

How did Newton appreciate Shakespeare? NO 3

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Note : Under this title, I will write 10 chapters in English. This paper contains the last 4 chapters, from (7) to (10), of them. I will attach synopsis in Japanese to the beginning of my paper. The synopsis covers only 4 chapters in this paper, not the whole 10 chapters.

Synopsis in Japanese (10章のうち、本稿に収録した4章の要約)

(7)啓蒙主義思想で通うところがあるからシェイクスピアをニュートンが評価しただろうという論理は宗教で説得力を増す。王政復古期、啓蒙主義時代の宗教と科学の対立に関してマイケル・ホワイトはニュートンがアリウス主義（アリウスは四世紀アレクサンドリアの僧侶で三位一体説を否定し、イエスを神性をおびた第一の被造物とした）だったという。アリウス派對アタナシウス派の対立は個人対組織に似て、田舎から出てきた少年が都会で権力を得るには、伝統的な社会ルールを壊し、純朴な革命者になる必要がある。若き日のニュートンがそうだし、ヨーロッパ全体の中でイギリスはカトリックの伝統文化に対抗する田舎出の少年のようなどころがある。この時期アリウス派に共感するインテリは多かった。ウィリアム・ウィストンは、ケンブリッジで習ったデカルト主義に不満で、ニュートンに共鳴し、その思想を代弁してポイル・レクチャーに名を列ねた優秀な科学者だ。科学者ポイルにちなんだ、このロンドンの有力な市民向けの講義は、ニュートン主義を宣伝して啓蒙思想の中核をなした。ニュートンの後継教授になったが、アタナシウス信条を否定してケンブリッジ大学を追われた。伝統的社会の中で田舎出の少年は能力ある個人を主張する。そのようにアングロ・サクソンは個人主義の強いヨーロッパの中でも特に個人を愛し、現代のアメリカ政治でも個人能力を大使が大統領にアピールしようとするのが外交に影響する。こうした形の「政治」はニュートンの周辺にもあった。同じくニュートンの共鳴者、ポイル・レクチャーのメンバーであるサミュエル・クラークはアリウス主義の疑いで議会在調査を開始したが、これを否定し、訴追をまぬがれ、それが弱さだとウィストンに批判された。appetite が desire となって post や mistress 獲得に作用するフランシス・ベーコンの分析は、田舎出の少年としてのニュートンが強い野心をいだいたこ

との理解に役立つ。As if increase of appetite had grown by what it fed on というハムレットのせりふと、If you eat, appetite will come というベーコンの言葉の類似は、シェイクスピア＝ベーコン説の根拠ではなく、二人が自然哲学を緊密に論じた仲であったとして、ベーコンの哲学を継承したニュートンがシェイクスピアを評価したであろう推定の根拠にしうる。

(8)ニュートンが信じたのは実験による証明と数学的に証明された理論だけで、これを厳密に考えれば、当時の宗教と科学が正確に理解できる。実験、数学で証明できない奇跡は信じられなかったから、汎神論には同調できなかった。この態度の徹底ぶりはヴォルテールに栄誉に包まれたニュートンの葬式で大陸なら異端者として極刑に処せられたらうにと感想を漏らさせたほどである。ライプニッツとの論争は理神論否定をうかがわせる。ロックの思想が理神論から無神論へと発展しても、自然科学者は自然の神秘への感情があるから無神論にはなりきれない。自分の頭でものを考えるニュートンは有神論に同調しにくく、テニソン大主教の聖職へのすすめを断った。ロックに「古代もキリストの西暦だったとどうしていえるか？」という手紙を書いているように、現代とは違うシステムで動く古代史感覚があった。それをイエス自身に適用すればアタナシウス信条とは、社会制約を否定できないにせよ、科学者が実証したくなることからではない。

自然への愛と恐れへの感情は、アリウス主義に近くとも、有神論としてアリウスを信じているわけではないから、それを宣言する必要はなかった。また聖職を薦められても断り奔放な姪の結婚騒ぎに寛大なニュートンは教会中心の考えはとらなかつた。ジョージ二世治世の結婚を教会中心に統御する以前の英国は結婚について自由な考え方をとり、それが現在の米国に受け継がれていてアングロ・サクソン民族の特質となっている。ニュートンの数学理論と実験だけを信じる態度が科学的として後に大きな力を持ったことは、奇跡などを統治手段に使えぬ社会の放縦を生む。書物的学習を軽蔑するアングロ・サクソンの伝統になり、その起源は古典や書物的学習を軽蔑するニュートンや『恋の骨折り損』にみられるシェイクスピアの伝統につながる。

(9)イギリス国教会全体も本当にアタナシウス信条を信じていたか疑わしいところある。トーマス・バーネットは晩年「モーゼのことは仮定に過ぎず、アダムとイヴと悪魔の話は冗談に近い」といった詩を書き、主教たちに信仰の正統性を疑われてカンタベリー大主教になれなかった。それでも教会への影響力を失わなかったのだから、国教会自体、信者というよりインテリの集団で、アタナシウス信条は、ただ公然と否定してはならない政治的な問題であり、国教会とは、宗教というよりモラルで国家を支えるものだった。アタナシウス信条を公然と否定しないという条件でニュートン主義を国教会が受入れ、宗教と科学の争いは決着した。こうした体制の柔軟性がニュートンの晩年の栄誉、トーリーの大蔵大臣との良好な関係につながり、ニュートンのホイッグ、プロテスタント支持は、イデオロギー的こだわりではなく、カトリック教会中心のヨーロッパ大陸の精神性からの解放志向ゆえであって、そうしたニュートン主義

は、今日なお科学や精神分析学尊重に形を変え、ニュートンの科学的真理の正しさに力を得て世界の傾向となる。

(10) 狂信を排し、宗教的というより道徳的なのはシェイクスピアの態度だ。ダンテに比べ、体系的な哲学がないと批判されるが、ニュートンがペンブローク・コレクションを「石の人形」と呼んだように、シェイクスピアは『恋の骨折り損』でペローンに「星の名付け親たちより、無知で散歩するだけの人の方が星の夜から得るものは大」といわせている。これを自然科学の冷たさに対する人間の情熱ととるのは誤解で、真の科学者は単純な法則を武器に複雑な自然に情熱的に挑む。ニュートンは星空から（つまり宇宙論の伝統から）万有引力の法則を発見し、プトレマイオス（つまり星の名付け親の王）に対抗した。ここでニュートンはシェイクスピアに近づく。このようにペンブロークの「体系的哲学」に対抗できるニュートンの自信は今日自然科学とよばれるものだが、同じものがシェイクスピアに感じられる。ペローンの占星術もしくは天文学批判、シェイクスピアの錬金術の取り扱いからみて、少なくとも科学的理性という点でシェイクスピアはニュートンと同じ点に達していたのではないか。啓蒙思想で注目されたシェイクスピアは、ニュートン主義で理解される強い傾向がある。シェイクスピアもニュートンも、ともに貪欲批判、イデオロギーなき雄弁、宇宙構造への言及といった点で似通っていて、英国の常識に立脚する。二人がブルジョア的といわれるのも不満分子に支持されがちなイデオロギー的思考の議論の結果を踏まえ国家的詩人、科学者であるからだ。しかし、ドライデンと違って二人はブルジョアのイデオロギーを超えていて、フランシス・ベーコンの科学思想と関わりが深く、劇場に馴染みのないニュートンは意識しなかったにせよ、思想レベルでニュートンはシェイクスピアを評価したといえる。(the end of synopsis)

(7)

Many people appreciated Shakespeare in the Enlightenment. Newtonianism was the center of British thought in the Enlightenment. These facts suggest the possibility that Newton must have appreciated Shakespeare. This logic becomes persuasive in the religious point of view. Natural science and religion are always at issue and England was not the exception especially in the age of the Restoration and the Enlightenment.

Michael White describes Newton's religious thought as follows :

Newton was an Arian. The Arian doctrine had its origins in the teachings of a fourth - century Alexandrian priest named Arius, and held (in defiance of orthodox Trinitarianism) that Jesus and God are not of one substance but that Christ, although divine, was created by God as the first creature. !

Arian against Athanasian Creed is like individualism against organization. Western Europe, including England, is the land of individualism. Especially the Anglo Saxons love individualism, in a sense that there are many biographical books are published in United Kingdom and United States of America.

To be Arian or Athanasian is deeply related to the process to acquire power. To be Arian is for simple and honest people, while Athanasian Creed is for the large organization such as the Roman Catholic Church or the Church of England. To be simple and honest is sometimes to be revolutionary. A simple and honest boy from a country has to be revolutionary to acquire power in the urban district where traditional rules, which he must destroy, of society are dominant. To be Whig and Protestant in the Restoration England is to be revolutionary. Newton was in such mentality when he was young and he was surely a boy from a country.

England itself was like a boy from a country in Western Europe. He must destroy the traditional rules of Europe where the culture based on Roman Catholic Church is dominant.

In the age of the Restoration and the Enlightenment, there were many men of intelligence who had tendency to agree with Arius.

William Whiston (1667-1752) learned Cartesian theory at Cambridge and thought that it was 'fictitious hypotheses' and went to Newton. Whiston was an excellent scientist and spoke for Newton's theory and was one of the members of Boyle lectures. Boyle lectures were the series of lectures given to wealthy people in London, named after the great scientist Boyle. It propagated Newtonianism and perhaps was the core of the Enlightenment related to science and religion. He denied Athanasian Creed in 1708 and in 1710 was banished from Cambridge University, where he succeeded Newton as professor in 1703.

Individualism is the general tendency in Western Europe including England. Especially England loved individualism because it was like a boy from a country. Against the traditional rules in the urban district, an ambitious boy must make his own self appeal, his ability of individual self. It is the characteristic of the Anglo Saxons, and even today, we can see it in the politics of United States. They are sometimes carried out by personal relationship between ambassadors and President. It is quite different from

¹White, Michael, *Isaac Newton - - The Last Sorcerer* (Fourth Estate, London, 1997), p.144-145. 29-33.

the case of Japanese ambassadors who are firmly regulated by the bureaucrat system and need not to appeal to the government as an individual self. American ambassadors must appeal to President as an individual self, and it is important whether he has personal relationship with President or not. The actions taken by a weak ambassador to try to appeal to President sometimes influence the diplomacy. The same ' political ' tendency was around Newton.

Newton became Warden and Master of the Mint. It was on account of his personal ability appealing to the power. It was not a result of general evaluation by the bureaucrat system. Charles Montagu influenced the appointment. His influence was also on account of his personal ability appealing to the power. The same can be said about Newton's thought's influence.

Samuel Clarke (1675 1729) was also the sympathizer of Newton and one of the members of Boyle lectures. In 1714 the Parliament began investigation, suspecting that he was an Arian. He declared that he had no intention to deny Athanasian Creed and the investigation stopped. Whiston criticized him, asserting that it was his weakness.

Samuel Clarke was a ' weak ambassador ' of ' President ' Newton. His ' weakness ' was not the personal relationship with Newton. It was his lack of ability to foresee the result of talking openly about the thought against Athanasian Creed. His wish to appeal to Newton was the same with weak ambassadors of United States today.

A boy from a country, revolutionary ambition, and relationship between ambassadors and President are the words to analyze the logic that Newton must have appreciated Shakespeare. They symbolize the characteristic of Anglo Saxon traditional ambition and they are what Francis Bacon called ' appetite '. Karl R. Wallace discussed Bacon's concept of ' appetite ' as follows :

So Bacon admonished the moral philosophers who " spend such an infinite quantity of debate touching good and the highest good " to " cast their eye abroad upon nature and behold the appetite that is in all things to receive and to give . . ." With " receiving and giving " as the controlling idea, he suggested an analysis of appetitive motions more precise than that of philosophers in their " long and wandering discourses of pleasure, virtue, duty, and religion ."⁸ Furthermore, if one looked deeply into the experience of

²*Of the Interpretation of Nature, Works III 229 .*

³*Ibid.p 230 .*

human desire he could detect movement, for “ every obtaining [of] a desire hath a shew of advancement, as motion though in a circle hath a shew of progression .”⁴ That is, a desire say that of obtaining political office, or a mistress directs one initially to a goal, and arriving at the goal is like returning to one’s starting point.

Francis Bacon is the person to support my assertion that Newton must have appreciated Shakespeare. In the history of natural science, Newton was the successor of Francis Bacon with regards to the philosophy of natural science. If Francis Bacon was the same person named Shakespeare as a playwright, my assertion became the matter of course. Newton was the successor of Shakespeare and I have nothing to say further.

I cannot believe that Shakespeare and Francis Bacon were the same person, but I can believe the possibility that Shakespeare had many opportunities to discuss the philosophy of natural science with Francis Bacon.

“ As if increase of appetite had grown by what it fed on ” is the phrase in *Hamlet*⁵ and the similarity with “ If you eat, appetite will come ”⁶ is often pointed out by the people who believe that Shakespeare and Francis Bacon were the same person. From this similarity, we can say at least that Shakespeare and Francis Bacon noted the ferocity of appetite as nature of human beings. If Newton was conscious of this point of view discussed by both Francis Bacon and Shakespeare, he must have appreciated Shakespeare.

To note the ferocity of appetite as nature or human beings can be in various ways. It is the nature reproved by many priests and men of morality. Bacon’s phrase “ every obtaining [of] a desire hath a shew of advancement, as motion though in a circle hath a shew of progression .” is important. How should we grasp Wallace’s interpretation “ That is, a desire say that of obtaining political office, or a mistress directs one initially to a goal, and arriving at the goal is like returning to one’s starting point .”? It suggests that this is nature of human beings analyzed as a result of ‘ scientific ’ research. Hamlet reproves Gertrude and does not proclaim the result of his scientific research, but he is not the person like a priest who always reproves appetite as the human nature. His words are uttered like the words from a mad man, and what he says is in a way of ‘ truth

⁴*Advancement of Learning, Works III A27 .*

⁵(1 02 144).

⁶(*Promus* by Bacon).

⁷*Advancement of Learning, Works III A27 .*

in madness '. It is the result of scientific research on human nature by Shakespeare and Bacon. Bacon's truth is expressed by Shakespeare's passionate words. Shakespeare's words include Bacon's truth, and Newton, the successor of Bacon's science, must have appreciated Shakespeare.

(8)

Newton only believed what was testified by experiments and theory testified by mathematics. If we apply this rule strictly to his words and people's words around him, we can interpret correctly what happened to science and religion in the Restoration and the Enlightenment. He could not believe miracles that were not testified by experiments nor theory testified by mathematics so that he could not agree with pantheism. He was liberated from the mental constraint by Roman Catholic Church. Voltaire, present at his funeral in Westminster Abbey in 1727 , was deeply stirred by the honor done to him by the greatest in the land. It buried him as they would ' a King and Benefactor of his people ', contrasting the sway he held in England with the persecution he would have suffered in France, the imprisonment in Rome, or the auto da fé in Portugal.⁸ His attack against Leibniz shows us his tendency against deism. He was close friends with John Locke whose thought can be regarded as deism. John Locke's thought developed and his sympathizers went to atheism. However close was the friendship between them, Newton and Locke were different. One was a scientist and the other philosopher in the modern meaning, though Newton was a natural philosopher in his age's term. Newton discovered the truth unknown to the previous ages. He loved and had awe to mysterious and wonderful nature and his feeling was common to scientists including Albert Einstein. There are few atheists in the scientists who can discover something in the world of science or technology. Only the people have tendency to be atheists who enjoy the result of scientific discovery and who discover nothing.

Theism was not Newton's taste because he had strong will to think using his own head. Archbishop Tenison urged him to take orders, but he refused. He wrote to Locke as follows :

.....whence are you certain that ye Ancient of days is Christ ?⁹

⁸Williams, Basil, *The Whig Supremacy 1714 1760* ,(1962) , p 378 .

Newton had a sense of history that the ancient world had systems totally different from the modern world. This could be applied to Jesus Christ himself. He knew that Jesus Christ's words and deeds could influence people in the way totally different from the modern, but he could not believe that God and Jesus and Holy Ghost were of one substance. It was difficult to testify, in a scientific way, that Athanasian Creed was wrong, but it never encouraged scientists to believe it.

Newton's religion was a feeling for nature where love and awe were mingled. It was near Arianism, but he need not declare it because he never believed Arianism as theism.

Theism was the thought mainly supported by church people and not only Newton's refusal to take orders but also his thought on marriage was against theism. As I stated previously in (4) of the series of these papers, Newton wrote to Locke about the unbelieving husband who was sanctified or made a Christian in wife¹⁰. He treated the theme in the thought of democratic common sense today rather than of dogmatic ancient religion. Such an attitude toward marriage was proved in Newton's relationship with his niece, Catherine Barton. De Morgan asserted that she got married to Charles Montagu, a prominent Whig statesman. One cannot know clearly whether she got really married to him or their relationship was secret partners. In anyway it was scandalous, and De Morgan asserted that it was on account of the change of the age and law .(For, until the Act of George II., marriage was in law a civil contract, and the system, which fell in 1836, had existed not more than eighty two years .¹¹)(The great point of the Act of George II., which in time remedied all old disorders, was the refusal of legal recognition, except in the case of Quakers, etc., to all marriages, except those which failing the special license of the Archbishop were solemnized in a public church or chapel, after banns published or common license obtained .)²

Today American people enjoy so much liberty concerning marriage regulation that accidents of getting married to close relative without knowing it sometimes happen. For

⁹*The Correspondence of Isaac Newton* (1959), published by the Syndics of the Cambridge University Press, Notes and Transcription (The Royal Society of London 1959), Vol. III pp. 147-8, the letter of the date 7 Feb. 1690/1.

¹⁰*The Correspondence of Isaac Newton* (1959), published by the Syndics of the Cambridge University Press, Notes and Transcription (The Royal Society of London 1959), the letter of the date 15/5/1703.

¹¹Augustus de Morgan, *Newton : His Friend : And his Niece* (1968), p. 79 ll. 8-10.

¹²*Ibid.* p. 91 ll. 23-9.

example the partner of the marriage will be proved to be one's brother or sister after wedding who was born from the different mother or father and was separated after one's father or mother divorced. We Japanese are apt to regard them as the result of American revolutionary ideas, but it is rather the original tendency of Anglo Saxon people proved in the lax legal regulation of marriage before the Act of George II .

Newton only believed what was testified by experiments and theory testified by mathematics and afterwards Newton's scientific theory got extreme power. It is revolutionary in the sense that, in order to rule people, society loses a part of power that is ' not testified by experiments and theory testified by mathematics ' . Society became unable to use miracles or superstition as means to rule people. Society became permissive and would permit the individual people to enjoy narcissism. People got liberty to seek own success and this liberty was a part of Newton's British society's reflection.

It is not only the problem of marriage regulation but also education and art. People who were engaged in educational problems in the 20th century United States were suffered from the tradition to despise bookish learning. Young people born in United States would adore caw boy and despise bookish learning. Movie is the art for people belonging to the tradition to despise bookish learning. If it is the result of American revolutionary ideas, it can be effective because of American extreme power. This power came from scientific technology and its origin is Newton's theory. As will be precisely stated in (10), Newton called Pembroke's famous collections ' Stone Dolls ', and Shakespeare makes Berowne in *Love's Labor's Lost* say what can be regarded as matters belonging to the tradition to despise bookish learning (the work itself treats the theme to despise bookish learning) as is cited in (10).

(9)

I wonder whether the whole Church of England really believed Athanasian Creed as theism. Thomas Burnett wrote a poem as follows : That all the books of Moses / Were nothing but supposes / ... / That as for Father Adam / and Mrs.Eve, his Madame, / And what the devil spoke, sir / 'Twas nothing but a joke / ...He was one of the candidates to succeed Tillotson as archbishop of Canterbury, but, as a matter of course, bishops doubted his orthodoxy. He was an important person in religion and science in the Restoration and the enlightenment. However did bishops doubt his orthodoxy, he never lost his influence on the Church of England. Perhaps the problem was whether one

denied Athanasian Creed openly or not. It was not the matter of faith but politics. Men of intelligence rather than pious believers of theism carried out the Church of England. It never became too much religious or fanatic. It supported the nation in moral way rather than religious way.

The conflict between natural science and religion found the solution that the Church of England accepted Newtonianism on the condition not to deny Athanasian Creed openly. If the Church of England was the spiritual core of the British establishment, it proved a kind of flexibility of it and it suggests us Newton's tendency to be happy with Tory. On Newton's knighthood, Michael White put, 'She (Queen Anne) was also wise enough to realize that the most effective way to draw together both sides of the political divide (Tory and Whig) was to give prominent Whigs Establishment honors. Hence Newton's knighthood in May 1705, conferred during a ceremony in Cambridge in which James Montagu was also honored despite his brother Charles having been politically marginalised by Anne herself only three years earlier.'¹³ Charles Montagu was Chancellor of the Exchequer when Whigs had power. He was an important person especially when one considers the status of Newton related to the Mint. Newton was appointed Warden and Master of the Mint. It was the brilliant days of Whigs including Newton, one of the 'prominent Whigs'. Michael White pointed out that Newton's knighthood was Anne's policy when Whigs had power. Newton was not marginalised when Tory, favored by Anne, had power. He carried out his work at the Mint well enough with the Chancellor of the Exchequer belonging to Tories, 1st Earl of Oxford, Robert Harley, Earl Mortimer, Baron Harley of Wigmore. (According to Britannica, he was a British statesman who headed the Tory ministry from 1710 to 1714. Although by birth and education he was a Whig and a Dissenter, he gradually over the years changed his politics, becoming the leader of the Tory and Anglican party. Then, it was the very fact that insinuated Newton's changing position.) Newton's ideological belief was very clear. He was Whig and Protestant. Then why was he happy with the Chancellor of the Exchequer belonging to Tories? It was because what he wanted was power and not the ideological dream for the sake of ideology. Why was Newton Whig and Protestant? It was because he wanted power in a way to liberate him from the traditional political order and natural philosophy. His wish to obtain power in order to liberate himself from tradition was so strong that it was one of the main causes of his 'Black Year' (the days of Newton's

¹³White, Michael, *Isaac Newton - The Last Sorcerer*, (1997), pp 296 7.

nervous breakdowns that were widely known mainly by his strange letters to his friends).

Michael White described the situation as follows, citing a letter written by one of Newton's contemporaries: Millington, upon seeing Newton during the ' Black Year ', commented in a letter to Pepys that ' it was a sign of how much it [intellectual life] is looked after when such a person as Mr Newton lies so neglected by those in power ' .¹⁴ Then Whigs had power and Newton's close friend, Charles Montagu, one of able Whigs had power to appoint Newton Warden of the Mint, which caused Newton to recover from his mental illness.

Newton was like Icarus when he encountered the days of nervous breakdowns. As a prominent scientist, he came near the sun and lost his wings. When he was appointed Warden of the Mint, he got his wings again. Newton was in the world where political ambition and psychoanalytical matters were strangely mixed. Shakespeare described the same world. The similarity of the world where Newton lived and the world Shakespeare described can be testified by the title of a single thesis: *Icarus reading: trope, trauma, and event in Shakespeare, Cervantes, and Descartes* .¹⁵ It is the thesis written in the 20 th century. Does it anything to do with Newton? The Church of England accepted Newtonianism on the condition not to deny Athanasian Creed openly. It is the flexible characteristic of British establishment to combine religion, politics, and natural science together. What made Shakespeare write his works was the original mental tendency of British people to be against the Continental mental system based on Roman Catholic tradition. Newtonianism was in the same tendency and the scientific truth that Newton discovered made Newtonianism a powerful engine to made the British people's tendency the world tendency. Today the name of Newtonianism itself is not so frequently heard to express the ideas of the world today. Natural science and psychoanalysis are frequently heard instead, and they are in the same tendency with Newtonianism. Not only natural science but also psychoanalysis is in the tendency to be against Roman Catholic tradition. Jung's elaborate and long book on alchemy was full of such tendency.

(10)

To be too much religious nor fanatic (and to be moral rather than to be religious) is the

¹⁴Ibid.p 252 .

¹⁵Lezra, Jacques, *Icarus reading : trope, trauma, and event in Shakespeare, Cervantes, and Descartes* ,(c 1990).

attitude of Shakespeare. It is often said that Shakespeare lacks systematic philosophy, compared with, for example, Dante. Just as Newton called Pembroke's famous collections 'Stone Dolls', Shakespeare makes Berowne in *Love's Labor's Lost* say, 'The earthly godfathers of heaven's lights, / That give a name to every fixed star, / Have no more profit of their shining nights, / Than those that walk and wot not what they are.'¹⁶ This is sometimes interpreted to be an emphasis on passionate humanity without systematic philosophy contrasted with coolness of reason of systematic philosophy. If one takes it as humanities contrasted with natural science, he does not know real scientists. Real scientists will engage in research passionately with simple scientific rule and with complicated nature that urges them to an adventure. Newton discovered the gravitation rule observing starry night (i.e. in the cosmic context) and was opposed to Ptolemy (i.e. the king of earthly godfathers of heaven's light). Here, Newton comes near to Shakespeare. The reason why Newton had such strong self confidence to oppose to Pembroke's 'systematic philosophy' is that he had his own 'systematic philosophy' called natural science today.

I feel the same 'systematic philosophy' as the background of Shakespeare. Berowne's speech criticized the 'systematic philosophy' of astrology or astronomy. Criticizing the natural philosophy of ancient regime, Berowne and Shakespeare are in the same position with Newton. Shakespeare's treatment of alchemy suggests this fact strongly. He attained to the same standpoint with Newton at least in respect of scientific reason. It can safely be said that Shakespeare highlighted in the age of enlightenment had strong tendency to be understood in the light of Newtonianism. Berowne's speech is splendid and it is Shakespeare's rhetoric. The 1970s were the time when Shakespeare's rhetoric was not welcomed. (There was an essay on Shakespeare's comedies, discussing the feeling of disbelief against Shakespeare's rhetoric in 1970s.¹⁷) It was the age of ideology and conflicts of ideology were not only between United States and Soviet Union but also between various groups of students of universities. Why Shakespeare's rhetoric was not welcomed at that age? Shakespeare's ideology appeared to be ambiguous. No one could clearly grasp his ideology behind the splendid rhetoric. Splendid rhetoric with ambiguous ideology caused the feeling of disbelief. Berowne's speech denies the systematic

¹⁶(1018891).

¹⁷French, Tita, *A rhetoric of comedy: essays on language as a theme in Shakespeare's comedies*, (1985).

philosophy to grasp the universe. Then what is his ideology? It appears to be ambiguous. In respect of ideology, Shakespeare's ideology 'surmised by the eloquent characters in his works can be grasped in three points. One is the tendency to deny avarice. The second is splendid rhetoric without any clear ideology. The third is his concern about the structure of universe. Shakespeare's characters sometimes deny avarice, but it is not on the ideology such as Puritanism. It is the secret of Shakespeare's eloquence. Splendid rhetoric can attack avarice effectively if it is on the common sense and without ideology such as Puritanism. If it is propaganda of Puritanism, it will lose the power of eloquence. Shakespeare sometimes would refer to the structure of the universe. It is sometimes beautiful poetry. It will never promote some systematic philosophy to grasp the universe. These characteristics agree with Newton's belief to accept what was testified by experiments and theory testified by mathematics. Shakespeare did not know scientific truth such as Newton's. Both Shakespeare and Newton were eloquent and on the basis of British common sense.

As stated previously, Newton succeeded Bacon's thought and Newton's followers formed the ideology called Newtonianism. Newtonianism was accepted by rich people in the Enlightenment London through Boyle lectures. They were the dominant audience of the Shakespearean theater in the Enlightenment. They were sometimes called petit bourgeoisie and Shakespeare was sometimes regarded as the author of bourgeois literature. No one will call Newton a bourgeois scientist because modern natural science is so universal, but Newtonianism had tendency to be bourgeoisie's ideology. Every ideology had tendency to be supported by or reproved by malcontent people. Both Shakespeare and Newton came from the country and had possibility to be malcontents and overcame the situation. In other words, they were the National scientist and the National poet.

It is not accurate that British National ideology is bourgeoisie's ideology. Bourgeoisie's ideology and malcontent people's ideology against it were the main British ideologies these four hundred years, but Shakespeare and Newton were not to be discussed on such a level.

Their thoughts include not only Christianity and Greco Roman culture but also alchemy, astrology and the other unorthodox cultures. They are complex and the complexity is that of British culture itself. It is why they are the national poet and the national scientist.

John Dryden is convenient to understand these matters. He did appreciate Shakespeare and wrote adaptations of Shakespeare's works. He was contemporary with Newton and appreciated natural science. He can be discussed on the level of bourgeoisie's ideology and malcontent people's ideology against it. He lived in the age of revolution and changed his thoughts to follow the power. He lacked Shakespeare's sense of ordinary people. He lacked Newton's sense of mathematical universality.

He shows us how Shakespeare and Newton cannot be discussed on the level of bourgeoisie's ideology and malcontent people's ideology against it. He also shows us how they are the national poet and the national scientist.

Here, Francis Bacon must be discussed again. As stated previously, he was a scientist and Newton succeeded his thought. He was contemporary with Shakespeare and there remained even now people who believe that he and Shakespeare were the same person as a playwright.

I cannot agree with such an anti Stratfordian theory, but I admit Shakespeare was much influenced by his thought. Karl R. Wallace put as follows :

. . . Among the senses those of the eye and ear are " the purest " . As a consequence, so Bacon observed, the science thereof are the most learned, for they have " mathematics like a handmaid in their train ."¹⁸

Sonnet 46 begins with the phrase " Mine eye and heart are at a mortal war " and (a closet never pierced with crystal eyes) is the phrase to express " heart " . The expression " crystal eyes " reminds us of Bacon's " the purest " senses.

Sonnet 113 begins as follows :

Since I left you, mine eye is in my mind ;
And that which governs me to go about
Doth part his function and is partly blind

This shows the confusion of senses as the result of falling in love.

The last four lines of Sonnet 45 are as follows :

¹⁸Karl R. Wallace, *Francis Bacon on the Nature of Man* (1967), p 42, ll 13 16 .

Who even but now come back again assured
Of thy fair health, recounting it to me.
This told, I joy, but then no longer glad,
I send them back again and straight grow sad.

These lines treat two of the four elements, air and fire, as reporters. This reminds us Bacon's "mathematics like a handmaid in their train ." The organs such as eye and ear are "the purest " senses and "reporters " .

Karl R. Wallace put as follows :

The activity of the senses discloses their chief function : they are "reporters ." As is true of all motion, sensory action is in response to "the stimulus of surrounding things ," and presumable Bacon would include among "things " the structures adjacent to an organ and within it. The reports consist of information from sources external to the organ and they are made available to "the mind of man ." ^{19 20}

Shakespeare transformed Bacon's scientific view of human nature into poetic view of human nature in love. Shakespeare's love poems are like parody of Bacon's scientific essays. Bacon's research on human nature influenced both Shakespeare and Newton.

Newton succeeded Bacon's thought and Shakespeare's works were like parody of Bacon's scientific essays. This brings us the ultimate conclusion to the question ; How did Newton appreciate Shakespeare? '

Newton did not appreciate Shakespeare consciously because he was not accustomed to theatergoing. On the level of thought and ideology, he did appreciate Shakespeare because most of the thoughts that Shakespeare utilized in creating his works were Francis Bacon's.

¹⁹*Advancement of Learning, Works III* , 265 .

²⁰Karl R. Wallace, *Francis Bacon on the Nature of Man* (1967) , p 42, ll 23 29 .