... myy... ch... Ch... Child hood... I... I... haven't... ww... ww... wwalked pr... pro..., properly. (Acts like a person eager to go with them stumbles and falls on the ground, acts like one struck with severe pain and roll on the ground.)

Christopher: (stammers) ho... Ho. how I wi... wi... wish to... to... sserve... the... dd...
Ddd... Ddivvinne... KK... Kking... (Acts as though he is very eager to follow
them, stumbles, crawls) pp... pp... Pplease tt...ttake me with you, Ppp...
Please.

One of the soldier: Soldiers, leave them, useless pigs... Come on we are late, captain
might be angry by now... hurry up.

(Soldiers leave hurriedly. Sound of the marching troop fades away.)

Claudius: (standing erect) Oh my God.... We are saved.... Thank you.

Christopher: Uncle, how is Sister Hannah now? Does she need any help?

Uncle James: (with pleasure) by the grace of Jesus the merciful, she is alright... She is
blessed with a male baby, both are fine.

Young men: Oh, Lord the gracious, keep them happy for ever.

(All the three make the sign of the Cross and prays. In the meanwhile sound of a group of
people approaching them is heard. Slogans like 'Long live, the parliament', 'Long live
civic Rights', 'We fight - for our Right' are also heard approaching them. They, look at
each other with pleasure.)

Uncle James: Children, they have come. How I wish to join the civil army... It's now, are
never... We should fight for our rights.

(In the meanwhile a group of slogan shouting people enter. They shout slogans once
again, while one of them climbs up a stone bench on the wayside. Christopher and
Claudius join the crowd, Uncle James looks on).

Leader standing on the stone bench: My dear friend. Revolt ... Revolt against the treason
of the treacherous King. King Charles tried to arrest our honourable
parliamentarians. But our alert forces foiled his treacherous move.

(Crowd shouts 'shame', 'shame', 'long live - civic rights')

Leader: Listen, Royal army is forcing the people to pay 'ship money', it is illegal No
one should pay the 'ship money'. Remember, our honourable Justice John
Hampden was arrested and imprisoned for refusing to pay the 'ship money'.
King Charles-I has broken his promise by violating 'petition of Rights'
signed by him, (crowd shouts 'shame, shame', 'Down with - Royal army')
Friends, 'ship money' has to be paid only by coastal people for their
protection from pirates. It is illegal to collect it from every citizen and
villager. (Crowd shouts 'we haven't paid ship money', 'we don't pay illegal
taxes', 'Long live Justice Hampdan', and 'We fight - for Civic Rights').

Friends, why should the King arrest our parliamentarians? Can't you guess?
It is to curb our Civic Rights. (Crowd shouts 'King would never succeed',
'We will fight - till our last breath', 'We fight - for our rights').

Friends, Join the civil army. Let us pledge to support the right cause of our
parliamentarians and strengthen their hands. I appeal to every able person to
join the civil army and to fight for civic rights. Freedom loving friends,
follow me and join the civil army. Long live - the petition of rights, long live
the parliament, long live - Justice Hampden. (Leader climbs down the stone
bench. As he moves, crowd follows him shouting the slogans,

Long live - the parliament,
Long live - the civic rights,

Long live - Justice John Hampden,
We fight - for civic rights.
As the slogan reaches a note of high pitch - curtain closes)

- Curtain down

Narrator (1642-1654 AD)

As civil war continued, Royalists and Parliamentarians experienced mixed fortune. Parliamentarians regrouped themselves in 1648 AD under the able leadership of Oliver Cromwell. In 1642 AD, Oliver Cromwell, a farmer till the age of forty in East Anglia, had gathered a troop of cavaliers to fight for the cause of Parliamentarians and had proved his mettle as a military commander. He rose in power and formed 'New Model Army'.

Army kidnapped King Charles-I in June 1647 AD and held him at army headquarters as prisoner in Newmarket near Cambridge. King escaped to the Isle of Wight in Nov 15, 1647 AD and wooed the Scots to fight for him. Second Civil war broke out in April 1648 AD, when Royalists attempted to restore the King. Civil Army and Parliamentarians were at loggerheads for supremacy, got once again united and defeated the Scots and Royalists. Oliver Cromwell and Fairfax commanded the joint army and defeated the King by Sept. 1648 AD. By Jan 1, 1649 army forced the parliament to appoint a court to try the King for his life. Charles-I was tried on the charge of treason and was sentenced to death. He was beheaded on Jan 30, 1649 in public, on a scaffold erected specially for the purpose in White Hall.

Oliver Cromwell assumed more powers than any King of England ever had, and began to rule the country with more efficiency. He dismissed the parliament. He refused to be made a KING, but became Lord Protector in 1653 AD. He began to rule as a dictator and won many prestigious wars for England by raising an efficient army and the best Naval Force. England acquired a place of honour among the European countries.

But freedom loving Britishers were disillusioned by the dictatorial rule of Oliver Cromwell. Royalists, who had declared Charles-II as King of England on the very day his father Charles-I was beheaded, provoked people to rebel against Oliver Cromwell and plotted to bring Charles-II as King of England.

Newton the elder, father of Isaac Newton was a 'Lord of Manor' and owned a farm at Woolsthorpe. He died before Newton was born. Isaac Newton spent his early childhood in Woolsthorpe with his mother Hannah. Widowed Hannah married an elderly clergyman Reverend Bernabus Smith. Isaac Newton finished his schooling at Woolsthorpe and Joined King's School at Granthom. Like many talented children, he found school a complete bore. He devoted himself to constructions of kites, water wheels, Sundials and other mechanical gadgets. He was not good in studies. He was physically weak, dreamy and an introvert. He had very little in common with his classmates and seldom joined them in games. An elder classmate David the bully took a dislike to the quiet, dreamy Isaac Newton.

Scene II

(An evening in 1654 AD. Play ground of King's school at Granthom. Intelligent but a great bully David is playing with friends. Isaac Newton, biting his finger-tips out of shyness, follows his friend Stokes Jr.)

David: (*Seeing Isaac and Stokes*) Aye Victor, Look ... here comes Isaac, the weakling.... Stokes, wah, what a friend you have.... Why don't you play with us? Did we ever stop you?

Stokes: I shall, but you must admit Isaac also.

Victor: (*disgust*) Admit Isaac? Does he know any game? A spineless creature.

John: (*teases*) wah, Isaac how did you come out? What about your favourable sun dial and mechanical toys?... a child.

David: (*approaching Stokes*) Listen Stokes, why do you cling to this weakling... Does he know any game to play with you...? Leave that coward ... join us, let us play, come on. (*Drags*)

Stokes: (*frees hands*) don't tease Isaac.... You don't know his talents.

Victor: Yes yes, David, aren't we aware of Isaac's talents?

David: Do we...? John, do you know any of his talents.

John: (*seriously*) yes, I know. He is first in academics.... (*Bursts out laughing*) Of course, from the bottom of the list.

(*Others also break into hilarious laughter. Isaac stops biting his fingertips and stares at them*)

David: wah, our weakling also gets angry,... Look at him, how he stares at us... (*Goes near Isaac and punches him on his stomach*) come on dear, fight if you are a boy.... come on. (*again punches*)

(*Newton staggers and steps back. He resumes biting his fingertips*).

Victor: Do you expect this eunuch to fight with you? Look at him, how he stares like a fool, a specimen.

David: (*advancing towards Isaac*) Victor, why do you tease my milk sucking baby, Isaac my baby (*punches Newton*) come on, fight.

(*Isaac staggers and steps back. He stops biting fingertips and stares at him furiously*).

John: Be careful David, don't irritate Isaac. (*Mocks*) Don't you know he is a Volcano? If he is angry, you are finished.

David: I see. Does he get anger? Let me test. (*Moves closer to Isaac*) Isaac, what made you to come out now leaving your sweet Miss. Clarke Storey, young man... (*Wicked smile*) Did she drive you out seeing what you are... learn to fight (*punches*) you henpecked, (*punches again*) I shall teach you to fight, fight, fight like a man (*Isaac tries to move away. David moves forward and punches Isaac*) Why do you back out? If you can't fight, rub your face on the dirt and promise not to come here.

(*Finally David gives a hard punch to Newton. Newton writhes with pain for a moment and recovers. He charges on David like bull and showers mighty blows on him. David staggers and falls facedown. Newton sits on his back and rubs his face on the dirt. As David cries for help, his friends look at each other with surprise. Newton threatens them by raising his fist. Frightened friends of David run away, often looking back with fear and wonder.*)

Stokes: (*clapping*) well-done Isaac, well done.... come on, rub his face on the dirt again.... David, you deserved it. Come on Isaac.

(Encouraged Isaac showers mighty blows on David. David begs for his release. Isaac leaves David. As David gets up, Isaac threatens to beat him. Frightened David dashes out looking back at Newton with fear)

Stokes: Congratulations Isaac, You have made it. *(Shakes hand)*

Newton: I couldn't stand his arrogance any more... There is a limit for any thing... Talks about Storey, filthy brute.

Stokes: Well done Isaac, you have taught him a lesson.... He doesn't dare to tease anymore. *(Thinks)* It is all because, he is an alrounder... a favourite of all. ... He is always first in studies... Someone should outwit him in studies also, and then only he would be alright.

Newton: Why someone else? I shall, *(regrets)* I shouldn't have neglected my studies.

Stokes: Don't worry Isaac; it is better late than never. ... Try from now on, best of luck.

Curtain down

Narrator (1654-1600 AD)

Isaac Newton proved his mettle as a meritorious student. He completed his school education in 1656 and craved for higher studies. But his mother Hannah Smith needed him very badly in the village, as there was no one to assist her to maintain farm. He has to stay in the farmhouse for the next four years; curbing his desire to pursue his studies.

After the death of Oliver Cromwell, his son took over as the Lord Protector of England. People of England rose against the dynastic rule of protectorates. Within a year he inherited protectorate, under the leadership of General George Monk, Royalists pushed out Richards from public life in 1659. A new parliament elected in 1660 abolished the rule of protectorates. It restored the monarchy to the Stuart Prince Charles-II. Charles-II was crowned as the King of England on Sept. 29, 1660 AD, but his reign was counted from Jan. 30, 1649 AD, the day his father King Charles-I was executed for treason.

Scene III

(A day in February 1661 AD. A street in village Woolsthorpe. Old James enters groping his way. Claudius and Christopher, both clad in army uniform enter from the other side. They are carrying luggage on their back. Both of them look at old James and rush to meet him. They drop the luggage and hug Old James with pleasures).

Uncle James: *(with surprise)* Christopher, Claudius, my children, what a surprise... How are you my children?

Christopher: We are fine uncle. How glad are we to meet you on the way!

James: I am happy to see you safe, my children... How long are you staying with me?... Stay with me a little longer.... I feel lonely.... Don't leave me soon.

Christopher: Don't worry Uncle. I don't leave you anymore.

James: *(surprised)* aren't you going back? Did you desert the army? No, you shouldn't.

Claudius: We didn't, but army discharged us. They have discharged many, uncle.

James: (*surprise*) many are discharged... why? Did Cromwell decide to keep peace with other nations?

Claudius: What? Don't you know the death of Oliver Cromwell?

Christopher: (*surprise*) then, you are not aware of anything. Fall of Richards, coronation of King Charles-II?

James: (*surprised*) Coronation of a King? What do you mean? I don't know anything, from the day Cromwell became the protectorate! Who cares this old man here...

Claudius: It is all due to the black law of censor of the press... result of relying too much on one man, Cromwell and his rule. You know uncle, Cromwell ruled like a dictator. He dissolved the parliament, which brought him to power and introduced censorship on what we read and print. He prepared the ground for his dynastic rule before his death.

Christopher: General George Monk saved us; otherwise we would be toiling under the inefficient rule of Cromwell's son Richards. General Monk defeated Richards and coronated King Charles-II.

James: King Charles-II.... Is he the son of Charles-I. I was told Royalists had declared a son of Charles-I as their King on the day Charles-I was beheaded for treason by parliament.

Claudius: You are right; Charles-II was coronated as king of England in the last September... One should have seen the function to believe, how people yearned for the rule of a King...

James: (*murmurs with disgust*) People... people, who are these people.... I wonder who these people are. People, they rejoiced when Cromwell defeated the Royal force... they rejoiced the execution of King Charles-I... they rejoiced when Lord Protectorate Cromwell assumed more powers.... They are now rejoicing the coronation of Charles-II, a Stuart, while father's execution they had rejoiced hardly twelve years ago.... people... people... (*Laughs*)... all in the name of people.... but who are these, these people?

Christopher: (*surprised*) Uncle, why are you so cynical? ... What is wrong in rejoicing the restoration of the throne from an incompetent dictator?

(*Lightening, sounds of thunder and of heavy wind do not disturb the three.*)

Claudius: Don't you know "absolute power corrupts a saint also,"... What about an over ambitious man like Cromwell... (*Disgust*) A great champion of anti-dynastic rule, but had no compunction in promoting the rule of his dynasty, a hypocrite.

Christopher: Can you believe uncle, someone digging the grave of a dead, removing the body and hang it in gallows?

Old John: Preposterous, Unbelievable. Who are these barbarous people? (*Horror and disgust*).... An abhorring act.

Claudius: Of course, it is an act of insanity, but it shows the intensity of resentment. Royalists dug the grave of Oliver Cromwell in Westminster Abbey, removed his body and hung it in gallows at Tyburn. The resentment about the rule of Cromwell was so much; people did not even feel the barbarity in such an act.

(Old James sits spellbound. Strong wind blows followed by lightning and thunder. In the meanwhile, a young man of eighteen years rushes in and goes near Old James after seeing him).

Young man: Uncle, *(Surprise)* why are you out in this raging storm? It would be worse in a few minutes, *(helping him to get up)* come on I shall leave you in your home.

Old James: Who are you my dear? *(Recognises)* oh, Isaac, my child, look my dear, *(shows the other two)* meet your uncles Claudius and Christopher. Do you recognise them?

Isaac Newton: Glad to meet you Sirs, mummy remembers both of you often. Uncle, are you coming from the city? Please convince mummy to send me to college, uncle. *(Pleads, in the meanwhile gush of wind and thunder shake them all)*

Old James: Poor Isaac always worried about his further studies. But his mother Hannah is helpless. She needs you my dear, how can she send you to city? *(Strong wind blows)*

Claudius: Don't worry Isaac; I shall take you to city.... Where were you going in this storm?

Isaac: *(remembering)* Mother sent me to latch the barn door. I shall see you later. *(Rushes out, while others stand stupefied)*

Curtain down

Narrator

Newton was not happy in living the life of a villager. He had developed a special interest in mathematics and alchemy during his stay with a Clarkes at Grantham. He was craving to pursue his studies in a city college.

Scene IV

(Poorly lit barn. Sound of thunder and raging storm is occasionally complimented by dazzling lightning followed by violent thunder. Isaac Newton is seen jumping from a window to the floor whenever the wind blows heavily through the window, and marking the spot wherever he landed each time. Barn door which is ripped open by the wind is seen lying on the floor. Hannah, with a shawl tightly wrapped up over her shoulder, enters and looks at Isaac's prank, stupefied.)

Hannah: *(shouting above the noise of the storm)* Isaac, have you gone mad? I sent you to latch the barn-door... *(Looks at the barn-door lying on the ground and tries to lift it up)*.... gone... everything gone... *(Scowls)*... you idiot, have you lost your senses? Everything has blown away... *(Leaves the barn-door, goes near Isaac, stops him from further jumping and slaps him)* come to senses you fool.

Isaac: *(surprised)* Mummy, don't stop me, I'm measuring strength of the wind. *(Gets released from her hold)* Look here mummy, *(explains)* when the gusts are stronger, my jumps are longer. *(Shows markings on the floor and resumes his jumping and marking on the floor wherever he lands).*

Hannah: *(in despair)* Incurable, oh Lord, help me.
(In the mean while Reverend Ayscaugh, an uncle of Newton enters).

Ayscaugh: Sister Hannah, what are you doing in this ruined barn? Oh, oof... what a terrible storm.

Hannah: Oh my dear, how could you guess I am here? When did you come from the village?

Ayscaugh: Just a few minutes ago... I went home and learnt you are here.

Hannah: It's good you came here... See the dirty pranks of your dearest Isaac... This havoc is due to him. *(Points at Newton accusingly and sobs)* I sent him here to latch the barn-door. All are ruined by his pranks.

Ayscaugh: Dear sister, don't you know he is a misfit as a farmer? Why don't you send him to city for studies?

Hannah: What about this farm? I am old and sick... Is there anyone else to help me?
(Newton is seen absorbed in repeatedly jumping and marking the place on the floor where he lands. He is not aware of Ayscaugh's presence)

Ayscaugh: Look at him Hannah, he is not even aware of my presence, I envy his concentration. *(Goes near Isaac and gently stops him from jumping.)*

Isaac: *(with pleasant surprise)* Uncle, when did you come? *(Hugs)*

Ayscaugh: *(patting Isaac affectionately)* A few minutes ago Isaac.... I am surprised to see you absorbed in the game of jumping. May I know the reason, dear?

Isaac: *(tries to explain)* Uncle... Uncle,

Hannah: *(interrupts)* don't you know? *(Sarcastic)* 'to measure the strength of the storm'.

Isaac: Yes uncle, I am trying to measure 'strength of the storm' *(explains)*... Look here uncle when the gusts are stronger my jumps are longer.

Ayscaugh: Yes, you are right. I too observed this on my way here. My horse could gallop faster along with the wind, than against it.

Hannah: *(irony)* I see, you have also noticed the strength of the wind, today only....
(Ridicules) I thought you would convince Isaac to help me in looking after his Manor... I realise my folly now.

Isaac: Uncle, Uncle. *(Pleads)* ask mummy to send me to city uncle.... Please uncle.

Hannah: Isaac, stop it... If you go away, who will look after your Manor?

Isaac: Mummy, I don't like to stay here... Please uncle... ask mummy to send me for studies. I want to study.

Ayscaugh: Alright Isaac, you go home now. Let us discuss later on.

Isaac: Please uncle, she doesn't send me.... Please convince her.

Hannah: Didn't you hear what your uncle said? Don't stand here, run fast... Take care of the house till we come.
(When Newton hesitates to go and looks at Ayscaugh, Ayscaugh assures him with concealed gesture by hand. Newton goes out reluctantly.)

Ayscaugh: Dear sister, have you seen any villager craving for studies nowadays? Send Isaac to city... Don't worry about your farm. I shall send someone to help you from my home. *(When Hannah tries to interrupt him)* Listen to me. Any way, Isaac can never be helpful to you as a farmer. Send him.

Hannah: I know it... Many a time I felt like sending him to city. I know he is of no use here. (*Confides*) Do you know, one day what he did? I sent him to collect grains from the next village. He went on a horse-back. After some time, horse alone returned without bridle.

Ayscaugh: (*smiling*) Did Isaac bring grains?

Hannah: (*contempt*) would he? When I asked him about the horse when he returned, he looked at the bridle in his hand with surprise, as though he noticed the absence of horse just then.

Ayscaugh: I don't think he had gone to the village.

Hannah: It is your guess. The other day he climbed down the horse to lead it up a steep hill. When they reached the top, he forgot to remount and led the horse rest of the way home.

Ayscaugh: See, you know it well... Why don't you send him to study?

Hannah: (*sighs*) Don't you know my financial position?.. 'Lord of the Manor' (*sarcastic*) only for the name-sake. 'Income from this is not enough even to fight litigation's in the court. How can I finance him for his studies?

Ayscaugh: Lord the merciful will help... Isaac is intelligent. He can find a way out to help himself, you need not worry... Send him for studies. (*Hannah stands absorbed in her own thoughts*).

Curtain down

PART II: "CHALLENGES"

Narrator (1661-1669 AD)

Isaac Newton entered Cambridge as a 'subsizar' at Trinity College. A subsizar had to stay in the University and serve the professors during his spare time doing all sorts of odd jobs not required of wealthier students, to receive an allowance from the college towards his expences. Isaac Newton developed interest in mathematics and theory of light, and got reputation as a scholar. Early in 1665, Isaac Newton received his Bachelor of Arts degree from the Trinity College. He was interested to stay back in the university to pursue his studies. But the dreaded plague, which broke out in England, made the University authorities close down the colleges and to send students to their homes. Newton was to spend some eighteen months in forced exile at his quiet Manor-house in Woolsthorpe. His mother Hannah Smith prepared for him a small room on the second floor in the farm stone-house. Newton began his works on Fluxions, Gravitation and Optics.

Isaac Newton returned to Cambridge in 1667 as a 'Trinity Fellow'. Trinity Fellowship was awarded for a period of seven years, during which time a Fellow was expected to study religious subjects along with other subjects, so that he could eventually take 'Holy Orders' and to set part his life for the service of

Christianity. Liberal minded Newton had to accept Trinity Fellowship out of monetary compulsions.

Isaac Newton submitted his paper "On Analysis of Equations with Infinite Number of Terms", sometimes called 'De Analysi', to Lucassian Professor of Mathematics Dr. Isaac Barrow, in 1669. The Paper explained among others, extension of Binomial Theorem to the rational Index whose absolute value is less than one and its application in his new theory of 'Fluxions', which he had used to prove his 'Law of Gravitation'. Isaac Barrow sent these papers to several

outstanding mathematicians of England and other European countries. Isaac Newton acquired universal approval as a mathematician. Prof. Isaac Barrow resigned 'his Lucassian Professorship and recommended the name of Isaac Newton for the coveted professorship. Isaac Newton was appointed as 'Lucassian Professor of Mathematics' on 29th day of October 1669, acquiring the honour of being the youngest among the Lucassian Professors selected till then.

Scene V

(Evening Oct. 29, 1669. Study room of Newton in the Cambridge University campus. Newton is seen working at his table. Catherine, his stepsister is seen arranging the room. Sound of knocking the door. Catherine exits)

Catherine: *(entering)* Isaac, Prof Barrow has come. *(goes).*

Newton: *(gets up hurriedly and goes to welcome, elderly Prof. Isaac Barrow enters)*
Please come in Sir, welcome. *(Shakes hands)* Please come in. *(leads to a sofa, they sit).*

Prof. Barrow: *(while sitting)* Congratulations Prof. Newton... Congratulations to the youngest Lucassian Professor selected so far.... I am proud of you Isaac.

Newton: It is all your blessings, Sir.... *(Regret)* You should not have resigned your professorship, Sir.

Prof. Barrow: Isaac, young blood should always replace the old.... It is the law of nature.... You deserve much more than this.... I am proud of being a teacher to you. *(Changing the topic)* Have you seen Prof. Mercator's paper on finding the area under a curve, hyperbola?

(Isaac Barrow takes out a bundle from his coat pocket and hands it over to Newton. Newton unfolds the bundle and scans sheets of papers in it.)

Newton: Sir, Mercator has used Lord Brouncker method. He has expressed the area as a sum of infinite series. *(Goes near his book-shelf and removes a file, shuffles pages in it, and shows a page to Barrow)* Sir, I have also used a similar method. I have got the answer upto fifty-two places of decimals. These are my workings. *(Barrow looks at it).*

Barrow: Yes, I remember. You have given it in your "De Analysis". *(Appreciating)* It is a wonderful paper. *(Catherine holding a tray containing cups with drinks)* What a horrible years of 'black death'! It gave you a breakthrough. It's His will.

Newton: I owe a lot to my mother and dear Catherine, Sir... *(Musing)* How much they did to keep me happy during times days of 'great plague'...

(Catherine serves drinks and becomes talkative)

Catherine: Oh, don't remind me those terrible days... Hell with it... Everyone was a terror to another. People were afraid to entertain even their own kith and kin, fearing contamination.... ho... thousands of deaths.... Then the devastating fire in Old London... Sir, the People say, it was a curse for dethroning and beheading the legitimate King. ... A curse from the Heavens, is it true?

Barrow: I don't believe it.... A natural calamity that is it... might be of human negligence... Unhygienic condition was the cause for spreading the plague.... Great Fire was of human negligence and laxity in city planners... The fire

first found in the wooden house of King's baker John Frayner, could not be controlled, as the Pudding lane is narrow and crowded with houses everywhere. Fire spread rapidly due to strong wind...

Catherine: Why did the civil authorities allow such houses?

Barrow: It is easy to blame any administration. People should also realise their responsibilities and co-operate.

Catherine: If it is, the curse from heavens, no one could prevent it.... when people go against the 'Divine Rights of Kings', they are face the wrath of Heavens.

Barrow: (*irony*) 'Divine Rights of Kings'... Do you believe in it? (*Smiles*) 'Divine Rights of Kings'...! a make-believe law, enacted by a few power hungry people.

(*In the meanwhile Newton brings a file from his bookshelf and shows a page in it to Isaac Barrow*).

Newton: Sir, I had found out a phenomenon of light during my stay in my village.... (*Muses for a while*)... It was a cloudy day, and was very cold. I had closed all doors and windows of my room. All of a sudden, I found a band of vivid and intense colours on the wall. To my surprise, it was caused by a beam of Sun-light passing through a prism.

Barrow: (*curious*) How many colours did you see on the wall?

Newton: Seven, seven colours Sir. (*Thinks*) Violet and red were at extreme ends.... Sir, but they were oblong, not circular.

Barrow: Not like a rainbow, you mean.

Newton: Some-thing similar to rainbow.... But oblong it was; not curved like a rainbow... I studied the phenomenon by conducting similar experiments many a time.... I made a beam of light fall on the surface of a prism at different angle.... I found the position of band of colours shifting... Sir, Sunlight must be an amalgamation of seven colours.... I have prepared a paper on it. (*Touches the file in the hands of Barrow*) My report is in this file. Please go through it at your leisure, Sir.

(*Barrow turns the pages in the file, often looking at some of them with interest*).

Barrow: Wonderful, It is worth submitting in the Royal Society.... (*Reads from a page*) "Colour of an object is not in itself. It is because of light through which the object is seen. Apple is red in colour because it reflects red colour in the white light and soaks up the rest of the colours of the spectrum." Marvelous. Isaac, you send these papers to Prof. Oldenberg. He is the present Secretary of the royal Society, a nice person.

Catherine: (*after a while*) Sir, excuse me. (*Barrow looks up*) Have you heard about a poem on the Royal Society? (*Barrow shows interest*) I think, it is by John Dryden.

Barrow: I am sorry, I don't know. Do you remember the lines?

Catherine: Only a few lines Sir, not in full. (*recites*).

Then we upon the-vast globes. Last verge we shall go
And view the ocean leaning on the sky
From thence our rolling neighbours, we shall know,
And on the lunar world securely pry."

Barrow: Fine, thank you, Catherine... Your rendering made it more meaningful... Thank you very much.

Newton: From the day she read this poem, she is interested to know more about Royal Society.... I couldn't help her, Sir.

Barrow: (*smiles*) I will tell you. The Royal Society got its name, only when our present King Charles-II chartered it nine years ago, I mean in 1662. Till then it was known as 'Invisible College'. It was just a meeting place of some of us from the University. Prof. Robert Hooke, Prof. Robert Boyle, Prof. Huygens, Sir Christopher Wren and I were attending those meetings regularly, to discuss recent developments in Natural Sciences.

Catherine: (*with respect*) Sir, I was told, the King honours you as the most intelligent person in England. The respect of the King towards you must have made him to charter the '*Invisible College*' as the '*Royal Society*'.

Barrow: I don't think so.... As a matter of fact, the King Charles-II is personally interested in Natural Sciences. In fact he has set up a small laboratory in his palace to conduct experiments on mercury.... Isaac, you need a special metal for your reflecting telescope... Why don't you meet Robert Boyle and seek his help?

Newton: I have seen him... but...

Barnw: (*smiles*) He doesn't know you, isn't it? I shall introduce you to him.... Don't forget to submit your paper on light to the Royal Society.

Newton: (*hesitates*) I fear... Royal Society might reject my Paper, Sir.

Barrow: Why do you think so?

Newton: My findings are all based on those of many renowned philosophers. They are neither original nor independent.

Barrow: Original... independent... have you heard of any theory which is entirely independent and original? Look at your own theory on 'Fluxions'. Is it not based on the 'Binomial expansion' known through many centuries....? Did any one care to extend it to a rational index', as you did? Did you not develop a new theory '*Fluxions*' out of the same *age old Binomial expansion*, by extending it to a *rational index*? Don't you think your '*Fluxions*' is independent and original.... (*Encourages*) **Lucasian Professor of mathematics, renowned Natural Philosopher Prof. Isaac Newton should not harbour on such inhibitions....** Send your theory on Light to the Royal Society.

Newton: Yes Sir, I shall send.

Barrow: (*pleased*) Good... Isaac, devise a model to demonstrate 'white light as an amalgamation of seven colours'... The devise must be a working model to convince the members of the Royal Society.

Curtain down

Narrator

A general belief prevalent among the common masses of England about the divine power of enthroned Kings and Queens of England was to cure a decease called "KING's Evil" by their touch on a saint's day. King's evil was decease of tissues of the body, a scrafula, tuberculosis of the lymphatic glands. The patients were believed to be cured when the King or Queen of England touches the sore or ulcer of the patient on a certain Saint's day. This belief came down through generations from the days of Edward the Confessor who ruled England during 11th century AD. In the beginning, the patients were given a gold coin by the King after the ceremony, and gradually gold coin was replaced by a silver coin or some other touch piece. Thousands of patients were used to queue up in front of the palace on a certain Saint's day to have the touch of the enthroned person on their sore or ulcer to get it cured.

'Coffee Houses' in England acquired prominence during the troubled days of 'Civil War'. They were the centers of planning and the revolution. Later on, they became meeting places of prominent people and common masses. Politics, religion, literature, scientific discoveries and other important developments were topics of discussion in 'Coffee Houses'. They were also used as platforms to popularise new literary works of prominent writers.

Scene VI

(On an evening in 1670 AD, forty-five year old Claudius is seen sipping a cup of coffee seated alone in a coffee house in London.)

Claudius: *(recognising his friend, greets him)* Aye Christopher, come here. *(Gets up, meets him, shakes hands and leads him to his table)* Welcome to London, welcome... What a surprise... When did you come from Woolsthorpe?

Christopher: I came in the morning with my uncle... You know him.

Claudius: Yes I know him... wasn't he a patient of throat sore? How is he now?

Christopher: Not well. He is suffering from King's evil.

Claudius: I see... have you brought him here for the remedial touch of the King? Tomorrow is the Saint's day.

Christopher: Ya, Lord should cure my uncle through the King.

Claudius: *(sarcastic)* it's the belief through centuries.... Listen to me, both of you reach the palace early in the morning. There would be large queue.... But now-a-days, they have stopped giving gold coins. They are giving silver coins now.

Christopher: *(getting irritated)* Do you mean, we have come here for gold coins? Do you think we are so mean? *(Controls)* There might be a few like that.... But don't you know us?

Claudius: *(clarifies)* I did not mean it... You mistook me... You have never changed.... I was cautioning you about the large queue. Now-a-days the crowd is swelling in spite of silver coins given by the King.

Christopher: You are incorrigible. You think, it is 'worth queuing up for a gold coin.... London city has spoiled you.

Claudius: Look, again you mistook me.... OK, I am sorry, cool down.... How is your farming? Did you complete your farmhouse?

Christopher: I could complete it last year... We had a bumper crop last year, you know.... Sister Hannah also renovated her farmhouse.

Claudius: Congratulations, I am glad you could complete your farmhouse in such a short time.... There is no wonder in Sister Hannah completing her house, I mean in renovating her farmhouse. Isaac Newton must be earning a lot now-a-days. He has become a topic for discussion in every coffee house....

Christopher: Have you met him recently? How is he?

Claudius: No. I haven't met him at all. But I have heard a lot about him. (*Thoughtfully*) I doubt whether he could spare time for me, even if I wish to meet him. No wonder, if he doesn't recognise me even.

Christopher: You haven't met him, that's why you say so. He hasn't changed even a bit. He comes to village every week to see his mother. Hannah says, even though his earning is hardly enough for himself, he gives away most of his earnings to poor students as charity. . . . Whenever he gets upset he comes to his mother for solace like a child.

Claudius: Does he... I thought he must have changed, therefore I never thought of meeting him. Now I should.

(In the meanwhile a group of people enters. Leader of the group having a voluminous book in his hand climbs up on a table. People crowd around him, as he begins to address the crowd.)

Christopher: Who are these people? Why are they crowding here?

Claudius: They have come here to hear about a recent literature. Come on, let us join them. (*They mix with the crowd.*)

Orator: Friends, I am not here to waste your valuable time introducing the most popular patriot John Milton, who served the Nation as a supporting parliamentarian during the turbulent days of Civil War. I am also not here to tell you about the champion of freedom of speech, who didn't spare even the parliamentarians, when they passed a Bill curbing our freedom to print, and read what we like, through his hard hitting pamphlet, 'Aeropaegitica' criticising the in-famous bill. I am also not here to talk about his loyalty as a sincere officer who lost his eye-sight, working day and night for the nation. Friends, I am here to introduce you to a literary masterpiece of our poet - Laureate John Milton. In spite of his loss of vision, his love towards the Great English Heritage has enabled him to create an Epic, 'Paradise Lost', which has been published recently. ... Yes Gentleman, 'PARADISE LOST' is an epic. An immortal epic which narrates 'how Satan fell from heaven through pride, and how he influenced Adam and Eve to turn away from God, their penitence and how they were convinced, through Christ, that God would eventually win people back to Him.' PARADISE LOST is an ocean of English Literary Nectar. A full reading of the great Epic alone could quench the thirst of a literary Zealot; I shall just recite a few lines, to introduce the greatness of this masterpiece. Gentlemen, listen to the Satan's defiant speech when he confronts defeat;

"What though the field be lost? All is not lost;

The unconquerable Will, And study of revenge, immortal Hate;

And courage never to submit or yield, And what is else not to be overcome,

(As the voice of orator diminishes, lights in coffee house diminish, Curtain down)

Narrator (1669-71 AD)

Images of heavenly bodies produced by “Refracting Telescope” suffered from colours blurring, a defect called chromatic aberration. Discovery of spectrum of white light through prism inspired Isaac Newton to think about remedying chromatic aberration. Isaac Newton prepared a ‘Reflecting Telescope’ rectifying the defect. The telescope which was of length six inches and of diameter one inch could magnify an object forty times. The Royal Society began to hear the fame of Isaac Newton as a telescope maker by 1671.

Isaac Newton submitted his ‘Theory of Light’ to the Royal Society. The Royal Society appointed a committee headed by Professor Robert Hooke, Royal Professor of Mechanics was asked to judge Newton’s theory of light and to submit a report.

Robert Hooke had won reputation as a great inventor. He was indeed a man who had knowledge of a surprising number of things. But he tended to have so many ideas and he could not develop all of them fully.

Robert Hooke was sickly proud, and irritable. He was interested in all things but seldom brought any of them to completion. He was suspicious of any other scientist who brought forth ideas that clashed with his own. Among Hooke’s many inventions were a device for measuring the moisture in the atmosphere, a clock driven telescope for following the stars and the spiral watch spring. He was also a good architect.

Scene VII

(AD 1671. Isaac Newton, Robert Hooke, Isaac Barrow, Christopher Wren and many other Natural philosophers are seated in the conference Hall of Royal Society. Secretary Oldenberg enters and announces the arrival of President of Royal Society.)

Oldenberg: Welcome, gentlemen Professors ... welcome.... *The President (goes to the entrance and receives the president. All others stand while the president goes to his seat.)*

President: *(standing)* Gentlemen Professors; I welcome you all to this special meeting. *(Sits)* Mr. Secretary, please.

Oldenberg: *(bows to the chair)* Mr. President and distinguished gentlemen professors, the agenda of to-day’s meeting is to hear a report on Prof. Isaac Newton’s new found theory on light. Our distinguished Prof. Robert Hooke is requested to submit the report on behalf of the committee. Prof. Robert Hooke, please... *(Invites)*

Robert Hooke: *(gets up and bows to the President, looks up with an air of superiority)* Thank you Mr. President... Mr. President, Mr. Secretary and distinguished gentlemen Professors, I feel obliged for having been appointed to submit a report on the thesis of Prof. Isaac Newton on Light. Gentlemen Professors, The thesis of Prof. Isaac Newton contains several propositions and experiments on light. In general, Prof. Newton has conducted the experiments carefully and has formulated his theories to explain the effects observed.... But I feel, there are other theories also, notably mine, which would do as well.... Anyway Mr. President, before submitting the report, I would like to get a few clarifications from Prof. Newton, if the chair permits. *(Bows)*

President: With pleasure, please proceed Prof. Hooke.

Hooke: *(raising his voice)* Prof. Newton, in the last chapter of your thesis, you have stated *(reads theatrically from the paper)* “Light is a body and... and ... as many colours and degrees as there may be, so many bodies there may be, all of which compound together would make the Light white.” Will you please explain your statement?

Newton: *(gets up)* with pleasure Prof. Hooke. White light is an amalgamation of several colours. Since light travels; it must be a body. Therefore, white light must be a body which is an amalgamation of several bodies of different colours.

Hooke: If light were to be a body as you have stated, its presence should have been felt by all of us, I repeat, its presence should have been felt, not seen. But DO WE FEEL the presence of light Prof. Newton. *(looks around with triumph)*.

Newton: *(Nervousness)* er... er... er, what I... what I meant was.... as light travels... as it travels it must be a body, and... And...

Hooke: *(interrupts)* Please, just a minute Prof. Newton. Are you aware of the experiments conducted on light by eminent professors like Prof. Fransisco Mario Grimaldi of Bologna and MYSELF?

Newton: *(hesitatingly)* Prof. Descartes has stated.....

Hooke: *(with emphasis)* Prof. Newton, do you know about the experiments on light conducted by Prof. Grimaldi and MYSELF?

Newton: *(embarrassed)* I... I... I don't.. I mean, I haven't.

Hooke: *(irritated)* Prof. Newton, before involving in new discoveries in any branch of science, it is always advisable to study the progress made by eminent philosophers in that branch till then. As you are interested in theory of light, you are always welcome to study my theories. *(With pride)* MY RECENT THEORIES ON LIGHT ARE AVAILABLE IN ANY STANDARD LIBRARY OF THE WORLD.

(uneasy calm prevails for a moment. President interferes)

President: Prof. Newton, Prof. Hooke is very much committed to the study of Natural Sciences... and, therefore, he appears to be more critical. I'm sure, you are aware of his good intentions.... *(Changes the topic)* By the by, Prof. Newton, are you related to Sir John Newton, Bart?

Newton: *(as the name is heard for the first time by him, looks puzzled, soon recovers)* yes... yes Mr. President, Sir John Newton, Bart. He is my uncle.

Barrow: Mr. President, Prof. Isaac Newton is a 'Lord of Manor'.

President: Thank you Prof. Barrow, I know... Prof. Hooke, Please proceed.

Hooke: *(bows)* Thank you Mr. President. Prof. Newton, light can never be a body in any form... Of course, for centuries light was considered to be a stream of tiny particles called corpuscles. But I never agreed with this outmoded theory.... If light were to be a stream of corpuscles, shadow of hair should also be as sharp as that of any other object. But it is not so.... Prof. Grimaldi and I have conducted many experiments carefully and studied the shadow of hair. Our observations revealed *(quotes)* ‘when the hair is intensely illuminated, its shadow would be a series of stripes, parallel to the hair, and

these stripes appear within the space which would be the region of its total shadow.... (*Egoistically*) I have named this phenomenon as ‘diffraction of light’. Prof. Grimaldi and I are of the opinion that light is not a stream of corpuscles. It is a vibration... er... waves... a wave over very subtle substances... call that substance... ‘Ether’ if you prefer.... therefore Prof. Newton, our experiments has already disproved the theory of corpuscles, which is almost similar to your theory. (*Looks around with triumph*).

Newton: (*emphasising*) Prof. Hooke, if light were to be a wave, it should bend in its path. Then shadow of a ball on a wall, produced by a source of light kept in line with the ball vertical to the wall, should be of smaller size than the ball.... But it is not so.... Therefore light cannot be a wave.

(*Professors start discussing among themselves. Commotion for a few seconds*)

President: Order... Order... Gentlemen Professors, order... (*After-a-while*)
Prof. Newton, will you explain your theory of light more elaborately?

Newton: (*bows to the chair and to the assembly*) with pleasure Mr. President. (*explains*) ‘White light is an amalgamation of seven colours. It is confirmed through many experiments conducted several times carefully. Moreover, once, one of the colours of the spectrum is separated from white light it could not itself be broken up or changed in any way. Colour of the object is due to the light through which the object is seen, and not of the object itself.

Oldenberg: Would you please clarify, Professor.

Newton: With pleasure, sky is blue. But the sky is not blue by itself. It is reflected blue light, absorbing or soaking rest of the colour of the spectrum in the sky.

Hooke: If sky has already absorbed the rest of the colours of white rays of Sunlight, how are we getting white light from the Sun?

A Professor: Yes, we should have received only blue light from the Sun.

President: Gentlemen Professors, Please don’t interrupt in between....
Prof. Newton, is it possible to amalgamate all the seven colours in the spectrum back into white light?

Newton: Certainly Mr. President (*bows*), when a beam of light is passed through a prism, a band of spectrum of seven colours rectangular in shape, whose width is five times its length, is produced. When this spectrum is again made to pass through another prism kept in a certain position, it gets amalgamated into white light. It could also be demonstrated in another way. (*Takes out a circular disc on which all the seven colours of the spectrum are painted proportionally in its sectors. Shows it to the assembly and explains*). On this disc several colours are marked whose areas are proportional to the area of colours found in the spectrum, and they are coloured with respective colours. (*balances the disc at its centre and rotates it with speed*) Look, when the disc rotates rapidly, all the seven colours in the disc merge to form white.

Christopher Wren: Marvellous, the best model to explain his theory.

A Professor: A toy... after all... nothing but a toy.

Hooke: Thank you Prof. Newton... Do you think the dispersion of white light into seven colours explains the formation of rain-bow?

Newton: Certainly, each droplet of rain water acts like a prism and breaks white light into seven colours and produces rain-bow.

Hooke: Excellent explanation, thank you. How do you explain the colouration of water due to oil drops?

Newton: Oh that... that... yes... that... excuse me, I haven't thought about it.

Hooke: (*magnanimously*) It's quite natural... acceptable... Often it happen Mr. Newton. (*Stresses the word Mister. All assembled look at Hooke with surprise*) Is it possible to know everything by everyone? Mr. Newton, if you are interested to know more about light, you can always refer my work on it. (*Uneasy calm prevails*). By the way, I'm very much impressed by your 'Reflecting Telescope'. My hearty congratulations to you for your success in grinding a spherical reflecting mirror.... For your information, I had also made one such 'reflecting telescope' many a years ago. It was only an inch long, but its performance was much better than that of fifty feet long... My glass grinder could not get me a concave spherical mirror of a larger size... You've really scored over my glass grinder. Congratulations.... I wonder how you got the metal for grinding such a big spherical mirror. I am anxious to know, of course, if it is not a secret.

Newton: (*explains, though feels insulted*) Courtesy of Prof. Boyle ... Prof. Robert Boyle helped me... Prof. Boyle helped me in preparing an alloy of tin, arsenic and copper, which is specular. Concave mirror of my reflecting telescope is made of that speculum metal... (*With respect*) I owe my gratitude to the most generous Prof. Robert Boyle.

Hooke: (*contempt*) Robert Boyle... that alchemist... who is always mad after mythical 'elixir of life' and 'Philosopher's stone'... has helped you! Interesting.

Newton: (*gets angry*) Prof. Hooke, hold on... There is a limit for everything... (*Contempt*) What do you know about the most eminent Prof. Robert Boyle?

Hooke: (*teases*) I know much more about him than you do Mr. Newton... Listen, take my advice. It is always better to concentrate on any one branch of knowledge. As you have already made considerable progress in preparing reflecting telescopes, concentrate your efforts on them.... and ... and (*stressing*) LEAVE OPTICAL THEORY TO MORE MATURE MINDS.

(*When all sit stunned, Newton looks hurt.*)

Curtain down

Narrator

Isaac Newton returned home with wounded pride. He was convinced that his family title 'Lord of Manor' saved him from further humiliation. He determined to spare some time to the land litigations to solve Problems of tenancy and to retain the title, contrary to his earlier decision to dispose it off. He resolved to establish his relation with Sir John Newton, Bart, about whom he thought of, as an Influential Knight.

Scene VIII

(Hannah Smith is seen knitting, seated in her room. Newton enters. Disgust writ large on his face, he paces up and down with impatience.)

Hannah: Isaac, my dear, please be seated.... What is the matter...? Why are you so dejected? Come on, be seated.

Newton: *(muttering)* Ridiculous.... irritating... disgraceful... that boast, that boast is a beast..... Uncultured. *(Paces up and down with impatience)*

Hannah: Whom are you scolding? What has happened? Come on Isaac, why don't you tell me? What is the matter? *(Mutters)* huh,... the same old Isaac,... hum... This is the fate of all those who are brought up lonely in a village.... Isaac, one should learn to adjust with people in the society he lives as long as he has to live in it.... A great Lucassian Professor of mathematics, a baby at heart... *(Smiling)* Learn to be worldly Isaac.

Newton: *(comes near Hannah)* Do you know Sir John Newton, Bart Ma?

Hannah: No dear, I haven't heard his name even. Why?

Newton: *(pleads)* Try to remember, ma.... He must be related to us.... Sir John Newton, a distinguished Knight he must be.... Try to recollect.... He must be a relative to us.

Hannah: *(puzzled)* No dear, I can't remember any one by such name.... *(With affection)* Sir John Newton, Bart.... He must have befooled you.... hum,... Isaac, any Tom, Dick and Harry will come to you now with all types of cooked up relationship with you.... Do you know why? Now you are a celebrity, renowned professor of mathematics.... hum... If not, the very people would have brushed you aside... huh, *(disgusted)* what a folly, mad world.

Newton: You are right ma. In the absence of some kind of title, or relationship with a celebrity, it is very hard to survive in this world of hypocrites... *(With determination)* Ma, I shall secure both of them.

Hannah: *(puzzled)* What do you mean?.. Isaac, what happened to you?

Newton: Ma, do you believe that the same worthless, title 'Lord of Manor' saved me from a great humiliation in the Royal Society.... But, you KNOW IT'S WORTH... So many litigations, for such a meagre yield.... But I shall retain the title.

Hannah: *(bemused)* But Isaac, you had decided to dispose it off... Did you not quarrel with me for my refusal to do so? May I know the reason for the change in your decision?

Newton: Ma, I am saved from a great humiliation in the Royal Society because of this title....I am a 'lord of Manor', respectable and a noble person.... A gentleman respected in the Royal Society. *(With determination)* Ma, I shall retain the title 'Lord of Manor' at any cost.... Ma, President of the Royal Society asked me whether we are related to Sir John Newton, Bart.... Sir John Newton ma, try to recollect... He must be related to us.

Hannah: *(sighs)* I don't know dear.... Even if he were to be our relation, he would not have contacted us then... Your father, who was not educated like you, lived

like a farmer'.... (trying to recollect) SIR JOHN NEWTON. A Bart... No dear, I don't know him.... I do not remember to have heard the name even.
Newton: It is alright ma... I shall find out who he is.... I shall contact him and cultivate our relationship with him. (Hannah looks at him with wonder)

Curtain down

PART III: 'ACHIEVEMENTS COME TO LIGHT'

Narrator: (1671 - 83 AD)

Reflecting Telescope of Isaac Newton was exhibited in the Royal Society. The telescope attracted the attention of King Charles-II and other dignitaries of the Royal Society which enabled Newton to get elected as a 'Fellow of the Royal Society' on Jan. 11, 1672. He had to spend most of his time in answering many queries raised by Robert Hooke and many others about his Theory of Light. After getting tired of answering many queries, Newton decided not to write any more on his Theory of Light to the Royal Society.

In early 1675, Newton was informed to take 'Holy Order' as a condition for the completion of his 'Trinity Fellowship'. Dr. Issac Barrow drew up a petition to the Crown, requesting exception in the case of Issac Newton from taking 'Holy Order'. When the decision of this request was delayed by the Crown, Newton refused to pay the weekly fee of a shilling a week to the Royal Society for attending its Wednesday meetings. Sincere efforts of Henry Oldenberg who did not like to loose the membership of Issac Newton, got exemption from paying the weekly fee by not only Isaac Newton but others as well. King Charles-II signed an arrangement on March 12, 1675 exempting Issac Newton from taking 'Holy Order'.

The year 1677 made Newton to suffer from the death of his two intimate well-wishers, Issac Barrow and Henry Oldenberg. Robert Hooke succeeded Oldenberg as Secretary of the Royal Society in 1678.

England was heading towards a political crisis. Duke of York, a brother of King Charles-II was an ardent Roman Catholic and he was suspected by the liberal people of England. Duke of Manmouth, an illegal son of King Charles-II was a Protestant and had gained the confidence of common Britishers. Quarrel for succession was in the offing. Disclosure of 'Rye House Plot' to murder the Royal brothers in a Rye House in the year 1683 hastened the political crisis. Many innocent people were either mercilessly murdered or put to gallows for treason. Duke of Manmouth fled to the Netherlands from the fear of being accused as an accomplice.

Young astronomer Edmond Halley, besides having done important work on the motion of comets, was deeply interested on the problems of gravitation. In early January 1684, he had worked out from Kepler's Third Law that the Sun's gravitational influence varies according to the Inverse Square Law. About the same time, Sir Christopher Wren and Robert Hooke had also apparently come to the same conclusion. Having failed in finding the path of a planet moving under the influence of the Sun's gravitation, Edmond Halley arranged to meet the two elderly men in one of the busy coffee houses in London on a day in Jan. 1684.

Scene IX

(A day in January 1684, London Coffee House. Waiters are seen serving coffee to the customers. Edmond Halley is seen expecting some-one anxiously. When fifty-two year old Sir Wren enters, twenty-eight year old Edmond Halley goes to him and greets him).

Halley: Good evening Sir. (*Shakes hand*) Welcome.

Sir Wren: Good evening Halley, (*both of them move towards a table and sit*). I am sorry Halley; you had to wait for me. I was held up by Mr. Grinling Gibbons.

Halley: On the contrary, I beg your pardon Sir for troubling you to spare your precious time for this meeting.... Sir, People are full of praise for the architectural beauty of St. Paul Cathedral..... Grinling Gibbons.... (*Thinks*) Is he not the famous interior decorator....? Are you engaging him for the interior decoration of your St. Paul Cathedral?

Sir Wren: Yes, I would be proud of St. Paul Cathedral. It would come out as a distinguished land mark of England... By the by I am thankful to you for kindling my interest on the influence of Sun's gravitational pull on the planetary motion... I had lost interest on the topic till I got your letter... (*Musing*) Of course, St. Paul Cathedral had made me to forget everything else... (*Looks at the entrance*)... Robert Hooke should have come by now. Did you hear anything from him?

Halley: Prof. Hooke accepted my invitation... He should have come by now... (*Shrugs*) I'm sorry Sir, we may have to wait.

Wren: It's alright... Did you discuss the problem with Prof. Issac Newton?

Halley: No Sir, I haven't seen him in weekly meetings of Royal Society now-a-days.

Wren: You are right, he had stopped coming to Royal Society.... But, now the King exempted him from taking Holy Orders.... why is he not attending the meetings of Royal Society?

Halley: I think it is due to the attitude of Prof. Hooke towards Newton.... Prof. Newton was regular in attending the meetings until Prof. Oldenberg was the Secretary of Royal Society. I haven't seen him after Prof. Hooke took over as its Secretary.

Wren: It's unfortunate; some one should try to clear the misunderstanding between them.

Halley: Sir, now-a-days Prof. Hooke has started spreading rumour about Prof. Newton's work on gravitation.... In one of the Wednesday meetings of the Royal Society, Prof. Hooke ridiculed works of Prof. Newton on gravitation.

Wren: It's unfortunate.... It's all due to professional jealousy.... It is very rare to find people free from such venom.

(*Halley observes Prof. Hooke at the entrance. Halley goes to meet him*)

Halley: Welcome Prof. (*Extends his hand to shake*).

Hooke: (*nodding his head*) Hallow Edmond. (*Moves towards Sir Wren*) How do you do Sir Wren. (*Shakes hands of Wren*) I feel preveleged to meet you, atleast here. Sir.... I haven't seen you in the meetings of Royal Society after I took over as secretary. Your presences were always inspiring.

Sir Wren: I shall attend.... How are those meetings now-a-days, Prof.?

Hooke: Fine Sir.... Meetings are becoming more and more interesting.... (*With pride*) Edmond, don't you agree?

Halley: (*embarrassed*) Sure Prof. ... They are.

Hooke: Sir, what about your favourite project? (*Sarcasm*) Is it under completion?

Wren: (*ignoring the sarcasm*) Almost... except its interior decoration.... Skillful wood carver Mr. Grinling Gibbons is involved in planning its interior decoration.

Hooke: Then, you must be spending most of your time on it.... I wonder about your sustained interest for at least SIXTEEN YEARS on this project. (*Mischievously*) Sir Wren, have you heard a rhyme about you? I think it is by ... it is by.... Mr. Bentely (*recites*)
*Sir Christopher Wren said,
 "I'm going to dine with some one
 If any one calls,
 Say I'm designing St. Pauls."*

Wren: Wonderful, I didn't know your interest in such a silly rhyme... Thank you... Edmond, shall we come to the business now?

Halley: Thank you Sir... A few days ago I could find out "the Sun's gravitational influence on planets varies inversely as the square of their distance".

Hooke: Yes, you're right... I had worked it out several years ago... Sir Wren, if I am not mistaken, I remember to have heard similar statement from you also.

Wren: Not exactly... we had thought of Sun's gravitational influence of planets.... But Edmond says 'it varies according to the inverse square law'.... Edmond, what is the basis for your assumption?

Halley: Sir, attraction due to gravity is comparable with the magnetic attraction.... But, in that case, planetary orbit around the Sun should be circular.

Hooke: Exactly, I have verified these facts several years ago.

Halley: If Earth's orbit around the Sun is circular, how do we have different seasons in a year?

Wren: You're right, planetary orbit cannot be circular.... Prof. Hooke, so what is your comment on this?
(Sir Wren beckons a waiter and orders coffee)

Hooke: It is quite evident, planetary orbit around the Sun can never be circular.... I have proved it several years ago.

Halley: (*eagerly*) Prof. If not circular, what else?

Hooke: Not so easily, Edmond... I don't intend to publish it now. Let every eminent scientist try to find it out.... I shall publish it only when all reputed scientists accept their failure in their attempt.
(Waiter brings coffee and serves. All the three sip coffee.)

Wren: If you make your findings public now, won't you get the credit for finding the planetary orbit around the Sun?

Hooke: I attach least importance to such mean credits Sir Wren... (*Grudgingly*) It's enough if those so-called scientists realise the worth of my works.
(Silently they sip coffee. Silence of embarrassment for a while prevails.)

Wren: Listen Gentleman, I wish to publish this problem as a challenge. "**Anyone, who determines orbits of planets around the Sun, and proves it mathematically, within sixty days from today, would win precious books worth forty shillings**".... I'm sure; Prof. Hooke would surely accept the challenge. He has the solution already. What about you Edmond?

Halley: *(Enthusiastically)* I accept Sir.
Hooke: *(after a deep thought)* Sir Wren, I agree to publish my work on it on the last day of the bet, to enable Edmond to get enough time for his attempt.
Wren: I remind you both once again. The findings on orbit of planets around the Sun must be MATHEMATICALLY JUSTIFIED.
(Both of them nod their approval)

CURTAIN DOWN

Narrator

Winter turned to spring and spring to summer, but Prof. Robert Hooke did not fulfil his boast of publishing the orbit of planets around the Sun under its gravitational influence. Edmond Halley, having failed in his attempt, decided to seek the help of Isaac Newton. One day in August 1684, Edmond Halley made a trip to Cambridge to meet Prof. Newton.

Scene X

(August 1684. Cambridge University campus, A day in Newton's chamber. Forty-two year old Issac Newton is seen at his working table. Servant Stephen enters.)

Stephen: Sir, Prof. Edmond Halley wishes to meet you.
Newton: *(looks up)* Show him in please. *(Gets up and goes to entrance. Halley enters in. Both shake hands)* Welcome young man... welcome, How do you do?
(Affectionately leads him to a chair, they sit.)
Halley: I'm fine, thank you Sir..... Did I disturb you Sir?
Newton: Not at all... It's a pleasure to meet young Edmond. You're always welcome. Edmond, your catalogue of the southern sky is really a good work. Congratulations.
Halley: Thank you Sir. It is the result of my expedition to south Atlantic. I feel, it needs modification.
Newton: You are right; there is no end for modifications.... Your catalogue is helpful for my observations of southern skies.
Halley: Sir, now-a-days we miss you in the Wednesday meetings of the Royal Society.
Newton: *(with disgust)* why should I attend those meetings Edmond? Don't you know it's new Secretary... I am fed up with his behaviour.
Halley: Sir, Prof. Hooke has changed a lot now-a-days.
Newton: It's a myth. He can never change to the e better. Have you ever heard of tiger changing its spots?
Halley: Sir, soon after he became the Secretary of the Royal Society, I heard, Prof. Hooke wrote to you expressing his regards.
Newton: *(sarcastic)* you are right. Almost six years ago, he wrote me a polite letter inviting my comments about planetary motion suggested by a French Astronomer Mr. Messenges.
(Edmond Halley tries to interrupt. But Newton continues)
Newton: I always wanted to be friendly with him..... I promptly replied very politely..... I suggested a scientific puzzle in that letter to please him.... That was a sin I committed. It was enough to make him show his true self.

Halley: (*surprised*) a scientific puzzle! What was that about, Sir?

Newton: The puzzle was ‘to find the path of a stone freely dropped from the top of an imaginary flag-pole extending straight upward for many miles.’... In the same letter, I gave its solution also... That was the crime I committed.... Of course, Prof. Hooke was right in correcting my solution to that puzzle..... I had considered a particular case of an imaginary flag-pole fixed anywhere on the Earth’s Equator.... I had written that the stone would fall at a place towards east to the foot of the imaginary flagpole. You can very well imagine the reason for it.

Halley: (*thinks for a while*) If an imaginary flag-pole fixed any where on the Earth’s equator, a stone kept on the top of that flag-pole many miles straight up. It would be rotating from west to east, very much faster than the objects on the Earth. When that stone freely falls from that height, it describes a spiral path while falling towards the Earth due to gravity, while continuing to move from west to east faster than the objects on the Earth, it should fall at a place which is towards east to the foot of the imaginary flag-pole. What is there to make a fuss about it?

Newton: I might have forgotten to mention the condition that the imaginary flag-pole is fixed anywhere on the Earth’s Equator. Prof. Hooke considered the imaginary flag-pole fixed straight upward anywhere in the Northern Hemisphere. He wrote that the freely falling stone from the top of that imaginary flag-pole would describe almost an elliptical path and would fall at a place which is towards a little south-east of the flag-pole.... But was it necessary for him to announce our private correspondence in a public meeting of the Royal Society?

Halley: Really surprising Never expected from the distinguished Professor of mechanics . . . more over from the secretary of an august body like the Royal Society..... Recently Sir Christopher Wren and myself were also victims of his bluff.. Sorry Sir... (*murmurs*) May not be a bluff, might be his forgetfulness.

Newton: Edmond, may I know what was that bluff?

Halley: Certainly Sir.... Actually, I came here now to seek your guidance on that topic only.... Sir, have you heard of a challenge posed by Sir Christopher Wren to scientists.

Newton: No, I’m not aware of it.

Halley: The challenge is ‘*to determine the nature of the planetary orbit around the Sun due to its gravitational influence, and to prove it mathematically*’. (*Newton listens with interest*) One day in January this year, Sir Christopher Wren, Prof. Robert Hooke and I met in a coffee house. We were discussing about the nature of the planetary orbit around the Sun under its gravitational influence. Prof. Hooke said that he knew the nature of the planetary orbit, but he would make it public only when all other scientists accept their failure in finding it out... Sir Christopher Wren declared that he would pose this problem as a challenge with a condition that the problem should not only be

solved but mathematically justified within sixty days from the day we met. He announced a prize of precious books worth forty shillings.

Newton: Interesting... I was not aware of it.... Almost five months have passed the limit announced by Sir Wren... Did Prof. Hooke accept the challenge?

Halley: Certainly... And he said that he had the solution... I wonder what made him to withhold it. Might be his forgetfulness.

Newton: I don't think so.... If he had the solution, he would never allow such a chance to slip, not for the prize, but for the publicity he would enjoy. (*Thinks for-a-while*) wait, I have something to show you. (*Gets up, goes near his bookshelf, picks up a file, turns pages in it locates a paper.*)

Newton: (*comes near Halley and shows the paper in the file*) Here it is Edmond... Planetary orbit around the Sun should be an ellipse, with the Sun at one of its Foci.

(*Edmond Halley receives the file and studies it page after page*)

Halley: You have given the mathematical proof also. (*Continues studying in the meanwhile; Catherine followed by Stephen carrying a tray having drinks enter. Stephen keeps the tray on a tea-poy and exit. Catherine sits by the side of Newton.*)

Newton: Edmond, meet my dear sister Catherine. (*Edmond Halley gets up and greets her*).

Halley: Good Evening, glad to know you Ms. Catherine.

Catherine: Good Evening, Prof. Halley, Issac always talks high of you and your achievements as a professional astronomer.

Halley: It's his greatness.... We are all pigmies in front of him.... Miss Catherine, call me Edmond if you don't mind.

(*Catherine smiles and serves drinks to all, she takes a cup and all sip*).

Newton: The credit for all my achievements, if any, goes to my dear Catherine and my dear mother.

Halley: (*smiles*) Of course, behind every successful gentleman there is always a lady motivating him. Am I right Miss Catherine?

Newton: You're right; I would be helpless without Catherine.

Catherine: Don't exaggerate Issac. Edmond, call me Catherine that would do. (*Becomes talkative*) Edmond, you have made extensive study about comets... Tell me your honest opinion about general belief '*Comets always bring national disasters*'.

Halley: I think it is only a superstition, nothing but a superstition.

Newton: (*interrupts*) Superstition ... Well, Edmond, do you know how does it spring and spread? Don't take it seriously, just for argument, listen.... When a certain incident repeatedly happen in conjunction with a certain occurrence, then a general belief spreads that such and such an incident happens due to certain occurrence. When this belief takes a deep root in many minds on the basis of their so called experiences, it becomes a superstition and spreads.

Catherine: Then, Issac do you agree that superstition is also a result of observation, correlation, drawing inference and generalisation.... Aren't these steps essential before any proposition in science becomes a law?

Edmond: I beg to differ with you Catherine.... If all the superstitions are based on all the steps you have stated, they are not superstitions at all.... Are they? Look at the common belief "King's Evil".... Is it based on any scientific observation? How does the Royal throne of England bestow such a divine power to cure a certain disease on a Saint's Day by merely a touch of whoever coronated on it?

Catherine: But it is a fact, people do assemble in front of the palace on a Saint's Day every year to get the Holy touch by the king. They believe the tuberculosis of the lymphatic glands, which they call "King's Evil", gets cured by the touch of the King of England on a Saint's Day. It is a belief.

Edmond: Or, do the people assemble in front of the palace on the Saint's Day to get a silver coin! I wonder.

Newton: Hm.... There are so many beliefs in the world.... Some are self-convincing, and a few beyond any stream of logic.....Let us leave it at that.

(In the meanwhile barking of a dog suffering from pain is heard. Newton looks at Catherine. Catherine leaves abruptly. Halley continues studying the file.)

Halley: *(shows a page in the file)* Sir, I couldn't follow the mathematics in it? *(Newton looks at it)*

Newton: Yes, this is the theory of 'Fluxions'. I developed it eighteen years ago, during the Great Plague of 1666. I proved the planetary orbit around the Sun as an ellipse, using this new mathematics.

Halley: What a surprise.... A problem which was thrown as a challenge just eight months ago was already solved by you eighteen years ago. Why didn't you publish it so long Sir?

(Catherine enters with a dog and leaves it by the side of Newton. As it is getting dark, she lights a candle, keeps it on the low table in front of them and leaves. Newton pats the dog affectionately and continues)

Newton: Edmond, once I solve a problem I loose interest on it and go to the next one. Moreover, I was disappointed when I failed to explain the perturbation of moon mathematically. My mistake was that I had taken 60 English miles to one degree of the earth's latitude. Of course it was during 1666, eighteen years ago.

Halley: It is only two years ago, in 1682, Mr. Jean Picard, a French scientist gave the value 69.1 miles to one degree of the earth's latitude.

Newton: It is only then I could ascertain mathematically the planet's orbit around the Sun had to be an ellipse.

Halley: Any way, you had solved the problem even before it was thrown as a challenge.... I have heard about your observatory. Shall I have a look at it Sir?

Newton: With pleasure, Let us go.

(Newton ties the dog to a peg with a long thread. Keeps the files on the low-table by the side of the lighted candle and goes out with Halley. The dog tries to follow Newton, being prevented by the long rope becomes restless. Roams around frantically and jumps over the lighted candle. The lighted candle falls and sets fire to the file on the low-table. As the smoke spreads with fire, the dog goes to a corner and moans with fear.)

Catherine: *(from inside)* Issac, something is burning in your room.... Are you there?
(After-a-while comes out, looks at burning files with awe, takes the door-mat and extinguishes the fire by covering cursing the dog)

Diamond, the brute, the wretched dog, look, what you have done to your Master's works. *(Takes a cane and moves to beat the dog)*

Dimond you bloody brute, I will kill you. *(Lifts the cane)*

(In the meanwhile, Newton and Halley enter. Newton rushes towards Catherine and stops her from beating the dog)

Newton: Please child, don't beat Diamond..... *Poor Diamond knows not what he has done. (Looks at the burnt out papers in the file kneels down and tries to salvage. Catherine and Halley Helps).*

Catherine: *(regret)* I'am sorry Issac, I couldn't save your papers.

Newton: *(comforts)* never mind child, I shall rewrite them with the help of these salvaged bits.

CURTAIN DOWN

Narrator (1684 - 86 AD):

Edmond Halley encouraged Newton to rewrite the works of Newton which were burnt out in the fire. In the process, Issac Newton started collecting materials for his famous work 'Philosophiae Naturalis Prineipia Mathematica' (Mathematical Principals of Natural Philosophy) on a day in June 1685. His mind was overflowing with the results of over twenty years of original scientific thinking. He plunged into the gigantic task of putting them all on paper. He drove himself so unmercifully that Halley, Wren, and others feared for his health... Yet, once having undertaken the job, it was like Newton to see it through to the end, whatever happens to himself. Proofs, theorems, propositions, equations, principles, precisely labelled diagram; these were what Newton lived and breathed during the rest of 1685 and 1686. The manuscript copy of the book 'Principia' was ready by April 1686. It was submitted to the Royal Society by Edmond Halley in May. The Royal Society, having realised the importance of the book decided to publish the book 'Principia' forthwith. But the financial crisis in the country, had affected adversely the monitory position of the royal Society due to curtailment of the Royal grant by the new King James-II. England was again reeling under political turmoil. Administration of England during the last days of King Charles-II had become ineffective owing to his indifference. After his death on 6th Feb. 1685, his brother Duke-of-York was enthroned as King James-II. King James-II was an ardent catholic and bestowed Royal patronage to Roman Catholicism. Enraged Protestants of England provoked Duke-of-Manmouth, who was in exile in the Netherlands; to wage a war against King James-II. Duke-of Manmouth and his inexperienced army of mostly untrained villagers were defeated by a well trained Royal Army. Duke-of Manmouth was beheaded for treason on 15th day of July 1685. Many innocent people were harassed and murdered. People revolted against the rule of King James-II. More money was needed to suppress the rebels and to woo the army. King James-II ordered many measures to curtail the expenditure. As a result of which the Royal Grant to the Royal Society was also curtailed. Royal Society did not have enough money to print 'Principia' of Issac Newton. However, Halley could not bear to see such a brilliant work go unpublished. Edmond Halley was determined to get the book published, got the approval of the Royal Society to get it printed at his own cost, but to publish it by the Royal Society.

Publication of 'Principia' had to suffer another set back. Robert Hooke started spreading rumours that he had first suggested Newton about some parts of his law of gravitation and

Newton has stolen the idea of gravitation from him. There was a fear of publication of the Book-III "System of the World" being stopped due to the controversy. Halley tactfully wrote a letter to Newton explaining the matter and suggested a remedy to overcome the hurdle.

Scene XI

(August 1686. Cambridge University Campus. In the Newton's drawing-room, thirty five year old Catherine is seen seated on a sofa, servant Stephen enters.)

Stephen: Mr. Claudius wants to meet you Madam.

(Catherine nods her head indicating Claudius to be sent in. Stephen goes out. Sixty-six year old Claudius enters.)

Claudius: Good evening Miss Catherine *(sits)* How do you do?

Catherine: Good evening, I'm fine; thank you. How is your business now?

Claudius: Fine. Young John is looking after my book shop. No problem.

Catherine: Uncle, I heard you bought a printing press also.

Claudius: I haven't bought it yet. I am planning to buy the press in which Issac's book is being printed.

Catherine: Stephen told me, you were always found in that press. I thought you own that press.

Claudius: Oh, not yet. I go to press to supervise the printing of Issac's book Principia.

Catherine: hm... It is really a good gesture by Royal Society to have agreed to print Issac's book in spite of curtailment on its expenditure from the Government.

Claudius: *(surprised)* in what way finance of Royal Society is connected with printing of Principia?

Catherine: Of course, who else is financing... Don't you know?

Claudius: *(embarrassed)* I thought **you** know it...

Catherine: *(suspicion)* Uncle, You are hiding something, what is it?

Claudius: *(confides)* Alright, but don't inform Issac... Royal Society had dropped the idea of publishing Principia due to financial constraints....But Prof. Halley could not bear it. He decided to finance and requested Royal Society to continue publishing Principia. Prof. Halley is financing.

Catherine: Oh, I didn't know, *(emotion)* Dear Edmond... but for him, Issac wouldn't have written the book.

Claudius: *(worry)* don't forget, Issac shouldn't know about it.... promise me. Prof. Halley warned me not to disclose his financial assistance to any one, particularly to Issac.

Claudius: Edmond is right.... Issac is very sensitive on money matters... He helps the needy readily, but never likes to be helped. I won't tell any one.

Claudius: *(takes out an envelope from his pocket)* I expected Issac to come out of his study... He must be busy. *(Hands over the envelope)* It's from Prof. Halley.

Catherine: Issac has gone out to meet Prof. Flamstead...

Claudius: *(gets up)* Prof. Halley requests a reply quickly.... Please remember your promise.

(Claudius goes out. Catherine opens the envelope and reads the letter in it. In the meanwhile, Newton enters)

Newton: *(while sitting)* I met Mr. Claudius on the way. What is that letter?
 Catherine: *(gives the letter)* It is by Edmund. Read it yourself.
(Newton reads the letter, gets emotional and throws it to Catherine)
 Newton: You know what it is. Send a replay.
 Catherine: To whom? What shall I write?
 Newton: To Edmond, Prof. Hooke's name should never be mentioned anywhere in my book.... Inform Edmond.... Why should I acknowledge Prof. Hooke in my book.....? What a diplomatic suggestion by Edmond? Doesn't he know that I discovered the planetary orbit around the Sun as an ellipse and proved it mathematically before any one? Hm... I should acknowledge Hooke in my book! *(Sarcasm)* What a diplomatic suggestion!
 Catherine: Look Issac, why do you blame others? It's your fault.... How do the people know who discovered what, without publicity. You should have published your findings soon after you discovered them.
 Newton: I had forgotten to publish them. Does it hide the truth?
 Catherine: *(mocks)* Forgotten to publish... Aren't you the one who has forgotten to marry your beloved Storey?
 Newton: What are you saying? Who is Storey?
 Catherine: The same Storey, daughter of Mr. Clarke with whom you stayed at Grantham for your schooling.
 Newton: *(smiles)* How do you know all these?
 Catherine: Didn't you send me for the marriage of Storey? Don't tell me you have forgotten that also. She told me then.... Now tell me what to reply.
 Newton: *(seriously)* What do you suggest?
 Catherine: I agree with Edmond's suggestion.... There is no wonder if the same scientific idea is discovered by many at the same time.... Edmond has suggested including a line in your preface mentioning *Prof. Hooke also having been arrived at the Inverse Square Law on the planetary motion due to Sun's gravitational influence...* You should agree to his suggestion.
 Newton: Impossible, *(enraged)* When Hooke has spread rumours that I, ... I have stolen his idea of Inverse Square Law, I would never allow his, name to be included any where in my book... *(Commands)* Catherine, do what I say. Warn Edmond in the reply, if Hooke's name is mentioned anywhere in my book I would never allow its publication. *(Gets up and goes inside).*

CURTAIN DOWN

PART IV: "IN THE LIME-LIGHT"

Narrator (1686-96 AD)

With his usual tact, Edmond Halley succeeded in convinced Newton and to regret his bitter reply. He accepted to state in the book "Certain mathematics had been worked out from Kepler's work by himself, and separately by Wren, Hooke and Halley".

The printing work of 'Principia' was completed by April 1687. It was a small sized book having about five hundred pages and illustrated with many diagrams. Bound in calf skin, it sold for nine shillings. It became very popular in a very short time.

Rapid changes were taking place in the political scene of England. It had been the ambition of King James-II to reestablish the Roman Catholic faith in England. To start with, he wanted to convert colleges into seminaries. His first move against Oxford University bore limited success. Cambridge University resisted the move. Prof. Newton was one among the nine members who represented the cause of Cambridge University. When King James-II became the father of a male child in June 1688, his opponents united to resist his hierarchy. In the “Glorious Revolution” of 1688, King James-II abdicated his rule, his Protestant daughter Mary and her husband Williams became joint rulers of England.

As a token of gratitude to Isaac Newton’s stand during the reign of James-II, People elected Newton as representative to the convention parliament. Isaac Newton tasted the public life for the first time and he wanted more of it. He hoped that his powerful friends like Charles Montago and John Locks would secure him an honourable public post. When the honour was not forthcoming, he became unhappy. In the meanwhile his mother Hannah Smith fell ill. Newton sat by her side; day in and day out, and served her till her death. After this great bereavement, he became an introvert and spent most of his time alone, brooding over the evasive public post.

Economy of England was at its low due to clipping of coins and corruption. Gold and Silver were legal tender in the land, but the silver coins had lost value because they were made up of cheap alloys. English Silver was even being refused by the Bank of Amsterdam, the financial centre of Europe then. An intimate friend of Newton, Charles Montague had been appointed Chancellor of Exchequer in 1694. Montague had discussed the serious state of English coinage with Newton and others.

Bank of England was started functioning in 1694. Charles Montague was one of its founders. He encouraged people to make permanent deposits in the Bank by assuring a certain percentage of interest, so that money is readily available to the nation at the time of need. He rose as an influential parliamentarian.

After the death of Queen Mary in 1694, her husband Williams of Orrange became the independent King of England. Charles Montague persuaded parliament to pass a Bill stipulating 4th May 1696 as last date for the circulation of illegal clipped coins. He suggested dramatic reforms in the administration of the Royal Mint to affect complete recoinage. The King entrusted on him the task of appointing a suitable person as ‘Warden of Mint’ to bring out the desired reforms.

Scene XII

(March 1696. Newton’s chamber in Cambridge. Catherine is reading a News-paper. Claudius enters.)

Claudius: Good Morning, Catherine. *(Sits)*

Catherine: *(looks up, smiles)* Good morning uncle, what a surprise! How could you free yourself from your printing press?

Claudius: I have to, Dear... Otherwise who would supply news to my Daily?

Catherine: Daily... When did you start a newspaper also? Whenever you come to meet us, we hear a new project from you.... I envy you, uncle.... You must be seventy by now, aren’t you tired of looking after all these, bookshop, printing press and now newspaper.

Claudius: What to do dear... whatever we may earn these days, it isn’t enough for our basic needs.... Clipped coins have become a nuisance. It is impossible to find out a clipped coin from a genuine one.... But the shop-keeper finds it out.

Catherine: I heard the parliament had already passed a Bill, banning the circulation of these clipped coins.

Claudius: Of course, the Bill would be effective from 4th May.... But the problem remains until they devise a method to detect the clipped coins.

Catherine: I'm confident; Mr. Charles Montague will surely do something to check this menace.... Look at his Bank of England. The people are pouring their money to the bank as permanent deposits.

Claudius: Now, Charles Montague is the most powerful parliamentarian. Is he not a best friend of Isaac?

Catherine: Yes, what is the use? Ha couldn't oblige Isaac with at least a small official post.... hm... (*Sorrowful*) Uncle, I'm very much worried about Isaac... He sits in his bedroom looking at the ceiling hours together. If any of us disturbs him, he becomes violent.... He was never like this before.

Claudius: Unfortunate... He was deeply attached to Sister Hannah. You know how he was running to her like a child. Her death must have affected him.... He will be alright, don't worry my child. (*Looks around*) Where is Stephen? Has he gone out?

Catherine: Why... Do you need anything, Uncle?

Claudius: Nothing Dear... I felt it strange. Whenever I come here he never stayed inside, you know.

Catherine: (*smiling*) you have just told me, you are a news reporter. Don't you know today is the much awaited 'Saint's Day'?

Claudius: I know it. Is it great news? After all an annual affair, people crowd in front of palace, King arrives and touches each patient on his sore, hands out a coin to each one of them, ceremony ends. Report is over.

(*In the meanwhile Stephen enters, on seeing Claudius bows to him*)

Stephen: Madam, I met one Mr. Christopher and his uncle from Woolsthorpe. They came with me to meet the Master and you, Madam. Shall I bring them in? (*Catherine looks quizzically*) Catherine, don't you remember Christopher?... He was your neighbour at Woolsthorpe, a best friend of your mother.

Catherine: Uncle, I left village long ago. I was very young then. I don't remember anyone now.... Stephen, call them in. (*Stephen goes out. Returns with two old men*) (*Catherine gets up and hugs Christopher*). What a surprise, How are you my friend. (*all sit. Stephen goes in*)

Christopher: Fine, thank you. I'm glad I met you here. Is she not Catherine? She was a child when I saw her.

Claudius: Could you recognise her? (*Catherine smiles and bows*)

Catherine: Mummy was always remembering you all. I have heard about you from her, Uncle.

Christopher: When I heard about her death, I couldn't believe. She was very fond of us.

Claudius: It's a great shock to Isaac. He hasn't recovered yet.

Newton: (*entering from inside*) How are you Christopher uncle? (*all get up with a pleasant surprise. Newton pointing towards old man*) isn't he our Uncle Jim, your maternal Uncle Christopher?

Christopher: (*moved by hearing Newton calling him uncle*) Yes, dear Isaac. You are right. I brought him for the Saint's Day.

Claudius: I remember, you had brought him a few years before. Didn't he get the divine touch then?

Christopher: He got it and was alright for a few years. Two years ago, he got an attack of King's Evil again, but he couldn't get the King's healing touch today.

Catherine: Huge crowd must have gathered. You should have gone early.

Christopher: No, not for that,... The King never came out. We were told, the King refused to perform the ceremony and said 'let God give them better health and more sense'.

Catherine: (*smiling*) Uncle the News-reporter, didn't you miss an important news today?... This must be one more step to improve the country's economy. Many silver coins might have been saved today.

Newton: Anyway, it is a wise decision. Better days are ahead, I think.

Stephen: (*coming in from outside*) Sir, a Royal dignitary wants to meet the Master.

Newton: Please show him in (*surprised, goes to the entrance to receive, all others get up and look at the entrance. A dignified person enters*) Oh, what a surprise, welcome, welcome (*shakes hand and leads him to a prominent chair. Claudius whispers 'Charles Montague'*) what a pleasant surprise. (*Introduces*) Gentlemen, meet our esteemed parliamentarian Mr. Charles Montague. (*all bow to him with respect*) Mr. Montague, meet Mr. Claudius, a businessman and news person; Mr. Christopher, Lord of Manor; You know my sister Catherine. (*Charles Montague bows to all, all sit*)

Montague: Prof. Newton, I have brought a message from our Lord the King. (*He hands over the envelope to Newton, Newton opens and reads orally*) Nation needs your service Professor. I request you to accept the offer.

Newton: It is an order Mr. Montague, (*joyful*) I accept... I'm always ready to do my best to the Nation. (*Announcing to others*) Our Lord the King has offered me the post of 'Warden of the Mint'.... When should I join the duty Mr. Montague?

Montague: Any time you wish. Thank you for your acceptance. (*Bows, all others congratulate Newton*) Prof. Newton, Nation has bestowed a great responsibility with confidence on you.... You might be aware of the fact that the last date for circulation of clipped coins is 4th of May this year.... Hardly two months. Minting of new coins is to be hastened.

Claudius: Excuse me for my interruption Sir, have you designed these new coins to detect clipping?

Montague: It has got a new design. People are to be careful and notice the dimension of each coin in circulation.

Catherine: How can a common man detect clipping, when it is done so skillfully. There must be an easy method to detect clipping.

Claudius: You're right. How can anyone measure the dimension of each coin?

Newton: I have devised a machine. It could serrate the narrow curved edges of coins.

Claudius: I couldn't follow you Professor, will you please explain?

Newton: The machine I have devised could make several saw-like minute cut at the narrow curved edge of a coin. This serration in the coins could never be manipulated by anyone after clipping the coin. And therefore clipped coins can be easily detected by a child even.

Montague: Marvelous, I had this confidence in you. ;;;..

Newton: I devised this machine very recently... (*To himself*) Thought about this devise, but buried by bereavement.

Montague: Professor, Our silver coins are not acceptable in the international market. The complaint is, they are made up of cheap alloys.... I know your proficiency in alchemy.... You have to do something to it.... I thank you for accepting the Royal offer. Best of luck.

CURTAIN DOWN

Narrator (1696-1703 AD)

Isaac Newton took over as 'Warden of the Mint' in March 1696. He successfully completed the Herculean task of recoinage by 1699, well ahead of the schedule. Well deserved honours which were evading Newton till then started showering on him. King and the Nation honoured Newton by appointing him as 'Master of the Royal Mint'. He was elected as one of the eight foreign members of the 'French Academy of Sciences'. In 1701, he was elected as a member of the parliament for the second term. Isaac Newton changed his residence permanently from Cambridge to an official Bungalow at London, in Jermayn street near Picadilly Square.

After the death of the King Williams of Orrange in 1702, Queen Anne, the second daughter of King James-II became the queen of join, kingdom of England and Ireland. Queen Anne took active part in public affairs and often attended the House of Lords. She re-introduced the ceremony of touching the patients suffering from the decease "King's Evil" on a Saint's Day, bowing to the public demand.

Isaac Newton had to face a fresh controversy over his invention 'Theory of Fluxions' (present day 'Calculus'). German mathematician Gottfried Wilhem Leibnitz, who visited England in 1676 as an ambassador of Germany had the knowledge of Newton's paper 'De-Analysi' containing 'Theory of Fluxions'. Leibnitz published his 'Calculus' in 1684. The publication of 'Calculus' by Leibnitz whipped up the controversy about the original inventor of this new branch of mathematics. Ferocious correspondence between the supporters of the two mathematicians turned the dispute into a National prestige of the two nations.

Scene XIII

(A day in 1703 AD: Sixty-one year old Newton is seen in his drawing room)

Catherine: (*from inside*) Stephen;... Stephen... aye Stephen, don't you hear me calling? Aye Stephen (*comes in*) where has he gone? Isaac, have you sent him anywhere?

Newton: No, dear... I haven't seen him since morning. (*Continues writing*)

Catherine: Where has he gone? (*Goes near Newton*) What are you writing? Why didn't you dictate it to me? Is it so confidential?

Newton: Nothing confidential from you.... That Leibnitz controversy has become a National issue of the two nations..... I am writing to John Bernoulli.

Catherine: Bernoulli.... how is he concerned with this?

Newton: He is one of the best friends of Leibnitz. You know John Bernoulli of Holland. Now he is an influential mathematician of Switzerland. I am sure, he can resolve this controversy. I am just drafting a letter to him, Listen. You can improve it later. (*Reads*) "I devised this new method 'Fluxions' to prove the nature of planetary orbit around the Sun mathematically during 1665-67. My paper 'de-Analysi' containing "Theory of Fluxions" was circulated all over Europe during 1669. This fact should settle the controversy. I am writing you this, to put the fact straight. I am not at all interested in spreading my name for fame. But, how can I keep quiet when my integrity is questioned? I request you to prevail upon your Leibnitz and help in settling the dispute.

Catherine: I shall make a fair copy. Shall I send a copy of 'de-Analysi'?

Newton: Good idea. Send it as an enclosure. (*Stephen and Claudius enter*)

Claudius: Good afternoon, it seems you are in a serious discussion.

Newton: Please be seated. (*All sit while Stephen stands at a distance*)

Catherine: Stephen, where were you since morning?

Claudius: I met Stephen in the morning on my way to palace. ... You know, I need some one when I go out.... I took him to palace with me.... I'm sorry for the inconvenience.

Catherine: That's alright uncle.... Was there any function in the palace?

Newton: Today is the Saint's Day.... Don't you know? Queen Anne has reintroduced the ceremony.

Claudius: How can the Queen deny the popular demand? There was a big crowd in front of the palace since the early morning. Queen came out of the palace and performed the solemn ceremony. It was a function to be seen and remembered.

Catherine: Was it so great, uncle! You should have taken me there..... Isaac, why didn't you remind me about the Saint's Day....? Isaac, do you know how busy you have kept me these days.... Your Leibnitz has taken most of my time. I fail to remember any thing else now-a-days.

Claudius: Isaac, this dispute has become a scandal in the city.... Why don't you issue a statement to the press and clarify. I shall give wide publicity in my newspaper and in others around the world.

Catherine: Good idea, why don't you give your statement now?

Newton: Alright, uncle..... Catherine, listen (*begins to narrate, Claudius and Catherine take notes*) Two years Great Plague from 1665 to 67 compelled me to leave Cambridge. I returned to Woolsthorpe and spent my time in the village, working out many problems including the binomial expansion for rational index... This led me to my 'Theory of Fluxions'.

Newton: (*continues*) I used the 'Theory of Fluxions' to prove the planetary orbit around the Sun as an ellipse mathematically. I have explained the *theory of Fluxions* in my paper 'On Analysis of Equation with Infinite number of terms' which is popular as 'de-Analysi'. I submitted 'de-Analysi' to Dr. Isaac Barrow in 1667. Prof. Barrow got it circulated all over Europe through Collins. In 1676, Prof. Leibnitz visited England as an Ambassador

of Germany. He collected 'de-Analysi' and other papers of mine from Dr. Barrow and Mr. Oldenberg during his visit. Very recently, he published his 'Calculus'. Of course Leibnitz had written me about his 'Calculus' in 1674.... Uncle Claudius, this is the fact.

Claudius: Good, I summarise what you have said, listen both of you. Isaac invented his *theory of Fluxions* in 1667, used it to prove the planetary orbit around the Sun mathematically. The paper on *fluxions* was known to many mathematicians of Europe, when Leibnitz visited England in 1676. He wrote to Isaac about his 'Calculus' in 1674 and he published it in 1684.

Catherine: Uncle, you have missed a point... 'de-Analysi' was circulated all over Europe in 1667, but Leibnitz wrote to Isaac about his 'Calculus' in 1674....

Claudius: Thank you Catherine, Chronology of events, as stated, should dispel the dispute.... Be sure Isaac, your statement will appear in the leading newspapers of Europe in a week.... Excuse me (*gets up*) I shall take leave of you (*goes out*).

(*Claudius comes back with an envelope in his hand, hands it over to Catherine. She opens the envelop and reads silently.*)

Claudius: A messenger from Royal Society delivered this envelope. Curiosity of a newsperson prompted me to return.... Any important news, Catherine?

Catherine: It's good news. Congratulations Isaac. You are elected as the Life president of Royal Society.

Claudius: (*with pleasure*) Congratulations Isaac, your hard days are over. All these disputes melt away from now onwards.... I am sure; you will surely be honoured as a knight one of these days.

Catherine: Knighthood...! Is it not conferred only for heroic deeds?

Claudius: You're right. So far, only brave warriors were conferred with the honour of knighthood for their heroic deeds.... Do you think our Isaac is less heroic? He has proved '*pen is mightier than sword*' by his inventions.... Sword is considered powerful for its ability for expanding the Nation's territory and containing the internal disturbances. Isaac used his intellect to expand the territory of scientific knowledge and to restore order in the confused scientific field by proving many theories mathematically.... His efforts are in no way inferior to the heroic deed of any brave warrior.... I shall, start campaigning for Isaac's knighthood.

Newton: Uncle, your affection makes you to feel so. Thank you.

CURTAIN DOWN

Narrator (1703-05 AD)

Royal Society appointed a committee to study the dispute of Newton and Leibnitz's contribution to mathematics. It submitted a report: "Theory of Fluxion' was conceived and applied by Isaac Newton well before 'Calculus' of Leibnitz. But Leibnitz invented 'Calculus' independently, and such a coincidence, though rare, not uncommon in the history of sciences".

After the death of Hooke in 1703, Isaac Newton prepared his theory of light 'Opticks' in English. First edition of 'Opticks' was published in 1704. Isaac Newton was acclaimed as the great natural philosopher of the century. Queen Anne decided to honour him with knighthood, for his

service to the Nation on various fields. The unprecedented ceremony of honouring a natural philosopher with knighthood, which was hitherto conferred only on Great Warriors, was arranged in a luxuriously decorated conference hall of the Cambridge University. The ceremony was conducted on 16th day of April 1705.

Scene XIV

(April 16, 1705. conference hall of Cambridge University is luxuriously decorated. As the carol commences melodiously from the background, curtain opens. Sir Wren, Edmond Hally, and other prominent citizens are seen seated.)

Carol:

God save our Gracious Queen. Long live our Noble Queen

God Save the Queen (1)

Send her victorious. Happy and Glorious

God Save the Queen (2)

O Lord, our God arise. Scatter her enemies and make them fall, confound their politics

Frustrate their knavish tricks, on these our hope we fix.

God save the Queen (3)

Thy choicest gifts in store on her are pleased to pour. Long may remain her rule.

May she defend our laws, and ever give us cause with heart and voice to sing.

God save the Queen (4)

At the end of (2) of Carol, Isaac Newton followed by Catherine and Charles Montague appear at the entrance. All on the stage stand. Charles Montague leads Newton and Catherine to their seats. All on the stage sit. Carol is being sung without interruption. At the end of (3), Queen Anne clad in a white gown with Royal costume having a long luxurious white Royal Robe on her back enter.. The two ends of the floating royal robe are held by two children dressed in white gowns. The two gorgeously dressed knights holding swords upright in their right hands, moving in front on either side of the Queen are leading the Royal Procession. All on the stage bows, with their right hand to their chests when the Queen moves towards the throne.

At the end of (4), Charles Montague leads Newton towards the throne. Newton kneels down in front of the Queen and kisses the finger tips of the queen's right hand. He slowly raises and goes near a specially decorated chair kept by the side of the throne, at a level slightly lower than the throne and higher than those of others. Queen sits and then others also sit. Charles Montague bows to the Queen and stands behind a lactern. He bows to the Queen again and starts reading the speech eulogizing Isaac Newton, slowly with a clear voice.

Montague: Ever reverred Her Majesty the Queen Anne, the mighty Empress of the Great Britain; world reknown learned Prof. Isaac Newton; distinguished Ladies and Gentlemen, I express my profound gratitude to our most gracious Her Majesty for honouring me by providing me the coveted opportunity of welcoming you all to this unprecedented ceremony of conferring knighthood on the Wisdom-incarnate of the Era, Prof. Isaac Newton.

Ladies and Gentleman, today is a memorable day in the history of Great Britain, which is to be documented with the golden words. The knighthood, which was hitherto conferred upon only on those distinguished, chivalrous warriors, is being conferred upon the wisest person of the Era Prof. Isaac Newton.

Ladies and Gentlemen, In Prof. Isaac Newton, two kinds of intellectual power, which have little in common, and which are not often found together in a very high degree of vigour, but which nevertheless are equally necessary in the most sublime department of natural philosophy are united as they have never been united before.

There may have been minds as happily constituted as his, for the cultivation of pure mathematical science; there may have been minds as happily constituted as his, for the cultivation of science purely experimental; but in no other mind have both the demonstrative faculty and the inductive faculty co-existed in such supreme excellence and perfect harmony as found in Prof. Isaac Newton. When several results of scientific investigations were hanging loose since several decades waiting for an expert weaver to weave them into beautiful scientific patterns, the world found an excellent weaver in Prof. Isaac Newton, who gathered together loosely dangling threads of scientific investigations and weaved them into beautiful scientific theories, using the self invented meticulous machine -*The Theory of Fluxions*, a new branch of mathematics.

Prof. Isaac Newton brought reformations in the administration of the Royal mint; completed the task of recoinage well ahead of the time schedule, prevented the clipping of coins by unscrupulous clippers of coins with the introduction of serrated coins. This was made possible through his ingenious machines to serrate the coins, and devised an alloy of silver to mint silver coins worthy of international market. These are only a few illustrative achievements of ever innovative, able organiser and administrator Prof. Isaac Newton.

Prof. Isaac Newton, a true Christian, did not hesitate to face the Royal fury by opposing the Royal move to convert Cambridge University into a Catholic seminary.

Prof. Isaac Newton, a champion of liberty in religious practices opposed the practice of administering 'Holy Order' on a scholar of Trinity after the completion of his seven year 'Trinity Fellowship'.

As a mark of recognising the multifarious worthy contributions of Prof. Isaac Newton, our most venerable Queen, Her Majesty Queen Anne, the Queen of Great Britain and Ireland has gracefully decided to adorn the illustrious administrator, parliamentarian, crusader, natural philosopher of the era, Prof. Isaac Newton with the most coveted honour of knighthood.

Our Venerable Queen Anne, Her Majesty the Empress of Great Britain and Ireland has created a history by conferring the knighthood for the first time on an illustrious person who has neither fought in a battlefield nor known for any chivalrous deed, but has done a yeoman service to the humanity for the

peaceful co-existence of all. The illustrious name of our venerable Queen Anne, Her Majesty the Empress of Great Britain and Ireland would be entered in the annals of history of the world with Golden Letters, for conferring Knighthood on Prof. Isaac Newton in the sacred temple of learning, *'the Cambridge University'* which acquired the distinction of the only centre of learning mathematics, through the works of our honourable chief guest of the function Prof. Isaac Newton.

We, the people of Great Britain and Ireland, are very much proud of being the contemporaries of these two illustrious luminaries, our most Venerable Queen Anne and Learned Prof. Isaac Newton.

I, on behalf of the people of Great Britain and Ireland, humbly request learned Prof. Isaac Newton to say a few words before our Reverred Queen Anne Her Majesty the Empress of Great Britain and Ireland.

(Charles Montague bows to the Queen respectfully and sits in his seat. Newton gets up, bows to the Queen and the assembly, moves towards the lactern, stands behind it and speaks slowly but firmly).

Newton: Her Majesty the Empress of Great Britain and Ireland, Learned Professors, Ladies and Gentlemen, I am grateful to the honour bestowed on me by Her Majesty the Empress and the Nation. I accept this honour humbly on behalf of many philosophers from whom I could draw a few drops of knowledge to become what I am today. In the absence of wisdom of those unknown wisemen, I would be on ordinary incognito. I do not know hoe I may appear to the world, and really what I am; but to myself I seem to have been only like a boy playing on the seashore, and diverting myself now and then by lifting a smoother pebble or a prettier shell than ordinary, whilst the great ocean of Truth lay all undiscovered before me. I am only a dwarf in the scientific world. Very small contribution of mine to the field, wherever I was involved is valued great by the reverred Empress and the nation to honour me with knighthood. I accept the great honour with humility.

Newton bows to Empress Queen and all others stand. A Royal maid servant, holding a golden tray on which a golden sword with a decorated hilt is kept, comes and stands by the side of the Queen. A royal attender ties an ornamental sheath of a sword to Newton's waist. Charles Montague leads Newton to the throne. Newton kneels down in front of the Queen. He kisses the right hand finger tips of the Queen. Queen holds the golden sword kept on the golden tray by its hilt and touches Isaac Newton's head and shoulder by the tip of the sword three times, one after the other. A courtier raises the slogan:

“Long live Sir Isaac Newton”

Others repeat the slogan with gusto, thrice. In the mean while Queen holds the sword horizontally with both the hands and presents it to Newton. He receives the sword with both the hands, kisses it and stands slowly; He inserts the sword in its sheath tied to his waist, again kneels down and holds the right hand finger tips of the Queen gently and kisses. The below stated slogans are initially raised by a courtier. All assembled repeat the slogans with gusto.

“Long Live Her Majesty the Queen Anne. Long Live our English Heritage”

“Long Live Sir Isaac Newton, the renowned philosopher of the Century.”

When the slogans die down, curtain is closed slowly with a background recital of the following:

**“Patient of contradiction as a child, affable, humble;
Diffident and mild such is Sir Isaac Newton.
Nature and Nature’s Law hid in night,
God said ‘Let Newton be’ and all was light.”**

Narrator (1705-20th March 1727 AD)

‘The Principle’ of Sir Isaac Newton underwent three editions during his life time. He was a great national and international figure. He lived in fine style; his friends were the highest and most important in the land. He kept a carriage, employed many servants and entertained hospitably. He was always ready to help young men who showed mathematical ability. Even when he became eighty, Sir Isaac did not seem aged. He never used spectacles. His mind was alert and lively, and he continued to carry out his duties at the Mint and to preside as President of the Royal Society. In 1722, he began to suffer the illness of old age. On the advice of doctors, he moved to Kensington for change of climate. Isaac Newton gave up his duties at the Mint, but continued to preside at the Royal Society. On February 28, 1727 he went to London to preside at the Royal Society on March 2. He returned to Kensington on March 4, seriously ill. On March 18, Isaac Newton lapsed into a coma and died painlessly in his sleep in the early hours of morning on March 20, 1727. His body lay in state in Westminster Abbey where he was buried on March 28.

Thus the illustrious journey of Isaac Newton’s life from a rural village ‘Woolsthorpe to Westminster Abbey’ came to an end.

A monument was erected to his memory. The Royal Mint, at which Isaac Newton spent most of his later life, issued a medal in his honour. The life history of Isaac Newton is an ever-inspiring saga for generations of younger generation for ever.

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