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A Sober, Silent, Thinking Lad

ISAAC NEWTON was born early on Christmas Day 1642, in the manor house of Woolsthorpe near the village of Colsterworth, seven miles south of Grantham in Lincolnshire. Because Galileo, on whose discoveries much of Newton's own career in science would squarely rest, had died that year, a significance attaches itself to 1642. I am far from the first to note it – and undoubtedly will be far from the last. Born in 1564, Galileo had lived nearly to the age of eighty. Newton would live nearly to the age of eighty-five. Between them they virtually spanned the entire Scientific Revolution, the central core of which their combined work constituted. In fact, only England's stiff-necked Protestantism permitted the chronological liaison. Because it considered that popery had fatally contaminated the Gregorian calendar, England was ten days out of phase with the Continent, where it was 4 January 1643 the day Newton was born. We can sacrifice the symbol without losing anything of substance. It matters only that he was born and at such a time that he could utilize the work of Galileo and of other pioneers of modern science such as Kepler (who had been dead twelve years) and Descartes (who was still alive and active in the Netherlands).

Prior to Isaac, the Newton family was wholly without distinction and wholly without learning. As it knew steady economic advance during the century prior to Isaac's birth, we may assume that it was not without diligence and not without the intelligence that can make diligence fruitful. A Simon Newton, the first of the family to raise his head tentatively above rural anonymity, lived in Westby, a village about five miles southeast of Grantham, in 1524. Along with twenty-two other inhabitants of Westby, he had achieved the status of a taxpayer in the subsidy granted that year.

Fourteen of the twenty-two, including Simon Newton, paid the minimum assessment of 4d. Eight others paid assessments ranging from 12d to 9s 6d, and one, Thomas Ellis, who was one of the richest men in Lincolnshire, paid more than £16. If the Newtons had risen above complete anonymity, clearly they did not rank very high in the social order, even in the village of Westby. Because the average village in that part of Lincolnshire consisted of about twenty-five or thirty households, Simon Newton's assessment may indicate that he and thirteen others occupied the lowest rung on the Westby ladder. They were climbing, however, and rather rapidly. When another subsidy was granted in 1544, only four men from Westby had the privilege to pay; two of them were Newtons. Simon Newton was gone, but John Newton, presumably the son of Simon, and another John Newton, presumably his son, were now, after a man named Cony, the most flourishing inhabitants of Westby. In his will of 1562, the younger John Newton still styled himself "husbandman"; twenty-one years later, his son, a third John, died a "yeoman," a step up the social ladder; and a brother William of the same generation also claimed that standing.

Inevitably, Newton's pedigree has been worked out in considerable detail, first by Newton himself, later by the antiquarians whose attention the great attract. A list of his uncles, great-uncles, and the like and the relationships in which they stood to him are of less interest than the implications wrapped up in the shift from husbandman to yeoman. In Lincolnshire, the sixteenth and seventeenth centuries witnessed a steady concentration of land and wealth with a consequent deepening of social and economic distinctions. The Newtons were among the minority who prospered.

Westby is located on a limestone heath, the Kesteven plateau, a wedge of high ground thrust up toward Lincoln between the great fens to the east and the fenny bottom lands of the Trent valley to the west. The plateau had always presented itself as a likely highway to the north. The Romans had built Ermine Street along its back, and the Great North Road of medieval and early modern England followed the same route as far as Grantham, where it veered off to the west toward an easier passage over the Humber. Even today the main highway north near the eastern coast of England crosses the plateau along the same path. Woolsthorpe, where Newton was reared, lay less than a mile from a major thoroughfare of his day.

If the plateau was a natural highway, it was not a natural granary. The soil was thin and poor. Much of the arable land could sustain only a two-field rotation, which allowed it to stand fallow half the time. Enclosure here proceeded slowly, while large stretches of uncultivated waste were used in common as sheep walks. Wool from sheep was the foundation of the plateau's agricultural economy. In compensation for niggardly soil, the plateau bore a relatively sparse population. Those who would could prosper. The Newtons would.

The tale is told in the details of successive wills. From John Newton of Westby, who left a will when he died in 1562, each generation for a century left a considerably augmented estate. Rather, they left augmented estates. The Newtons were also a prolific clan. John Newton of Westby had eleven children, of whom ten survived. His son Richard, Isaac's great-grandfather, had seven children, of whom five survived. Isaac's grandfather, Robert, had eleven, of whom six survived. No single inheritance was augmented and passed on. The inheritance was continually being divided, but most of the segments took root and flourished. By the middle of the seventeenth century a considerable number of substantial yeomen named Newton were sprinkled over the area around Grantham, all of them descendants of John Newton of Westby, husbandman. No doubt the fact that this John Newton married very well – Mary Nixe, the daughter of a prosperous yeoman – helped his position. He must also have known how to handle the dowry, however, for he was able to provide handsomely for three sons. The descendants of one of them, William, prospered even more than the rest; in 1661 one of his descendants, yet another John, pushed his way into the squirearchy as Sir John Newton, Bart. In 1705, Isaac Newton anxiously pursued his son, also Sir John Newton, Bart., for corroboration of his pedigree. At about the time of his death, John Newton of Westby purchased an extensive farm of well over a hundred acres, including sixty acres of arable land, in Woolsthorpe for another son, Richard. Woolsthorpe lay approximately three miles southwest of Westby, and Richard Newton was Isaac Newton's great-grandfather. To put the family's economic position in perspective, the average estate in the 1590s of peasants on the heath with property – that is, of the wealthier peasants – was about £49. The richest yeoman, as measured by his will, who died in Lincolnshire in the 1590s left personal property of nearly £400. Very few wills in that time left goods worth more than £100.

Richard Newton, whose father established him on a farm purchased for £40, left goods inventoried at £104; the inventory did not include the land or the house. It did include a flock of fifty sheep, well over the average number. Sheep were the measure of wealth on the heath. Not only did John Newton of Westby endow three sons magnificently by yeoman standards, but he also married a daughter to Henry Askew (or Ayscough) of Harlaxton. The Ayscoughs were a prominent Lincolnshire family, though it is not clear what, if any, relation Henry Askew bore to the main stem of the family, whose seat lay well to the north. It was not the last alliance between the two families.

Robert Newton, Isaac's grandfather, was born about 1570. He inherited his father's property at Woolsthorpe, to which he added the manor of Woolsthorpe by purchase in 1623. The manor was not in prosperous condition. It had changed hands by sale four times during the previous century. Nevertheless its value was reckoned at £30 per year. Added to the original estate, it gave the family a comfortable living indeed by yeoman standards of the day. Socially, it may have elevated Robert still further. He was now lord of a manor, legally entitled to exercise the powers of local authority, such as conducting court baron and court leet, which, as still operative elements of local administration, had jurisdiction over minor breaches of the peace and could levy fines but could not imprison. The lord of a manor was no husbandman. In December 1639, he settled the entire Woolsthorpe property on his eldest surviving son, Isaac, and Hannah Ayscough (or Askew), to whom Isaac was betrothed. Isaac was hardly a young man. He had been born on 21 September 1606. Although Hannah Ayscough's age is not known, it seems likely that she was well beyond maidenhood herself; her parents had been married in 1609, and her brother William was probably the William Askue who matriculated in Cambridge from Trinity College early in 1630. Nevertheless, the couple did not marry at once, and there is every suggestion that they waited to obtain the inheritance first. After all, Robert Newton was nearly seventy. He obliged in the autumn of 1641; the following April the two were united.

The Ayscough match was another distinct step forward for the Newtons. Hannah was the daughter of James Ayscough, gentleman, of Market Overton, county Rutland. As marriage portion, she brought with her a property in Sewstern, Leicestershire, worth £50 per year. It is difficult to

imagine the match without Newton's recently purchased dignity of manorial lord. Hannah brought more than additional wealth. For the first time, the Newtons made contact with formal learning. Before 1642, no Newton in Isaac's branch of the family had been able to sign his own name. Their wills, drawn up by scribes or curates, bore only their marks. Isaac Newton, the father of our subject, was unable to sign his name, and so was his brother who helped prepare the inventory of his possessions. In contrast, one Ayscough at the very least was educated. William, Hannah's brother (M.A. Cambridge, 1637), pursued the calling for which learning was essential. Ordained to the clergy of the Anglican Church, he was instituted to the rectory of Burton Coggles, two miles east of Colsterworth, in January of the year in which his sister married Isaac Newton.

As it turned out, Isaac was reared entirely by the Ayscoughs. We can only speculate what would have happened had his father lived. The father was now the lord of a manor, as his own father had not been while he himself was being reared. Perhaps he would have seen the education of his son as a natural consequence of his position. However, his brother Richard, who was only a yeoman to be sure and not the lord of a manor, did not see fit to educate his son, who died illiterate. Being reared as an Ayscough, Isaac met a different set of expectations. The presence of the Reverend William Ayscough only two miles to the east may have been the critical factor. At a later time, his intervention helped to direct Isaac toward the university. Whatever the individual roles, the Ayscoughs took it for granted that the boy would receive at least a basic education. We have some reason to doubt that the Newtons would have done so.

Six months after his marriage, Isaac Newton died early in October 1642. He left behind an estate and a pregnant widow but virtually no information about himself. We have only one brief description of him, from a century and a half after his death, by Thomas Maude, who claimed to have inquired diligently into Newton's ancestry among the descendants of his half-brother and half-sisters and around the parish of Colsterworth. According to Maude, Isaac Newton the father was "a wild, extravagant, and weak man." Such may have been the case; because Maude did not even get his name right, however, calling him John, we are scarcely compelled to accept the description. About his estate we are directly informed by his will. Because it defines the economic position of Isaac

Newton (the son) at the time of his birth, it deserves some scrutiny. In addition to his extensive lands and the manor house, Isaac Newton, senior, left goods and chattels valued at £459 12s 4d. His flock of sheep numbered 234, which compares with an average flock of about 35. He owned apparently 46 head of cattle (divided among three categories which are partly illegible on the document and hard to interpret in any case), also several times the average. In his barns were malt, oats, corn (probably barley, the staple crop of the heath), and hay valued at nearly £140. Because the inventory was made in October, these items undoubtedly represent the harvest of 1642. By putting oats (£1 15s) in a separate category but coupling corn and hay (£130) in another, the men who drew up the inventory made it difficult to interpret. The oats and hay would have been fodder for the winter; surely the corn would not have been. The cattle (worth £101) and the sheep (worth £80) would have consumed the fodder during the approaching winter, so it does not constitute a final product of the estate. Part of the final product was wool, and the inventory includes wool valued at £15. It is unlikely that the 1642 clip, from June, would still have been on hand; £15 is too small a sum in any case, as the annual clip averaged between a fourth and a third of the value of the flock. The estate also included, of course, extensive agricultural equipment and furnishings for the house. It included as well rights to graze sheep on the common. The value of such rights is impossible to estimate, but when wool is king, grazing rights are gold. Like fodder, of course, they would only be means to the annual product, however. At this remove it is impossible to determine the total annual value of the estate. An estimate of at least £150 per year does not seem unreasonable. We should add that the inventory may have been lower than the long-term average value of the estate. The 1620s had been a hard decade, and probated inventories throughout the 1630s were lower in consequence. They did not fully recover their former level until about 1660. Newton's mother reserved the income from the paternal estate to Isaac when she remarried; the dowry lands in Sewstern appear to have been included. In addition, her second husband settled a further piece of land on him. Ultimately Newton inherited the entire paternal estate together with the land from his stepfather and some additional properties purchased by his mother. I have summarized the estate in financial terms because that was its only meaning in Newton's life. At one time the family intended that he manage it. This

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was not to be, however, and the estate functioned in his life only as financial security. Whatever problems might await the child still unborn when the inventory was made, poverty was not likely to be among them.



The only child of Isaac Newton was born three months after his father's death in the manor house at Woolsthorpe early Christmas morning. The posthumous offspring, a son, was named after his father, Isaac. Already fatherless, apparently premature, the baby was so tiny that no one expected him to survive. More than eighty years later, Newton told John Conduitt, the husband of his niece, the family legend about his birth. Conduitt tells us:

S^r I. N. told me that he had been told that when he was born he was so little they could put him into a quart pot & so weakly that he was forced to have a bolster all round his neck to keep it on his shoulders & so little likely to live that when two women were sent to Lady Pakenham at North Witham for something for him they sate down on a stile by the way & said there was no occasion for making haste for they were sure the child would be dead before they could get back.

Apparently his life hung in the balance at least a week. He was not baptized until 1 January 1643.

We expect little information on the following years, and we are not disappointed. We do know, however, about one event of overwhelming importance which shattered the security of Newton's childhood immediately following his third birthday. Conduitt obtained an account of it from a Mrs. Hatton, née Ayscough:

Mr Smith a neighbouring Clergyman, who had a very good Estate, had lived a Batchelor till he was pretty old, & one of his parishioners adviseing him to marry He said he did not know where to meet with a good wife: the man answered, the widow Newton is an extraordinary good woman: but saith Mr Smith, how do I know she will have me. & I don't care to ask & be denyed. But if you will go & ask her, I will pay you for your day's work. He went accordingly. Her answer was, She would be advised by her Bro: Ayscough. Upon which Mr Smith sent the same person to Mr Ayscough on y^e same errand, who, upon consulting with his Sister, treated with Mr Smith: who gave her son Isaac a parcell of Land, being one of the terms insisted upon by the widow if she married him.

Barnabas Smith was the rector of North Witham, the next village south along the Witham, a mile and a half away. Born in 1582, he had matricu-

lated at Oxford in 1597, commencing B.A. (as graduation was called at the time) in 1601 and proceeding M.A. in 1604. "Pretty old," as Mrs. Hatton's account has it, rather understates the matter; he was sixty-three years old when he added "Smith" to Hannah Ayscough Newton's lengthening string of names. Nor had he lived a bachelor. He had buried a wife the previous June, and he had not allowed much grass to grow over her grave before he mended his single estate.

We do not know a great deal about the rector of North Witham. To start with the best, he owned books. Newton's room at Woolsthorpe contained, on the shelves that Newton had built for them, two or three hundred books, mostly editions of the Fathers and theological treatises, which had belonged to his stepfather. Purchasing books with intent to study is, of course, not the only way to obtain them. One might inherit a theological library, for example, if one's father was a clergyman as Barnabas Smith's father was. At any rate he had the books. He may even have read a bit in them. In a huge notebook, which he began in 1612, Smith entered a grandly conceived set of theological headings and under the headings a few pertinent passages culled from his reading. If these notes represent the sum total of his lifetime assault on his library, it is not surprising that he left no reputation for learning. Such an expanse of blank paper was not to be discarded in the seventeenth century. Newton called it his "Waste Book," and what Barnabas Smith had once intended as a theological commonplace book witnessed the birth of the calculus and Newton's first steps in mechanics. Possibly the library started Newton's theological voyage to lands his stepfather would not have recognized.

Smith must have been vigorous, not to say lusty; though already sixty-three when he married Hannah Newton, he fathered three children before he died at seventy-one. No surviving story suggests that he concerned himself much with the likelihood that the three children would soon be left without a father, even as another boy had been. Beyond the books and the vigor, little else about him sounds attractive. He occupied the rectory in North Witham because his father, the rector of South Witham, had bought it for him in 1610 by purchasing the next presentation from Sir Henry Pakenham, who controlled it. In the following year, a visitation by the Bishop of Lincoln reported that the Reverend Mr. Smith was of good behavior, was nonresident, and was not hospitable. In effect, Barnabas Smith's father had purchased a comfortable annuity for his son.

He received the income from North Witham for more than forty years. For the first thirty, as far as we know, he conformed without protest to the ever more Arminian policies of the established church. With the Civil War came the Puritans and the Covenant. The Reverend Mr. Smith remained undisturbed in his living. The second Civil War brought the Independents and the Engagement. By now, large numbers of steadfast Anglican clergy had preferred ejection to conformity, and many were suffering real deprivation, but not the Reverend Mr. Smith. When he died in 1653, he had grasped his living firmly through all the upheavals – a pliable man, obviously, more concerned with the benefice than with principles. Although they had never met, John Milton knew him well.

Anow of such as for their bellies sake,
 Creep and intrude, and climb into the fold?
 Of other care they little reck'ning make,
 Than how to scramble to the shearers feast,
 And shove away the worthy bidden guest;
 Blind mouthes!

Not that the living of North Witham was Barnabas Smith's primary means of support. He had an independent income of about £500 per annum – “w^{ch} in those days was a plentiful estate . . .,” said Conduitt in his single essay at understatement. For Newton, his stepfather's wealth meant in the end a significant increment to his own possessions. As Mrs. Hatton's account states, part of the marriage settlement was a parcel of land for him, increasing his paternal estate. Years later, Newton inherited from his mother additional lands that she had purchased for him, undoubtedly from the estate of her second husband. The will of Newton's uncle, Richard Newton, suggests an economic status similar to that of Newton's father. The will of Hannah Ayscough Newton Smith bespeaks a wholly different level. The Ayscough marriage had been a step upward for the Newtons, more in status than in wealth. The Smith marriage brought a major increase in wealth. In return, it deprived Newton of a mother. His stepfather had no intention of taking the three-year-old boy with the mother. Isaac was left in Woolsthorpe with his grandparents Ayscough. The Reverend Mr. Smith did have the house rebuilt for them; he could afford it.

The loss of his mother must have been a traumatic event in the life of the fatherless boy of three. There was a grandmother to replace her, to be

sure; but significantly, Newton never recorded any affectionate recollection of her whatever. Even her death went unnoticed. Even more significant is the grandfather. Until very recently, everyone assumed that the grandmother was a widow because there is no single reference to him in Newton's papers. We now know that the grandfather was present in the manor house as well. We also know that he returned Isaac's affection in full measure – that is, he excluded him entirely from his will.

As we shall see, Newton was a tortured man, an extremely neurotic personality who teetered always, at least through middle age, on the verge of breakdown. No one has to stretch credulity excessively to believe that the second marriage and departure of his mother could have contributed enormously to the inner torment of the boy already perhaps bewildered by the realization that he, unlike others, had no father. Moreover, there is reason to think that Isaac Newton and Barnabas Smith never learned to love each other. Nine years after his stepfather's death in 1653, when Newton was moved to draw up a list of his sins, he included "Threatning my father and mother Smith to burne them and the house over them." Probably every boy has angry confrontations with his parents, when puerile threats are screamed in frustration. Nevertheless, the scene must have etched itself deeply on Newton's consciousness if he recalled it nine years later. For Barnabas Smith's part, his actions speak clearly enough. For more than seven-and-a-half years, until he died, while the child of three grew to be a boy of ten, he did not take him to live in the rectory in North Witham.

The manor house of Woolsthorpe stands on the west side of the small valley of the river Witham, a string down the Kesteven plateau beaded with villages, leading toward the town of Grantham. Built of the gray limestone that also builds the plateau, the house forms a squat letter T, with the kitchen in the stem, and the main hall and a parlor in the cross-stroke. The entrance, somewhat off-center between the hall and the parlor, faces the stairway, which leads upstairs to two bedrooms. Here Newton was born, and here was the room he occupied while he grew to adolescence. Beyond the fact that he attended day schools in the neighboring villages of Skillington and Stoke, we know little about his youth. The area was liberally sprinkled with aunts, uncles, and cousins of varying degrees. Wills tell us of two uncles Newton, one living in Colsterworth and one in Couthorpe three miles away, both with children apparently