

ART. XIV.—*Some early mathematical schools in Whitehaven.* By F. J. G. ROBINSON, M.A., Ph.D., and P. J. WALLIS, M.A., F.I.M.A., F.R.Hist.S.

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THE commercial growth of Whitehaven from the late seventeenth century has been described elsewhere.<sup>1</sup> An undeveloped town of about 450 families in 1693 was transformed in the eighteenth century into one of the great ports of England and had a population of over sixteen thousand by 1801.<sup>2</sup> Educational development in the town has, however, been largely ignored by its social and economic historians. It would be surprising if the century which saw such commercial expansion had not witnessed also an increase in educational provision, particularly in the fields of mathematics and technology. The relationship between industrial and commercial growth on the one hand and evolution in education, both in the private schools and at established grammar schools, was outlined in a pioneer study by Nicholas Hans.<sup>3</sup> The more general importance, for the whole industrial revolution, of the broadening of the facilities for mathematical and scientific education is only slowly becoming appreciated.<sup>4</sup> The scientific lecturing movement has yet to be fully evaluated on a national scale, although some local studies have been made.<sup>5</sup> The part played by private schools and academies is still unclarified and the early introduction of science and mathematics in the endowed grammar schools has been ignored in the most recent studies of those institutions.<sup>6</sup> As befitted its economic importance in the eighteenth century, Whitehaven enjoyed all these facilities for education. However this short paper will

be restricted to illustrating the continuing local interest in mathematics and its applications from a few small ventures in the late seventeenth century up to the appearance of the well-known academies of the second half of the subsequent century.

On the threshold of its expansion in the 1680s, an influential figure in Whitehaven was Sir John Lowther, a leading patron of education in the north-west. His interest in education is best known for his remarkable foundation at Lowther itself,<sup>7</sup> but he had long been concerned in the encouragement of St Bees grammar school and of schools at Whitehaven before he outlined his scheme for the education of the sons of gentlemen. He emphasised the practical purposes of learning; at St Bees he encouraged the teaching of shorthand, writing, accountancy and arithmetic. He even concerned himself with such detail as the provision of a stable so that visiting parents might not want accommodation for their horses. His support for education in Whitehaven itself seems to have sprung from his interest in the nearby grammar school. It is probable however that his was not the original initiative in the foundation of the Whitehaven school. On the 28th September 1688 his agent, Thomas Tickell, informed him that "They (the townspeople) are parleying to bring a schoolmaster and the one likely . . . is Cooper, the late usher at St Bees." Sir John's reply clarifies his role. "The contribution for a school at Whitehaven pleases me and will fitt more scholars for St Bees, as they grow up they will go thither."<sup>8</sup> In the six years which ensued before a school was built, Sir John continued to receive reports of progress at Whitehaven but his main concern remained St Bees. In 1692 he suggested to Sir Daniel Fleming the annexation of the living of Distington to the mastership of the latter school so that much of the existing revenue ". . . might be applyed for ye support of

Ushers, Writing Masters and Accomptants, yt then this living should be supplied by some person like to Flamsted, Mr Rook, or one well skill'd in Mathematics who might be of use to ye Town of Whitehaven . . .".<sup>9</sup> The proposal came to nothing. Instead Sir John was encouraged by his agent to turn his energies directly to Whitehaven. In 1694 the agent wrote: "The school house is now very nearly perfected, but Mr Cooper the school master was buried this day. We shall take care to get someone to keep the boys together till as fitt master can be provided. A good one will be required, but difficult to be found, they who are good for nothing else commonly taking that employment upon them. I presume you intend one for this place who is not only perfect in the classical learning, but has also been seasoned at an university. If you could light upon such a one I believe he would meet with encouragement from the town. Mr Hornsby, the present usher of St Bees, offers his services."<sup>10</sup> A month later he went much further; "The school . . . finished . . . but I know of no settlement for a master that can be hoped for unless that of St Bees were transferred hither by Act of Parliament, which would make it much more useful . . . and be in no way injurious to the Designs of the Founder."<sup>11</sup>

Although that suggestion fell upon stony ground, the school at Whitehaven was operating as a classical grammar school by January 1694/5 and had some fifty Latin scholars by August 1695. However, the growing port demanded commercially biased forms of education as well as classics, as Sir John had suggested in 1692. Almost as soon as the school was built the agent was enquiring ". . . to know your pleasure whether you will have Writing, Accompts and Mathematics taught now, or will have them wait till the Wings (of the school) . . . can be built".<sup>12</sup> That this appeal represented a widely felt need was made clear in the next

two years. In October 1696 Sir John was informed "The number of schollars increases . . . there are several in the Town that learn the Mathematicks. I formerly proposed the use of the upper room for this but received no reply from your Lordship . . ." <sup>13</sup> Presumably this hint achieved its objective because the room was announced to be fitted out for mathematics and writing within three months. <sup>14</sup> The establishment of this section of the school was shortly followed by a remarkable development which reinforces the suggested connection between commercial and educational growth in the port. William Gilpin outlined the new scheme to Sir John in February 1697. "The Mathematick Master has at this season but few schollars, the ships being abroad. He is making a Proposall to the town, which (if it take) will be well both for him and for them. Viz. For a certain rate to be paid him upon the Tonnage of the ships, he will teach all the sons of the owners, and the servants that are related to the ships. This will establish a certainty for the master, and will engage more to apply themselves to that study than otherwise would. It will also be an advantage to the ships, for people will be more desirous to furnish them with servants. He has books but is not very well provided with mapps . . ." <sup>15</sup> The proposal was accepted and proved successful but it did not satisfy the demand for mathematical education in Whitehaven. In May Gilpin wrote: ". . . that which they most want are large mapps, to hang up; You have two (of the same) of Virginia & Maryland; if you think fit to spare the worser of them, it may be useful to hang up in the school chamber where Mr Pollin has taught a good while, and has a considerable number of schollars. The terms he proposed to the Town . . . were generally (accepted) . . . and he teaches upon that foot. There is also another Mathematician in Town who teaches, one Mr Dalrymple, I think he

is the greater artist in some things; both do well . . .”<sup>16</sup>

This relation between commercial development and demand for technical education may be illustrated from other parts of the north in this period. In Newcastle Jurin’s lectures were geared towards the interests of the mining fraternity and there was an even closer parallel in the growth of navigational teaching in Glasgow in the 1690s.<sup>17</sup> Although no more is known of Pollin’s and Dalrymple’s activities in Whitehaven, and the school in which Pollin taught failed to expand into an institution of the stature of the great northern grammar schools, there are clear indications of the continued need for mathematical education in the town.

The academy opened at Whitehaven by Thomas Dixon in the first decade of the eighteenth century is well known.<sup>18</sup> As Dixon was a non-conformist minister, and certainly trained a number of future divines, his establishment has been classified as a dissenting academy. It is clear, in the north as elsewhere, that the dissenting schools and academies catered for a much wider public than those children of their own sect designed for the ministry.<sup>19</sup> The “dissenting academies” of Horsley and Lowthian in the north-east certainly offered a secular education to private pupils; closer to hand Rebanks, the master of the Quaker school at Kendal, although persecuted for teaching without a licence, advertised a mathematical course for all comers in 1728.<sup>20</sup> Caleb Rotheram, master of perhaps the most famous of the dissenting academies in the north, was advertising himself as a teacher of mathematics in 1730, two years before he is generally believed to have opened his academy.<sup>21</sup> It is likely that Dixon’s academy also provided technical and mathematical education for the local boys as well as a theological course leading to the ministry. Dixon’s own lecture notes for one course survive; the subjects taught included arithmetic, trigonometry, logarithms,

the use of the globes and astronomy. Further he employed John Barclay, a graduate of Edinburgh University, as mathematical assistant from c. 1709. In view of the already established demand for mathematical education in the town it is hardly conceivable that Dixon's academy was not fulfilling a wider function than training future ministers.

From the closure of this academy in 1719 until the opening of the multilateral school run by Rev. Thomas Evans and Mr and Mrs William Johnson in 1748, comparatively little is known of provision for mathematical education in Whitehaven. However, of the over a hundred schoolmasters and mistresses known to have taught in the town in the eighteenth century and listed in the appendix, only six are from this period and little is known of the subjects they taught.<sup>22</sup> One link can be established between the schools of the early decades and the 1740s; William Masheder, the Whitehaven printer, was the author of a navigational textbook, *The Navigator's Companion : or, Mariner's compendious pocket book*, published in 1754. In that work he indicated that he had been teaching for some thirty years. His mathematical bias is substantiated by his appearance as a "philomath" in the subscription list to *A description of the sea-coast of England and Wales* (1738), by Samuel Fearon and John Eyes. In 1752/3 he had printed another mathematical work by a local schoolmaster, Abraham Fletcher's *The Universal Measurer, in two parts*.<sup>23</sup>

In March 1748 the opening was announced of a multilateral school in Whitehaven; it was intended to teach pupils for trade and university, and at the same time to provide for the proper education of young ladies. This venture entered upon by the Rev. Evans and Mr and Mrs Johnson was the first known of a series of successful academies in the town.<sup>24</sup> An emphasis on mathematical subjects, especially those

relevant to trade and seamanship, was common to most of these establishments in the eighteenth century. The well-known academy of H. Ward, which was continued by William Lancaster from 1792, offered a thorough coverage of these sciences as well as artistic and more general studies.<sup>25</sup> These multilateral academies were a feature of educational provision all over the north, in both town and country, in this period, and do not specifically reflect the commercial needs of Whitehaven. There were, however, private schools developed in the port which showed, by the restricted courses offered, the real pressure of public demand.

The Quaker, John Drape(r),<sup>26</sup> was a teacher of mathematics, an author of mathematical textbooks and a lecturer on natural philosophy at Whitehaven until his death in 1776. The earliest evidence of his teaching in the town comes from his subscription to Josiah Relph's *A Miscellany of Poems* of 1747. After his death in 1776 his son, of the same name, continued to specialise in mathematical subjects at Whitehaven. He advertised a range of subjects, wide even for the flamboyant courses of the eighteenth century; like his father he lectured to the public on natural science. In 1780 he moved to Holm Cultram and founded the Greenrow academy, which was to become the outstanding multilateral academy of the north-west in the early years of the nineteenth century. However, unlike his successor there, Saul, Drape restricted himself largely to mathematical subjects, as his father had done before him.<sup>27</sup>

John Drape senior's *The Young Students' pocket companion or Arithmetic, Geometry, Trigonometry and Mensuration* (1772) included an interesting frontispiece tree of mathematics, which indicates the breadth of his mathematical teaching. Both that work and his later *The navigator's vade-mecum . . . or a*

*complete system of the art of navigation* (1773) were published at Whitehaven by Allason Foster, who was also responsible for the publication of E. Fitzgerald's *An epitome of the elements of Italian book-keeping* (1771) and W. Chambers' *The universal navigator : or, a comprehensive treatise of navigation* (1774). Both of these latter works were published by public subscription and contain lists of their subscribers. These lists indicate how strong was local support for mathematical works of a commercial and technological nature. Chambers attracted 424 subscribers from Whitehaven alone; this represented some 5% of the town's population and a much larger proportion of heads of families. Although few trades are given in either list, it is not surprising to find that 166 of Chambers' supporters were described as "captain".<sup>28</sup>

By the last decades of the eighteenth century the expansion in the population of the town was naturally reflected in an increase in the number of schools.<sup>29</sup> Septimus Hodgson advertised his mathematical school in Whitehaven in 1787, outlining the usual range of subjects, arithmetic, geometry, trigonometry, mensuration, gauging, surveying, navigation, book-keeping, dialling, algebra and the use of the globes, as well as spelling, English and writing. He claimed to have been teaching for many years in the town and was presumably the Septimus Hodgson who had subscribed to Chambers in 1774. He was still in Whitehaven c. 1797 as he appears in the subscription list to E. Lloyd's *A plain system of geography*, published in Edinburgh in that year.<sup>30</sup> John Wood of Mealrigg had been one of Drape's pupils. He opened a mathematical school in Whitehaven in 1779, specialising in navigational and engineering studies, and continued to teach there until his death in 1827. He, too, had subscribed to Lloyd's *system* in 1797, probably influenced by local sympathy as Lloyd was then teaching in Workington.<sup>31</sup> Wood

offered evening classes to attract those already in trade, as presumably did many of his competitors. One R. Dickenson, however, was unusual in opening a school restricted to evening sessions in Whitehaven in 1778. He was probably still active there a decade later as a copy of Wardhaugh Thompson's *The Accountant's Oracle or Key to Science* (1771) in Tullie House library has the inscription "R. Dickinson, Whitehaven, 1788" on the fly-leaf.<sup>32</sup> Dickenson does not appear in the subscription list to that work, and the date would suggest a date of purchase.<sup>33</sup>

Another Whitehaven teacher to specialise in navigation and its applications was Edward Todd who taught from the early 1790s until his death in 1845. The demand for this kind of education seems even to have weighed upon proprietors of more general or classical academies. Despite the considerable provision for mathematics already outlined, Joseph Fullerton, who had opened a purely classical school in Whitehaven in January 1799, had engaged an usher and was offering the full range of mathematical studies by December 1800.<sup>34</sup>

The business possibilities open to a mathematician in a flourishing port were by no means restricted to formal education. D. Catterall not only taught mathematics in Whitehaven from 1783 to 1792 but he also practised as a mathematical instrument maker.<sup>35</sup> As has already been indicated, many produced mathematical textbooks; Richard Harrison translated a Dutch text on logarithms in 1759, whilst teaching mathematics in the town.<sup>36</sup> There was always a ready audience for a lecturer on mathematics and science. Some of the local teachers, such as Drape, senior and junior, profited from this demand, but the port also attracted peripatetic lecturers. John Banks who lectured all over northern England from c. 1772 visited Whitehaven in 1783. His course in the town had been

promoted by a local mathematics master, John Wood, and was part of a tour of the whole north-west; he repeated his visit in 1789. The town had by then enjoyed courses from I. Atkinson in 1787 and John Weaver in 1782. A further course by John Richardson, a bookseller and printer of Workington, was delivered in 1797.<sup>37</sup>

These few examples of mathematical and allied education in Whitehaven illustrate an important eighteenth-century trend. The comparatively rare extant evidences of this trend in operation before the growth of the provincial press serve to indicate that educational changes in the eighteenth century, like the industrial revolution itself, had begun long before the mid-century.

## APPENDIX.

### Whitehaven Schoolmasters of the eighteenth century.

Teachers of mathematics (and possibly other subjects) are distinguished by the letters T.M.; similarly scientific lecturers are indicated by S.L. An asterisk is appended if subject(s) taught are known but do not include mathematics.

Dates indicate the known period of activity, with (d) indicating death when known.

Anderson, Myles, 1762	Dalrymple, (T.M.), 1697
Ashe, (Miss) (*), 1781	Desvilliers, <i>see</i> Durand
Ashe, (*), 1776-81	Dickenson, R. (T.M.), 1778
Atkinson, Isaac (S.L.), 1787	Dixon, Thomas (T.M.), 1707-19
Atkinson, Myles, 1765	Drape(r), John (T.M.), 1747-76(d)
Banks, (Mrs), 1791(d)	Drape(r), John (T.M.), 1771-80
Banks, John (S.L.), 1783-89	Durand, (Mrs) (*), 1771-85 } Desvilliers
Banks, Jonathan, 1791(d)	Durand, J. (*), 1771-85 } from 1782
Barclay, John (T.M.), 1709-13	Ellwood, (Miss) (*), 1779-98
Benson, (Miss) (T.M.), 1789	Evans, Thomas (*), 1746-8
Birbeck, 1689	Farish, James, 1703-33
Black, (*), 1783	Farish, Peter, 1698
Bland, Lancelot, 1749	Fisher, (*), 1771
Bogle, (Miss) (*), 1781	Fisher, Robert, 1739-42
Braithwaite, John, 1790	Fitzgerald, Edmund (T.M.), 1771
Catterall, Daniel (T.M.), 1783-92- 1810(d)	Forrest, Matthias, 1755
Chambers, William (T.M.), 1774-8(d)	Fri . . . , Samuel, 1762
Cooper, Richard, 1689-94(d)	Fullerton, Joseph (*), 1799
Cowan, (*), 1776-85	Gale, Gustavus (T.M.), 1795
	Geyller, (Miss) (*), 1793-96

- Gledhill, (Mr) (\*), 1799  
 Graham, (Mrs) (\*), 1800  
 Gray, Ann (\*), 1793  
 Griffith, J. (Miss) (\*), 1792  
 Hadwen, John (\*), 1775-95  
 Hadwin, A. (Miss) (\*), 1771-85 (later Mrs Steel)  
 Harrison, Richard (T.M.), 1759  
 Hay(es), (Miss), 1784-7  
 Hayward, (Miss), 1787  
 Hindley, Ralph (\*), 1786  
 Hodgson, Septimus (T.M.), 1774-97  
 Hodgson, Thomas, 1785(d)  
 Hodgson, William, 1789(d)  
 Hodshon, 1710  
 Hogarth, James, 1789  
 Holliday, Sally (\*), 1771-9  
 Howard, John (T.M.), 1790-7  
 Howgill, William (\*), 1756-90(d)  
 Howgill, William (\*), 1790-1810  
 Hudson, (\*), 1777  
 Hume, John, 1797  
 Jackson, Joseph (S.L.), 1784  
 Jackson, W. (\*), 1777-80  
 Jackson, William, 1694-6  
 Johnson, (Mrs) (\*), 1748  
 Johnson, William (T.M.), 1748  
 Kandler, Tabitha (Mrs), 1782(d)  
 Katterfelto, Gustavus A. (S.L.), 1789  
 Kelty, (\*), 1794  
 Lake, 1762  
 Lancaster, William (T.M.), 1792  
 Long, (S.L.), 1784  
 McCaul, James, 1762  
 Masheder, William (T.M.), 1725-54  
 Mitchell, Christopher (\*), 1786-94  
 Mordant, Joseph, 1742  
 Mossop, John (\*), 1778-80  
 Murray, (Mrs), 1787(d)  
 Murray, Agnes, 1789 (later Mrs Smith)  
 Nicholson, Henry (\*), 1775-97  
 Nixon, William, 1771-84(d)  
 Parcivall, (\*), 1774  
 Patefield, T. P. (\*), 1788-90  
 Pearson, Thomas, 1762-99(d)  
 Peel, Prudence (Mrs) (\*), 1776-87  
 Pollin, (T.M.), 1697  
 Powe, (Mrs), 1776  
 Powe, John, 1762-1774  
 Purdie, Gilbert (\*), 1787  
 Raymond, Charles (\*), 1790-1  
 Richardson, John (S.L.), 1797  
 Rothery, John, 1762  
 Saul, Joseph (S.L.), 1790-1800  
 Scot, John (T.M.), 1753  
 Sewel, Thomas, 1733-43  
 Simpson, Joseph, 1745  
 Singleton, Ann (\*), 1781-88  
 Slack, Thomas, 1748-56  
 Slee, Daniel (T.M.), 1780  
 Smith, 1728  
 Smith, (\*), 1788-94  
 Smith, Agnes, *see* Murray  
 Smith, Christopher (\*), 1781  
 Smith, Duncan (\*), 1779  
 Smith, John, 1720  
 Smith, Thomas (\*), 1779  
 Steel, (Mrs), *see* Hadwin, A.  
 Stephenson, Thomas (T.M.), 1787-92  
 Tate, (Mrs) and two daughters, 1800  
 Thomas, (Mrs) (\*), 1787  
 Thompson, William, 1800  
 Todd, Edward (T.M.), 1790-1845(d)  
 Tordiffe, Leonard (T.M.), 1776-8  
 Walker, William (S.L.), 1784  
 Ward, H. (T.M.), 1775-92  
 Watts, William, 1748-65  
 Weaver, John (S.L.), 1782  
 Whitewright, 1792  
 Wilkinson, (Mrs), 1777  
 Wilkinson, (\*), 1800  
 Williamson, David (\*), 1792-1800  
 Wilson, (Mrs) (\*), 1787-90  
 Wilson, (Miss) (\*), 1787-90  
 Wood, John (T.M.), 1789-95  
 Wood, Joseph (T.M.), 1779-1827(d)

### Notes.

- <sup>1</sup> E. Hughes, *North country life in the eighteenth century : Cumberland and Westmorland 1700-1830*, 1965. D. Hay, *Whitehaven : a short history*, 1966. See also the works detailed in Hughes, *op. cit.*, 28 f.
- <sup>2</sup> G. P. Jones, "Some population problems relating to Cumberland and Westmorland in the eighteenth century", in CW2 lviii 126.
- <sup>3</sup> N. Haas, *New trends in education in the eighteenth century*, 1951.
- <sup>4</sup> D. S. L. Cardwell, *Technology, Science and History*, 1972. S. Lilley, *Technological Progress and the Industrial Revolution 1700-1914*, 1970. A. E. Musson, *Science, Technology, and Economic Growth in the Eighteenth Century*, 1972.

- <sup>5</sup> Many of these are listed in A. E. Musson and E. Robinson, *Science and technology in the industrial revolution*, 1969, which does not include Margaret Rowbottom, "The teaching of experimental philosophy in England, 1700-1730", *Act. XI Cong. Int. Hist. Science*, iv 46-63, 1968. Subsequently the Scottish evidence has been examined by J. A. Cable, *Popular lectures and classes on science in Scotland in the eighteenth century*, Glasgow University, M.Ed. thesis, 1971.
- <sup>6</sup> W. A. L. Vincent, *The grammar schools. Their continuing tradition 1660-1714*, 1969. R. S. Tompson, *Classics or charity? The dilemma of the eighteenth century grammar school*, 1971.
- <sup>7</sup> W. Hutchinson commented on the high repute of the school, *History of Cumberland*, ii 311, 1794. A copy of the orders for the Lowther school is in the Jackson collection at Tullie House, A.285.
- <sup>8</sup> D/Lons Correspondence. Letters of 20.9.1688, 9.10.1688. Carlisle Record Office (CRO).
- <sup>9</sup> Letter of 5.7.1692, quoted in Hughes, *op. cit.*, 28. John Flamsteed (1646-1719) was first Astronomer Royal. William Rooke, a Workington boy, was a mathematical lecturer and Fellow of Queen's College, Oxford.
- <sup>10</sup> D/Lons Correspondence. Letter of 9.9.1694. CRO.
- <sup>11</sup> D/Lons Correspondence. Letter of 31.10.1694. CRO.
- <sup>12</sup> D/Lons Correspondence. Letters of 19.8.1695 and 19.1.1694/5. CRO.
- <sup>13</sup> D/Lons Correspondence. Letter of 3.10.1696. CRO.
- <sup>14</sup> D/Lons Correspondence. Letter of 23.12.1696. CRO.
- <sup>15</sup> D/Lons Correspondence. Letter of 24.2.1696/7. CRO.
- <sup>16</sup> D/Lons Correspondence. Letter of 30.5.1697. CRO.
- <sup>17</sup> *Newcastle Courant*, 22.11.1712. N. T. Phillipson and R. Mitchinson, *Scotland in the age of improvement*, 1970, 169-171.
- <sup>18</sup> The date of origin is variously given between 1704 and 1710. It continued until 1719 when Dixon moved to Bolton. *D.N.B.* J. W. Ashley-Smith, *The birth of modern education: the contribution of the dissenting academies 1660-1800*, 1954 (pp. 106-107). B. Nightingale, *The ejected of 1662 in Cumberland and Westmorland: their predecessors and successors*, 1911 (ii 138r).
- <sup>19</sup> Irene Parker, *Dissenting Academies in England*, 1914, emphasised the importance of the wider clientele.
- <sup>20</sup> *Newcastle Courant*, 15.3.1728/9.
- <sup>21</sup> *Newcastle Courant*, 7.11.1730.
- <sup>22</sup> This deficiency reflects the great importance for local studies of surviving provincial newspapers. The absence of a successful north-western journal before Wares' *Pacquet* makes any estimation of educational provision before 1775 in Whitehaven very dubious. Further details and references for these schoolmasters, and many other points in this article, can be found in F. J. G. Robinson, *Trends in education in northern England during the eighteenth century; a biographical study*, Newcastle University Ph.D. thesis, 1972.
- <sup>23</sup> For details of Masheder and Fletcher see CW2 lxvii 236-239; *The tip of the iceberg; early northern educational books* was the title of a lecture to the History of the Book Trade in the North group in 1969 which was circulated to members of the group, and which featured Whitehaven books and printers.
- <sup>24</sup> *Newcastle Journal*, 5.3.1748.
- <sup>25</sup> *Cumberland Pacquet*, 21.12.1775, 2.10.1792.
- <sup>26</sup> The spelling of the surname varied.
- <sup>27</sup> *Cumberland Pacquet*, 6.6.1776, 30.5.1780, 3.8.1793.
- <sup>28</sup> The value of book subscription lists to the local historian has been outlined by the authors in *Local Historian*, X 4, 1972, 179, and elsewhere. Details of any books containing such lists from any period and on any subject would be welcomed at the School of Education, University of Newcastle upon Tyne. Guides to book subscription lists, an author-index of known titles and other illustrative material are available on request. A *Revised Guide* appeared in February 1975.

- <sup>29</sup> The problem of estimating trends in private education in the absence of full runs of local newspapers has already been mentioned. A local census of Whitehaven taken in 1762 includes eight school masters, nearly all unknown from other sources. A copy of the census survives in Whitehaven Public Library.
- <sup>30</sup> *Cumberland Pacquet*, 12.9.1787.
- <sup>31</sup> *Cumberland Pacquet*, 26.10.1779, 5.1.1796, St James Whitehaven, MI.
- <sup>32</sup> The book was published in Whitehaven by J. Ware.
- <sup>33</sup> His school was advertised in the *Cumberland Pacquet*, 29.9.1778.
- <sup>34</sup> *Cumberland Pacquet*, 8.1.1799, 16.12.1800.
- <sup>35</sup> *Cumberland Pacquet*, 27.5.1783, 24.1.1792.
- <sup>36</sup> E. G. R. Taylor, *The mathematical practitioners of Hanoverian England, 1714-1840*, 1966.
- <sup>37</sup> *Cumberland Pacquet*, 5.11.1783, 18.3.1783, 12.11.1782, 29.8.1787, 16.5.1797.