

# THE MEMBERSHIP OF THE DERBY PHILOSOPHICAL SOCIETY, 1783-1802

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The Derby of the late 18th century which produced the Philosophical Society was a town of about 10,000 people. It was the county capital, sent two members to Parliament and had a municipal corporation. The town then, as now, was dominated by the magnificent tower of All Saints Church but there were three other ancient churches and the chapels of several non-conformist sects. Traditionally Derby had been a grain market for the lead miners of the Peak District and had practised the food trades, crafts and retailing common to most substantial towns. Since 1718 the Silk Mill, with its intricate water-powered machinery had been a wonder visited by all curious travellers. This had recently been joined by other textile factories, but at this time there was still more textile work done domestically than within factory walls. Textiles were the dominant industry but porcelain, metal working and other industries had also recently arrived. Tradesmen, factory owners and a few local gentry had begun to build sizeable brick houses in the main streets. There were also new public buildings; Assembly Rooms in the Market Place, a theatre and a town hall. Despite this the town was architecturally undistinguished and it is the social and intellectual life which developed in these houses, public buildings and in inns which is much more deserving of attention.<sup>1</sup> This was the environment which encouraged the Derby Philosophical Society.

The Society's early years have been described in some detail by Eric Robinson.<sup>2</sup> His account draws together slight fragments which describe early meetings and succeeds admirably in catching the flavour of the organisation. It is, however, the case that because of the membership of several factory owners his article treats the Society as an expression of the interest which industrialists commonly professed in science as a possible aid to industrial improvement. This approach is not universally favoured and various writers, particularly Shapin and Thackray, have called for less attention to contemporary proclamations about the usefulness of Philosophical Societies and more concern with the underlying reasons for the Societies' growth and success in recruiting members.<sup>3</sup> Their view is that the Societies' real function, as opposed to the alleged function mentioned in public declarations about them, was social. They were a means whereby rising men gained legitimisation for their new middle class status through the medium of an accessible

and fashionable form of culture. Furthermore only a part of the membership was of 'performers', or competent scientists who could give a paper and demonstrate experiments, and the remainder formed an 'audience' consisting of both rising men and the aristocratic patrons whose presence was a prime attraction to the former. This view has emerged from detailed prosopographical examinations of the membership of Philosophical Societies.

The method can also be applied to the Derby Philosophical Society as its few surviving records do include full lists of members for the early years.<sup>4</sup> What follows supplements the previously published account of the Society by a close examination of the membership, which in turn might be expected to reveal how far this example bears out the general line of argument Shapin and Thackray derive from their own examples.

First it is important to stress that the Derby Philosophical Society founded in 1783 was very much the creation of Dr. Erasmus Darwin, who had recently moved to the area from Lichfield. He was a dominant figure in any community or group in which he was to be found. Clearly the Society revolved around him and owed much to the atmosphere of goodwill and enjoyment he generated. Taking Shapin and Thackray's very fruitful division of scientific society members into audience and performers: Darwin was very much the main performer, and perhaps almost the only performer. The warmth of Darwin's presence was an excellent reason for joining the Society, paying a subscription and attending its meetings. Before looking at precisely who the men who joined were and the inter-connections between their backgrounds, a glance at natural philosophy in pre-Darwin Derby is useful.

Derby was clearly favourable ground for Darwin's efforts, and indeed an earlier Philosophical Society existed in some obscurity before he moved to Derby. Joseph Cradock, a Leicestershire gentleman who had been educated in Derby, from 1758-1760, writing of the Jacobite meetings attended by his tutor the Rev. John Pickering at about that time in a house near All Saints, adds 'It was rather curious that a weekly club should be held afterwards very near that spot consisting of philosophers then principally engaged on the subject of electricity and that three of the friendly members should be the Rev. Mr. Winter originally a dissenter, Mr. Pickering at least a Tory and Mr. Whitehurst supposed to be an infidel. From this humble society however the celebrated Mr. Darwin and his ingenious pupil and associate in experiments, Mr. Watt derived no small advantages.'<sup>5</sup>

That this society preceded Darwin's is indicated by the fact that the Rev. Joshua Winter, who was for over fifty years curate and minister at All Saints died aged seventy-five on 1 April 1774 and that Whitehurst left Derby in 1775 for an official post as Stamper of the Money Weights in London.<sup>6</sup> That Cradock in his

memoir, written in the next century, refers to Darwin being connected with this society suggests a very natural confusion in his mind of two societies, for Darwin's own statements on this rule out a continuance of the older society in the new. His connection of Watt with either society is probably mistaken, though in 1794 Watt did demonstrate some apparatus to the members at Darwin's instigation.<sup>7</sup> In 1779 both Derby newspapers carried a further reference to the earlier society.<sup>8</sup> A distinctly turgid verse in praise of natural philosophy is introduced by these words 'On Saturday last the Philosophical Society of Derby dined at the New Inn in order to celebrate the anniversary of its institution; when the following address was delivered by one of the members'.

Apart from this early society, those in Derby with a leaning towards natural philosophy were instructed and entertained over the years by a regular flow of visits from itinerant lecturers. The files of the *Derby Mercury* shows these visits to be of a respectable frequency. Examination of local newspaper files for a slightly larger but rather different community such as Shrewsbury can show a smaller frequency than the three or four year intervals normal in Derby, although one must remember that Manchester usually had annual visits. The lecturers advertised for subscriptions to courses of ten to fifteen lectures at a cost which in 1770 would usually be about 10s. 6d. and by 1800 was about £1.1s. A wide range of topics was covered and experiments were demonstrated on 'philosophic apparatus' of the kind seen in Joseph Wright's paintings 'The Orrery' and 'Experiment with the Air-Pump', both painted in the period 1764-1768.<sup>9</sup> These two paintings show in the most magnificent fashion something of the fascination which such demonstrations exerted. Wright's reputed use of his friends and fellow-citizens as models makes them perhaps the most convincing illustrations of the impact of natural philosophy in Derby, long before the arrival of Erasmus Darwin.

Some of the most outstanding lecturers of the day visited Derby, including John Warltire, who gave courses in 1771, 1781 and 1798. He was an experimental scientist as well as a teacher, working with Joseph Priestley in experiments on water in 1774 and 1777, and with Darwin in 1774 or 1776 on air pump experiments.<sup>10</sup> Darwin obviously thought highly of him, for in 1779 he sent his son Robert to attend lectures Warltire was giving at Etruria under the patronage of Josiah Wedgwood. John Banks in 1780 and 1795, and Mr. Pitt in 1773, 1778 and 1785, Mr. Long in 1785, Mr. Lloyd in 1790 and 1794, J. Booth in 1783 and 1789, and Mr. Burton in 1790, were the other lecturers who advertised courses of lectures.<sup>11</sup>

Warltire's syllabus in 1771 listed 'Principles of bodies and properties of air, uses of air, properties of fixable air and water, effects of heat and means of managing it, mechanical powers, construction and use of optical instruments, discoveries in electricity, astronomy

(with orrery, central machine, globes etc.)' and this was reasonably typical coverage. Most lecturers boasted of their apparatus: that of Mr. Pitt weighing 30cwt. and including orrery, planetarium, cometarium, globes, air pumps, condensers, telescopes, microscopes, prisms, electrical machine, magnets, pumps, barometer, thermometer, hydrometer, hygrometer, pyrometer, etc.

Derby's central position makes it the kind of place a travelling lecturer might pass through on his way to some other town, perhaps stopping to try a course of lectures as a speculation. However, most of the lecturers came more than once, indicating that there was a regular public for their lectures. Darwin undoubtedly found fellow enthusiasts in Derby and was able to preach to the converted when the subject of a new Philosophical Society arose. The importance of this is clear and provides a corrective to a too Darwinocentric view of the Society. One should also contrast his successful experience in Derby with the story of his Botanical Society in Lichfield. This Society never attained a membership of more than its original three during its existence, and Anna Seward in her memoir of Darwin poked some fun at him in consequence.<sup>12</sup> Perhaps because he was then a younger man his failure can be explained in terms of his own lack of experience. However, even Miss Seward, despite the satirical tone of her comments, implies that perhaps Lichfield was an unfavourable environment for such a society. Derby presented much more favourable ground.

The two constituent elements in the composition of the Derby Philosophical Society came together in 1783 when Darwin's energy, charm and knowledge met with the group of men whose interest in the subject was already firmly established. His Society's foundation was announced in a letter to Matthew Boulton dated 4 March 1783. This letter announced that 'We have established an infant philosophical society at Derby, but do not presume to compare it to your well-grown gigantic philosophers at Birmingham. Perhaps like the free-mason societies, we may sometimes make your society a visit, our number at present amounts to seven, and we meet hebdominally.'<sup>13</sup>

This assertion that the Society had at this early stage seven members is the best starting point for discussion of the membership. A much later account however, names ten men as the founder members, and dates the foundation at February 1783 in a meeting at Darwin's house in Full Street.<sup>14</sup> Those named are Darwin himself, Mr. French, Mr. Sneyd, Dr. Beridge, Dr. Pigot, Mr. Darwin, Mr. Leaper, Mr. Gisborne, Mr. Fox and Mr. Strutt.<sup>15</sup> Sneyd and Gisborne were not normally resident in Derby and seem to have taken no further part in the society, but all the remaining eight became regular members. Darwin's figure of seven must therefore signify himself and seven others, despite the way in which his statement to Boulton is phrased. Once the organisation of the society was formalised on 18 July 1784, and a secretary appointed,

the members were divided into residents and non-residents.<sup>16</sup> The former were expected to attend meetings and were fined for non-attendance, whilst the latter who lived in towns, villages and country houses throughout the north Midlands, were basically borrowers from the library and potential scientific correspondents.

One of the first things indicated by a close examination of the list of members is the importance of medical men. Only Dr. Darwin, John Beridge and John Hollis Pigot of the founder members were definitely of the medical profession, but of the regularly enrolled resident members a high percentage were physicians or surgeons. During the period under discussion, there were eighteen resident members (although resignations meant that not all these were members at the same time). The first printed list names twelve residents — Dr. Darwin, Mr. French, Drs. Beridge, and Pigot, Mr. Darwin, Mr. Fox, Mr. Strutt, Mr. Leaper, the Rev. William Pickering, the Rev. Charles Hope, Dr. Crompton and Mr. Hadley — of whom five at least (Dr. Darwin, Beridge, Pigot, Crompton and Hadley) were medical men. In the next few years six new resident members were recruited — Messrs. Haden, Fowler, Johnson, Pole, Duesbury and Archdale — of whom the first three were of the profession. If, as is just possible, the Mr. Fox of the original list is Francis Fox, surgeon, and not Samuel Fox, hosier, then exactly one half of the resident members were connected with medicine.<sup>17</sup> However, since the case of Fox is doubtful it is only possible to say that something in the order of fifty percent of the resident membership was medical. Of the remaining members, French, Pole and Archdale were gentry (albeit of differing standing); Hope and Pickering were Church of England clergy; Strutt and Duesbury definitely and Fox perhaps were manufacturers; and Erasmus Darwin junior and John Leaper were attorneys.

Among the non-resident members there was also a large medical element, in this case at least fifty percent. The uncertainty again results from the difficulty in making a firm identification of members referred to only as Mr. this or Mr. that. Nine men — Robert Darwin, Arnold, Buck, White, Storer, Bree, Wilson, Jones, Taylor — out of a total of thirty-six non-residents from this period are distinguished by the style Dr. and two more (Power and Brock) are helpfully described as 'surgeon'. However, Messrs. Bent, Beaumont, Hunt, Samuel and Richard Riddlesden, Stevenson and Goodwin can with some certainty be identified as medical practitioners. Mr. Smith of Alfreton may also have been of their number. The gentry are represented by Messrs. Boothby, Bradshaw, Trowell, Wilmot, Hurt, Evans, Walker and Clarke. Three clergymen are found among the non-residents, but of these Wray and Coke were gentlemen of property too, and only Haggitt seems to have been clergy pure and simple. Manufacturers are also included — John and Ralph Wedgwood, Bage and Jedediah Strutt.<sup>18</sup> Finally Mr. Jackson

was a proctor, that is lawyer in ecclesiastical courts. It has not proved possible to identify Mr. Crofts of Tutbury any further. The numbers are too small and the categorisation of members too unreliable to make percentages worthwhile but the pattern which emerges for both resident and non-resident members is strikingly similar. Medicine predominates, providing about half of the membership. The gentry come next with just under a quarter of the membership, whilst manufacturers and clergy make up the rest of the numbers, except for one or two practitioners of the law among both residents and non-residents.

Taking these various groupings in order of magnitude; the medical men can be conjectured to have joined the Society for two linked professional reasons. First that the company of colleagues and access to the medical works in the library could enable them to keep their purely medical knowledge fresh; second that the occasional relation of advances in medicine to chemical and other scientific knowledge made it seem useful for conscientious practitioners to have at least an acquaintance with these subjects.<sup>19</sup> Medical lending libraries were occasionally set up in provincial towns, (for instance Shrewsbury in 1798) at this time. In Newcastle-upon-Tyne there was not only such a library, but between 1786 and 1800 a Philosophical and Medical Society whose membership and discussions seem to have been wholly medical. 18th century medicine has often had a bad press, but although medical education at Oxford and Cambridge was moribund and the system of training by apprenticeship was unreliable, there were men, usually educated in Scotland or the Low Counties with a more scientific background and good clinical experience.<sup>20</sup> Erasmus Darwin was of this type, and his fellow members of the Philosophical Society included others. With them the idea of professional reasons for joining the Society makes sense.

The number of gentry in the Society is perhaps surprising in view of earlier remarks about the lack of support the genteel inhabitants of Lichfield provided for the Botanical Society. However, the gentry of one area could be very different in character from those of another. Perhaps the inhabitants of a leisure town like Lichfield might turn to imaginative literature, heraldry or politics for recreation and the improvement of the mind, but this is no reason why a gentleman should not in contrast read a volume on physics in his study or discuss botany with his neighbour. Derbyshire gentlemen lived in close proximity to the type of mining and manufacturing industry that tended to turn the minds of the educated to topics in current scientific favour, such as dyeing, bleaching or metal-working. Indeed some of the members of the Philosophical Society were financially involved with local industry. It is hard to see the gentry members as aristocratic patrons and figureheads. The great and nearly great families of Derbyshire are not represented and although some of the gentlemen members had considerable

wealth and lands, only the baronets Sir Brooke Boothby and Sir Robert Wilmot could claim social standing much greater than Dr. Darwin's own. They entered the Society as little more than equals of its acknowledged leader.

Even if men like Charles Hurt and Thomas Evans, who were manufacturers as well as gentry, are included the number of manufacturers in the Society is small. The role of scientific and technical societies in the progress of industrial technology is the subject of warm debate which it is not the intention to enter here.<sup>21</sup> Suffice it to say that a variety of local enterprises in textiles, metals and ceramics owed their success to technical innovation. The Strutt's Derby rib stocking frame was the foundation of their business success. The Derby porcelain factory of the Duesbury family maintained a high standard of excellence which owed much to the quality of the artists and decorators employed. It also depended on a close attention to the technical qualities of the product and the introduction of developments such as the 'biscuit' firing of porcelain figures. John Whitehurst the clockmaker, mechanical inventor, geologist, member of the Lunar Society and the first Derby Philosophical Society, lived in Derby until his London appointment in 1775. Other industry may have owed less to new ideas, but the town did have men who combined technical ability with an interest in science, some of whom (Jedediah Strutt, William Strutt and William Duesbury jr.) joined the Philosophical Society. Whether their membership could be used to prove anything about the usefulness of such societies to industrialists in their professional capacity is doubtful.

To turn to the clerical members of the Society leads to the consideration of the religious make up of the Society as a whole. The number of Anglican clergy who were members immediately casts in question the idea that there was a special relationship between local non-conformist congregations and scientific societies.<sup>22</sup> However, it is possible local non-conformity provided a helpful background for the Derby Philosophical Society. In the early part of the century it had been possible to obtain formal scientific training in Derby, and this was at a non-conformist academy. Between 1745 and 1754 Ebenezer Latham's Academy had premises in Derby, and earlier it had been in the nearby village of Findern.<sup>23</sup> Latham was qualified in both medicine and arts, and taught students of both divinity and secular subjects. The course lasted four years and included Logic, Mathematics, Natural Philosophy, Chronology, Anatomy, Hebrew, Theology, Hebrew Antiquities and also perhaps Shorthand. He taught from progressive texts and his Academy was well-respected for the quality of its education and its undogmatic approach.

His influence was still felt in the area after his death, for his daughters continued to live in Findern. Mary, one of them, is recorded in an obituary notice as a diligent student of the Old Testament in the Hebrew Version. Another daughter married one of Latham's

pupils, Thomas White. Whilst in Derby Latham was assistant minister to the Friargate Dissenting Congregation, and after his death White took over as assistant, later becoming minister. Thus Latham's ideas and principles had a potential outlet in this small but influential community long after his death. The Strutts, Duesburys, Cromptons, who all provided members of the Philosophical Society, and other industrial families were members of the congregation. Jedediah Strutt had in his youth been apprenticed to a blacksmith in Findern, and thus had some opportunity to fall under Latham's influence.

But the fact remains that it was Anglican clergy who joined the Society, whilst James Pilkington who succeeded White as minister of the Friargate Congregation was never a member. This is surprising as he was not only close to Darwin in his political viewpoint but in 1789 published a substantial book: a *View of the Present State of Derbyshire*, which dealt with the topography, climate, minerals, waterways, soils and agriculture, botany and bird-life of the county in its first volume and government, religion, population, trade and customs in the second. This still very readable book shows wide research and is well informed on scientific matters. Indeed, William Withering and Jonathan Stokes provided him with up-to-date information for the botanical part from their *Botanical Arrangement of British Plants* 2nd edn. (Birmingham, 1787) and Erasmus Darwin provided a note on the spas at Buxton and Matlock. One can only speculate as to why he did not join, but what is clear is that Anglicans were in a majority in the Society.

Both the Derby Philosophical Society and its predecessor were multi-denominational bodies, and the former remained so despite considerable strains created by one incident. Robinson has outlined the dispute which resulted from a message of sympathy sent to Joseph Priestley by the Society, after his losses in the Birmingham riots of 1791. This terminated in the expulsion of the Rev. Charles Hope from the Society for his public criticisms of this action.<sup>24</sup> One might be tempted to see this dispute as likely to polarise the society into non-conformist/radical and Anglican/establishment wings. However, Hope was not necessarily a dreadful reactionary and as an important ecclesiastical figure in the town might well have been under pressure to dissociate himself from expressions of sympathy towards a well-known dissenter with a radical reputation like Priestley. Meetings such as the Society's where sedition might be talked were suspect. In Leicester a philosophical society called the Adelphi was extinguished about this time by the actions of the Corporation against Richard Phillips its leading light.<sup>25</sup> Darwin and his companions were too well established in the society of the town to be in similar danger, but he, William Strutt, Peter Crompton and Samuel Fox were indeed involved in political activities which could be suspected of jacobinism. Their Society for Political Information, which lasted from December 1791 to 1793, was outspokenly radical and it



is not surprising that the foremost Church of England clergyman in the town had found himself at odds with men whose views looked to contemporaries so extreme.<sup>26</sup>

The important thing is that the Philosophical Society survived. The majority of members were not necessarily of Darwin's political persuasion, but there is no evidence that Hope's expulsion was followed by resignations, even by his fellow clergymen, nor are there evidences of continuing dissension. There must have been some good reason for this. The quality of Darwin's charm and leadership probably played a part, but by returning to the original question of motivation for joining the Society another reason can be suggested. The discoveries of science were beginning to take on a special meaning and value to eighteenth-century Christians, both Anglican and non-conformist. This approach was to be summed up in its most effective form by William Paley in his *Natural Theology: or, Evidences of the Existence and Attributes of the Deity. Collected from the Appearances of Nature*, (1802) (usually known as Paley's *Evidences*). Science provided a vast fund of evidence of God's marvellously detailed handiwork, and therefore by extension, of his existence. In this way natural philosophy could really matter to an Anglican clergyman and his membership of the Derby Philosophical Society be an expression of this concern.

Having attempted to draw suggestions about the reasons for members' interest in the Society and natural philosophy in general from the evidence about their status, professions and religious persuasions, it is important to see how far their educational background might have influenced their tastes and fitted them to cope with the subject. Once again to take the medical men first, it is not possible to draw up a description of a single type to which they conform: Crompton (resident) and Robert Waring Darwin (non-resident) were exact contemporaries at Leyden and Edinburgh, the two most progressive centres of medical education; Arnold, Beridge, Bree, Buck, Erasmus Darwin, Jones, Power, Storer and White all had Scottish training; Johnson and Pigot had English degrees; Taylor's and Wilson's claim to the style Dr. is not traceable to England, Scotland or Leyden; whilst Beaumont, Bent, Brock, Fowler, Goodwin, Haden, Hadley, Hunt, the two Riddlesdens and Stevenson were most likely trained by apprenticeship. They spanned the whole range of medical training and probably achieved varying levels of competence. Even the elementary knowledge of chemistry and anatomy that the worst educated of these men might have had is likely to have been a better foundation for scientific studies than was possessed by the rest of the population.

Indeed the gentlemen members had by and large the typical educational background of their class, with the public school emphasis on the classics to the exclusion of much else. In one case, Thomas Clarke, a fairly comprehensive listing of his studies and interests is

possible.<sup>27</sup> He was in the habit of reading in geography, mathematics and biology, practised French and flute-playing, experimented in dissection, sketched, was a member of a book club at Sutton in Ashfield, attended lectures by Warltire at Mansfield and was generally a man of intellectual tastes. Even if their education might have been narrow other gentleman members showed the same type of lively but unfocussed interests. Sir Brooke Boothby was a poet, botaniser and devotee of Rousseau; Richard French had been a cavalry officer, corresponded with Horace Walpole and had a taste for paintings and literature; and Richard Archdale had a voracious desire for knowledge along with political ambitions that he later fulfilled.<sup>28</sup> The others may have been rather more earthbound — the strong connections of one or two with local industry has already been noted — but the impression is of men whose education had at least not damaged their taste for intellectual pursuits of one sort or another.

The clergy had of course followed the conventional path: Coke, Repton and Cambridge, Haggit also Cambridge and Pickering once a fellow of Sidney Sussex, Cambridge. Of the lawyers who make up the total, Leaper had attended Derby Grammar School, Erasmus Darwin jr. had been educated under his father's eye and Jackson was described as more or less self-educated.<sup>29</sup> Their background, as does that of the Society's members as a whole, shows little evidence of the influence of the dissenting academies and commercial schools which provided the most science-oriented education available in England at the time. Basic commercial education was obtainable in Derby towards the end of the century to an increasing extent.

In a period of twenty years schools with a commercial curriculum were set up by Samuel Hickling in 1770, Joseph Hare in 1775, Thomas Swanwick in 1783, T. Hall in 1784, Richard Roe in 1786, W. Chamberlain in the same year, William Brierley in 1787 and Matthew Spencer in 1789.<sup>30</sup> The curriculum at Swanwick's Commercial Academy provides a good example of the range of subjects taught. English grammar was taught on an approved plan, also reading with a proper accent and cadence, writing in the usual hands, arithmetic both vulgar and decimal, mensuration and surveying and the Italian method of book-keeping.<sup>31</sup> Richard Roe, the secretary of the Philosophical Society, included alongside English grammar and all kinds of mathematics, the use of globes and natural philosophy with experimental illustrations. Matthew Spencer left a larger mark than his fellow schoolmasters, for he was Herbert Spencer's grandfather and the philosopher describes him in his *Autobiography*. He was a Wesleyan, from a Derbyshire family, and a gloomy un-intellectual man. He was 28 when he set up independently, taking over from a Mr. Frear whose assistant he had been. Although Spencer thought that his grandfather must have been a teacher of the mechanical kind, he had heard that the school was regarded as the best in town, apart from the Derby Grammar School, where Matthew taught

commercial subjects. The significant point is that Matthew Spencer's son, Herbert's father, became secretary to the Society and it is probably to this generation one should look for members with a commercial education.

The first generation of members had besides their membership of the Society, other links. Family connection was one such link — Darwin's son Erasmus, stepson Sacheverell Pole and son-in-law Henry Hadley were resident members and his son Robert was a non-resident. Jedediah and William Strutt, William Duesbury and Peter Crompton were all members of the same religious congregation. French and Pickering both moved in the circle of the Mundys of Markeaton. Many of the members were patrons of the painter Joseph Wright, others were involved with the Nun's Green Improvement scheme or served on the town council.<sup>32</sup> In Shapin and Thackray's scheme of things this would be further evidence of the social aspirations of the members, for their argument has it that membership of Societies for the Prosecution of Felons or connections with hospitals and municipal improvements, sponsorship of antislavery societies or workers' savings banks all tend to reflect a man's urge to consolidate his social standing.<sup>33</sup> However, it is simpler to remember that places like Derby were very small towns by our twentieth century standards and that almost inevitably the same faces appear in different settings. One can see this as an elite exerting itself without feeling that this necessarily reflects unfavourably on the quality of an individual's interest in, say, natural philosophy.

Whilst one is making inferences about the motivation of a society's members from evidence about their lives, rather than discussing their own statements on the subject, the conclusions must always remain tentative. Indeed for the Derby Philosophical Society members really detailed information about their lives and connection with the Society is only available in three cases. These are Dr. Darwin himself, William Strutt and William Brookes Johnson: who together form the members most likely to have featured as 'performers' rather than 'audience'. William Strutt was responsible for a number of mechanical inventions, many of which he incorporated in his designs for the Derby Infirmary, opened in 1810. His career is comparatively well recorded and his eminence in the Society is evidenced by his succession to its presidency after Darwin's death in 1802. Johnson, considerably less known, was the only member besides Darwin to publish a substantial scientific work during this time. In December, 1803 the three volumes of his *History of the progress and present state of animal chemistry* appeared.<sup>34</sup> Johnson, whose possession of Coxbench Hall near Derby qualifies him to be considered as a gentleman in his own right, had come into contact with Smithson Tennant at Cambridge. This outstanding chemist clearly looked on Johnson as a close friend and in 1792 was advising him on a scheme to publish translations of articles from *Crell's Chemical Journal*.<sup>35</sup> Johnson

besides his medical qualifications, travelled widely and kept up a lifelong interest in botany.<sup>36</sup> His book, now completely forgotten and almost impossible to find, shows from its title and introduction that it was inspired by Priestley's scheme for a comprehensive series of surveys of the sciences.<sup>37</sup> It is in fact a wide-ranging treatment of parts of what is known as organic chemistry, with particular emphasis on industrial applications.

In his introduction Johnson argues that improvements in medical science have assisted the development of animal chemistry. 'Modern chemistry has already thrown great light on several parts of the animal system; it has within these last few years commenced an investigation of several of the functions of the body and explained the manner in which they are carried on with some degree of success; the process of respiration, of perspiration, of digestion, of animalization and the action of oxygen upon the vital organisation, no longer remain in that state of total darkness in which they were so late enveloped.' These developments have in turn, he argues, benefitted 'the arts'. 'It is to this science that the arts of dyeing, tanning, making of glue, of hats, of cutlery, the operations of cookery, the processes of the dairy, etc, have been brought to their present state of perfection, and it is to the same source they can only look for future improvement.' His intention was to produce a work to supersede such compilations as F.A.C. Gren's *Principles of modern chemistry systematically arranged* 2 volumes, (London, 1800) and J.F. von Jacquin's *Elementa chemiae et medicae* 2 volumes, (Vienna, 1793). To this end he had made copious notes from recent publications, particularly the collections of learned societies, and obtained background and historical material from works such as Haller's *Elementa physiologiae*, Morveau's *Encyclopédie méthodique* and Leonhardi's translation of Macquer's *Chemical dictionary*. Each section, for instance that on hair and its practical uses, is accompanied by an extensive list of references in English, French, German and Latin. Johnson clearly consulted a great number of chemical works and it would be interesting to know how far the Philosophical Society's Library was of use to him in this.

The manuscript catalogue and loan register of the library shows his choice of reading during 1788 and early 1789. The register shows the regular circulation of books among members as the books were acquired, but as Johnson only joined in May 1788 he selected from the existing stock. He read generally, borrowing the transactions of societies — Academie de Dijon, Royal Society, Manchester Literary and Philosophical Society — the *Journal des Savants*, Adam Smith's *Wealth of Nations* and Sparman's *Voyage to the Cape of Good Hope*. However, the majority of the books he read were medical and as he seems not to have received his MB until 1789 they might be construed as part of a course of study. Already he was doing a little reading on chemical subjects and borrowed at least half a dozen books on the

subject.<sup>38</sup> After this manuscript catalogue of 1784 – 9, three printed catalogues provided regular information as to the acquisitions of the library, but there is no longer a record of loans.<sup>39</sup> Some of the works he cites, for instance Gren and von Jacquin, were acquired between 1798 and 1815. The possibility that their purchase was connected with his work exists, but the many works he cites that are not to be found in the catalogues he must have borrowed elsewhere or bought them himself. It seems reasonable from this that his book owed a little at least to the Society's library, but it is only speculation that its conception owes something to the scientific fellowship of the society. The work is however, firmly in the tone of optimism about the use of science to industry that pervades many of the contemporary pronouncements associated with 18th century scientific publications and societies, and this gives the speculation credibility.

That only Darwin, Strutt and Johnson of the early members achieved anything notable in matters scientific or technical makes it impossible to argue that the Society was a major force for innovation or development. However, study and discussion even if they be for hobby purposes only are perfectly respectable and no-one nowadays looks askance at members of an electronics or a meteorology society or tries to puzzle out some deeper motivation. As has already been stressed Darwin was a lover of company and conversation, but this was never just idle chitchat. For instance, Marianne Sykes on a visit to Derby in 1792 describes an example of the type of gathering in which he thrived. First she speaks of his 'wonderful sallies of imagination and wit which kept us in perpetual laughter and astonishment', but then points out that he proposed to her that they should 'talk over metaphysics in the evening and physics in the morning'.<sup>40</sup> After all Darwin was fundamentally a great scientific populariser rather than a working scientist. Who else in the history of science can claim to have had best-selling poetical works which expounded the scientific ideas of the day as did his *Loves of the Plants* and *Economy of Vegetation*? The content of the Derby Philosophical Society's meetings may have been rather less than we might expect from a modern research establishment, but under Darwin's guidance they could at least be expected to equal those of a modern society of lay enthusiasts.

Does this bear out Shapin and Thackray's view of the provincial societies? They might argue that it does: that, using their own phrases, the members of the Society were marginal men who found in natural knowledge a source not only of rational entertainment or even theological instruction, but an intellectual ratifier of a new world order, just as they argue in the case of Manchester, Edinburgh or the Potteries. Without disagreeing with much of what they say, it is possible to feel they go too far when they extend the argument to allege that 'It appears that membership in the local scientific society

served to identify the manufacturer or professional man as a member (or potential member) of the local elite, demarcating him from his more uncouth fellows'.<sup>41</sup> One can explain the decision to join a society without recourse to this line of argument, which tends to ignore the intrinsic attraction of certain types of study. The importance of personality is also undervalued in this scheme of things. Erasmus Darwin's character and abilities drew people to him, and were an undoubted attraction towards the Derby Philosophical Society. One can look for supplementary motivation, but one should not forget the initial attractions such a society presented in the search for underlying explanations.

## NOTES

1. For further discussion of this see R.P. Sturges, 'Context for library history: libraries in 18th century Derby', *Library History* VI (Autumn, 1976), 44–52; and R.P. Sturges 'Harmony and good company: the emergence of musical performance in 18th century Derby', *Music Review* XXXIX (1978), 178–195.

2. E. Robinson, 'Derby Philosophical Society', *Annals of Science* XI (1953), 359–367. Reprinted in almost identical form in A.E. Musson and E. Robinson, *Science and Technology in the Industrial Revolution* (Manchester, 1969), 190–199.

3. See for example, S.A. Shapin, 'The Pottery Philosophical Society', *Science Studies* II (1972), 311–336; A.D. Orange, *Philosophers and provincials: the Yorkshire Philosophical Society from 1822–1844* (Yorkshire Philosophical Society, 1973); S.A. Shapin, 'Property, patronage and the politics of science: the founding of the Royal Society of Edinburgh', *British Journal for the History of Science* VII (1974), 1–41; S.A. Shapin, 'The audience for science in eighteenth century Edinburgh', *History of Science* XII (1974), 95–121; J.R.R. Christie, 'Origins and development of the Scottish scientific community 1680–1760', *History of Science* XII (1974), 122–141; A. Thackray, 'Natural knowledge in cultural context: the Manchester model', *American Historical Review* LXXIX (1974), 672–709; and S.A. Shapin and A. Thackray, 'Prosopography as a research tool in history of science: the British scientific community 1700–1900', *History of Science* XII (1974), 1–28.

4. There is a ledger of money passing between members and the secretary and a catalogue and loan register of the library. The former lists members from Nov. 1786 – Dec. 1789 not distinguishing whether they were resident or not. The latter contains two printed lists of members divided into residents and non-residents, from approximately the same period. The two printed lists are separated by a year or two and show changes in the membership. Some other names (also to be found in the ledger) are added in manuscript. Derby Public Library, Local History Library.

5. J. Cradock, *Literary and Miscellaneous Memoirs* (London, 1828).

6. *Derby Mercury* 9 Apr. 1774. Note in parish register of All Saints of his burial 5 Apr. 1774. Educated as a non-conformist at Attercliffe Academy, but later conformed. Headmaster of Derby School 1722–1750.

7. Darwin to Watt in a letter of 17 Aug. 1794, quoted by Robinson, 'Derby Philosophical Society'.

8. *Derby Mercury* 30 July 1779 and *Harrison's Derby Journal* 29 July 1779.

9. The paintings are illustrated and discussed in B. Nicolson *Joseph Wright of Derby* (London, 1968).

10. D. McKie, 'Mr. Warltire, a good chymist', *Endeavour*, X (1951), 4.

11. *Derby Mercury* 16 June 1780 and 3 Dec. 1795; 25 Dec. 1778 and 13 Jan. 1785; 15 Sept. 1785; 2 Sept. 1790 and 18 Sept. 1794; 31 July 1783 and 9 July 1789; 18 Nov. 1790.

12. A. Seward, *Memoirs of the life of Dr. Darwin* (London, 1804), 99.

13. Quoted in Robinson, *Annals of Science* .....

14. S. Glover, *History and Gazetteer of the County of Derby* (Derby, 1829), II, 430.

15. For details of these and other members whose names are mentioned in the following paragraphs see Biographical Appendix.

16. Printed copy of Darwin's address to the Society, of that date. Derby Public Library, Local History Library.

17. For discussion of this see entry for Fox in Biographical Appendix.

18. The records of the Society provide no evidence for the claim sometimes made that Josiah Wedgwood was a member.

19. The Philosophical Society's library did have a noticeable medical content.

20. G. Clark, *History of the Royal College of Physicians*, (Oxford, 1966), II, 539 et seq. describes this.

21. An introduction to this debate can be obtained from A.E. Musson (ed.), *Science, technology and economic growth in the eighteenth century* (London, 1972).

22. See Musson and Robinson *Science and Technology* .... Chapter III.

23. H. McLachlan, *Essays and addresses* (Manchester, 1950), includes an essay giving a detailed account of the Academy.

24. A postscript to this — there seems to have been some lingering resentment on the part of Hope, for the 1793 catalogue of the Society's library records that he failed to return three books (seven vols. in all) which he had on loan from the library.

25. W. Gardiner, *Music and Friends* (London, 1838–1853), I, 429.

26. E. Fearn, 'Derbyshire Reform Societies', *Derbyshire Archaeological Journal*, LXXXV III (1968), 47–59.

27. His notebooks, diary and some correspondence form part of the Clarke family papers, Nottinghamshire County Record Office.

28. See Robinson *Annals of Science*.....

29. See Seward *Memoirs* ....., 98.

30. *Derby Mercury* 30 Mar. 1770, 31 Mar. 1775, 10 July 1783, 14 Oct. 1784, 7 Sept. 1786, 14 Dec. 1786, 22 Mar. 1787, 24 Dec. 1789.

31. Swanwick had previously been connected with the Rev. Henry Pickering's Academy at Winson Green, Birmingham. When he died in 15 Mar. 1814 aged fifty-nine his pupils erected a monument to his memory at St. Alkmunds.

32. Reproductions of the portraits of several members by Wright can be found in, Nicolson *Joseph Wright*.....

33. Argued in S.A. Shapin and A.W. Thackray, 'Prosopography as a research tool in the history of science', *History of Science* XII (1974), 1–28.

34. Printed for J. Johnson, St. Paul's Churchyard, by J. Crowder and E. Hemsted, Warwick Square, at 24s. Copy in the Library of the Royal College of Physicians.

35. Letter from Tennant to Johnson, 23 Jan. 1792. Meynell papers, Meynell Langley.

36. Johnson's correspondence (at Meynell Langley) shows him to have travelled in France, Switzerland and Germany in the 1790s. Family tradition (related to the author by Commander R.M. Alleyne who was Johnson's great grandson) has it that Johnson had a near escape from the revolutionary authorities in Paris, owing to the assistance of Tom Paine, and that he also visited South America. There are references to his botanical interests as late as 1826 in his correspondence.

37. J. Priestley, *History of the present state of Electricity*, (London, 1767), preface.

38. Sennelier's *Recherches analytiques sur l'air inflammable*, Kirwan *On phlogiston and the construction of acid*, Rigby's *Chemical observations on sugar*, Drew's *The art of making coloured crystals*, Monro's *Medical chemistry and Thoughts on the properties of different kinds of air*.

39. Catalogues dated 1793, 1795 and 1798. Derby Public Library, Local History Library  
40. Thornton papers, Wigan Record Office. Marianne Sykes later married Henry Thornton, banker, MP and prominent member of the Clapham sect.

41. Shapin and Thackray, 'Prosopography ....', *History of Science* XII (1974), 9.

## BIOGRAPHICAL APPENDIX

The author is in possession of more detailed biographical information in most cases.

*Original members* (Glover, *History of Derbyshire*, vol. II, p. 430) – listed in Glover's order.  
Dr. (Erasmus) Darwin – 1731–1802 physician, scientist, poet, and founder of the Society, see *DNB*, and E. Krause *Erasmus Darwin* (1879).

R(ichard) French Esq. – c1739–1801, scholar and amateur of art. Married Millicent Mundy of Markeaton. His son Richard Forester French (later Forester) became President of the Society in 1815. For pedigree see Glover, *Derbyshire*.

Mr. (John) Sneyd – 1734–1809 of Belmont, Staffs. Friend of Darwin from his days in Lichfield. See Seward, *Darwin*.

Dr. J(ohn) Beridge – 1745–1788 Trinity, Cambridge and medicine at Edinburgh. Close friend of Joseph Wright, see *Alumni. Cantab.*

Dr. (John Hollis) Pigot – 1757–1794. St. Johns, Cambridge. MB 1780. see *Alumni. Cantab.*

Mr. (Erasmus) Darwin – 1759–1799. Lawyer son of Dr. Erasmus Darwin. Seward *Darwin* is misleading on his relations with his father.

Mr. (John) Leaper – 1754–1819. Attorney. Robinson identifies this man as Richard Leaper, a younger brother, but Mr. without christian name would be reserved for the elder. Added Newton to his name 15 Dec. 1789, having left the society in Feb. of that year. For pedigree see Glover, *Derbyshire*.

Mr. (Thomas) Gisborne – 1758–1846. Clergyman friend of Joseph Wright. Lived at Yoxall Lodge, Staffs., but had strong Derby connections. See *DNB*.

Mr. Fox – Most probably Samuel Fox 1765–1851, hosier, who married successively into the Strutt and Darwin families. He was certainly a member after 1813. Another possibility is Francix Fox, surgeon, whose sons Douglas and Francis later were members and who married Joseph Strutt's sister-in-law. See Glover *Derbyshire* for both men.

Mr. (William) Strutt – 1756–1830 Industrialist and inventor, President 1802–1815. See C.L. Hecker 'William Strutt of Derby' *Derbyshire Archaeological Journal*, LXXX, (1960) 49 and *D.N.B.*

*Other resident members*, listed in the order in which their names appear in the loan register.

Rev. William Pickering – c1743–1802. His father was a member of the earlier society. M.A., B.D., Fellow of Sidney Sussex, Camb. Father, son and son's nephew were vicars of Mackworth for 120 years. See *Alumni. Cantab.*

Rev. Charles Hope – 1733–1798. Robinson confuses this man with his son Rev. Charles Stead Hope. Vicar of All Saints, St. Werburghs and St. Michaels 1774–1798.

Dr. (Peter) Crompton – c1762–1833. MD Leyden 1785, also studies at Edinburgh. Moved to Liverpool where he twice unsuccessfully stood for Parliament. See Burke *Landed Gentry*. Robinson confuses him with John Crompton another of the family.

Mr. (Henry) Hadley – Surgeon, of Queen Street, Derby. Married one of Dr. Darwin's illegitimate daughters.

Mr. (Thomas) Haden – 1761–1840 Surgeon and twice mayor of Derby.

Mr. (William Tancred) Fowler – 1764–1821 Surgeon. Monument in St. Werburghs.

W(illiam) B(rookes) Johnson Esq. – 1763–1830, of Coxbench Hall, Christ, Camb. MB 1789. See *Alumni Cantab.* A small group of letters to him in the Meynell papers, Meynell Langley.

E(dward) S(acheverell) Pole Esq. – 1769–1813, Erasmus Darwin's stepson. See Burke *Landed Gentry*.

Mr. (William) Duesbury – 1763–1796. Porcelain manufacturer and son of William Duesbury, 1725–1786, the founder of the family firm. see *D.N.B.*

R(ichard) Archdall Esq. – c1746–1824. Later successively a member in the Irish and British parliaments. A notice will appear in a forthcoming volume of the *History of Parliament*.

R(ichard) Roe – dc 1813. Secretary (an employee rather than a member). Coach and sign painter, then servants' registry keeper before turning to teaching.



*Non-resident members*, listed in alphabetical order

- Dr. (Thomas) Arnold — Leicester, 1741-1816. Prominent physician and citizen of Leicester. Edinburgh medical graduate 1766. See E.R. Frizelle and J.D. Martin *Leicester Royal Infirmary 1771-1971*, (Leicester, 1971)
- Mr. (Robert) Bage — Elford. 1728-1801 Papermaker, scholar and novelist. see *DNB*.
- Mr. Beaumont — Melbourne. The only Beaumonts traceable in the town at this time are R. Beaumont, surgeon and apothecary, and Ambrose Beaumont a member of the Corporation of Surgeons. One of these two seems likely to have been the Society member.
- Mr. (James) Bent — Newcastle. Surgeon 1739-1812. See Posner, E. 'Josiah Wedgwood's doctors', *Pharmaceutical Historian*, vol. 3, no. 1 and 2 (1973), pp. 6-8 and 2-5.
- B(rooke) Boothby Esq. — 1744-1824. Later Sir Brooke Boothby, Bt., poet and author of a pamphlet in response to Burke's *Reflections*. see Burke *Peerage*.
- Francis Bradshaw Esq. — Holbrook, and later Barton Park, Barton Blount. c1760-1841 The family was originally called Baggaley. Francis' father had changed his name on inheriting the Bradshaw property. See Burke *Landed Gentry*.
- Dr. (Robert) Bree — Leicester, c1759-1839. Graduate of Oxford and Edinburgh. Physician at Leicester Infirmary. see *Alumni Oxon.*, and Frizelle and Martin *Leicester Royal Infirmary 1771-1971* (Leicester, 1971)
- Mr. (Jeffrey) Brock — Mansfield. Surgeon and apothecary according to the *Universal British Directory*, 1793.
- Dr. (Robert) Buck — Newark. Edinburgh graduate, 1780. See *Universal British Directory*, 1793.
- Mr. (Thomas) Clarke — Kirkby-Hardwick. 1758-1837. Listed as 'Esq.' in Piggott's *Directory* of 1829. Papers in Notts. Co. R.O.
- Rev. Mr. (D'Ewes) Coke — Brookhill, 1747-1811. Rector of Pinxton and South Normanton. Educated at Repton and Cambridge. Acquired considerable property by inheritance and marriage. see *Alumni Cantab*.
- Mr. Crofts — Tutbury. Despite enquiries in Staffordshire no further details of this member have been traced.
- Dr. (Robert Waring) Darwin — Shrewsbury, 1766-1848. Graduate of Leyden and Edinburgh. Son of Dr. Darwin and father of Charles Darwin. See biographies of both his father and son.
- Mr. (Thomas) Evans — Darley, c1723-1814. Presumably the father, since no christian name is specified, rather than one of the sons who were closely associated with the Strutt family. Gentleman with banking and industrial interests. See Burke *Landed Gentry*.
- Mr. (Anthony) Goodwin — Wirksworth. Described as MD in the 1779 *Medical Register*. Inherited Wigwell Grange through his wife.
- Rev. Mr. (George) Haggit — Sudbury. 1767-1832. MA 1792 and fellow of Pembroke College, Cambridge 1793-1826. See *Alumni Cantab* which, however, mistakenly credits him with the authorship of a volume of sermons.
- Mr. Hunt — Loughborough. Either Thomas or John Hunt who were in medical practice in the town at this time.
- Charles Hurt Esq. — Alderwasley. 1758 — 1834. One of an old Derbyshire family, at this time prominent in local industry and connected by marriages with the Strutts and Arkwrights. See Burke *Landed Gentry*.
- Mr. Jackson — Lichfield. Darwin's fellow member of the Lichfield Botanical Society, so scathingly described in Seward *Darwin*. He was a proctor in the ecclesiastical courts and is usually identified as Joseph, but there were other Jacksons who were proctors at this time.
- Dr. (Trevor) Jones — Lichfield. *The Medical Register*, 1783 describes him as an Edinburgh graduate.
- Mr. (John) Power — Market Bosworth. Surgeon, who 29 Nov. 1777 had become a member of the Medical Society of Edinburgh.
- Mr. Richard Riddlesden — Dove Lees. Surgeon and apothecary. See *Medical Register*, 1779.

- Mr.(samuel) Riddlesden – Ashbourne. Surgeon and apothecary in association with the above.
- Mr. Smith – Alfretton. The three Smiths of Alfretton in the *Universal British Directory* 1792 are Benjamin, watchmaker, Benjamin jr., surgeon and J.Smith, manufacturer of Brownware.
- Mr. (Joseph) Stevenson – Kegworth. Surgeon according to the *Medical Register*, 1779.
- Dr. (John) Storer – Nottingham. 1747–1837, MD of Glasgow F.R.S. and one of Nottingham's most prominent medical men. see John Russell *History of the Nottingham Subscription Library* (1916).
- Mr. (Jedediah) Strutt – Makeney. 1726–1797 Cottonspinner and the founder of the family fortunes. See A.P. Wadsworth and R.S. Fitton *The Strutts and the Arkwrights*. (Manchester, 1958) and *D.N.B.*
- Dr. Taylor – Ashbourne (then Warwick). This is not Dr. Johnson's friend Taylor who died 29 Feb. 1788.
- John Trowell Esq. – Long Eaton. Major of Militia, Deputy Lieutenant and Justice of the Peace. See *Universal British Directory*, 1792.
- Mr. John Walker jr – Ashbourne. *Universal British Directory* 1792, lists him among the gentry. Lysons *Derbyshire* refers to a John Walker of Styd who was a landowner about this time, in this area.
- John Wedgwood Esq. – Etruria. 1766–1844 Son of Josiah Wedgwood, and a banker. Although one entry has J. Wedgwood, another quite clearly has John.
- Mr. Ralph Wedgwood – Burslem. 1766-1837. Cousin of Josiah, also a master, potter and inventor. Most successful invention was carbon paper. see J.C. Wedgwood *A History of the Wedgwood family*, (London, 1908)
- Dr. (Snowden) White – Nottingham d1791. Edinburgh graduate and a physician at Nottingham General Hospital. Originally from Derby.
- Sir Robert Wilmot – Osmaston. d1834 2nd Bt. and a patron of Joseph Wright. see Burke *Peerage*.
- Dr. Wilson – Mansfield. Only briefly (July 1788 - Feb. 1789) a member and not traceable in directories etc.
- Rev. Mr. (William Ulithorne) Wray – Darley Dale 1721-1808. Rector at Darley and in 1805 succeeded as 11th Bt. of Glantworth, Lincs. See Burke *Peerage*
- Also included in the ledger is Mr. (Joseph) de Boffe, 7 Gerrard Street, Soho, who was not a member, but a specialist supplier of foreign books to whom payments were recorded.