BENJAMIN FRANKLIN

By J. R. Lambdin

Courtesy The Library Company of Philadelphia
In advertising the advantages of his colony in the New World, William Penn declared in his brochure that the new plantation was one particularly suited to "Men of Universal Genius." By this he hoped to attract those younger sons and hard working artisans who because of birth could not expect to attain the advantages available to those more fortunate in primogeniture and wealth. He, more than any other proprietor, was anxious to settle the land with industrious, sober men who here could develop to the fullest their innate abilities.

While all that he desired for his "Holy Experiment" was never to be fulfilled, nevertheless his highest expectations for the type of settlers he hoped to attract were more than realized in a group of second generation immigrants who banded together in Philadelphia in 1728 to form the Junto, or Leather Apron Club, so-called since most of its members were artisans. These men under the leadership of Franklin were in truth "Men of Universal Genius." A catalogue of their activities would clearly show how many and varied were their interests. As Franklin described the organization in his Autobiography, the club was one of mutual improvement through discussions on any point of morals, politics, or natural philosophy.

The idea of a mutual improvement society was not an original one with Franklin, but rather it was another indication of the

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transfer of culture from the old to the new world. The seventeenth century has become known as the Age of Enlightenment, for it saw the awakening of an insatiable interest in the causes of natural phenomena and their utilization to the benefit of man. This concept can be traced back to Francis Bacon and the *New Atlantis* in 1627. In the preface, written by the author's secretary, Bacon's purpose is stated:

>This Fable my Lord devised, to the end that He might exhibit therein a Modell or Description of a Colledge, instituted for the Interpretation of Nature, and the Producing of Great and Marvelous Works for the Benefit of Man, Under the Name of Salomon's House, or the Colledge of the Sixe Day's Works.

The object of the Fellowes of the College was to obtain that goal which Bacon considered the aim and end of life, "the Knowledge of Causes, and Secret Motions of Things; and the Enlarging of the Bounds of Humane Empire, to the Effecting of all Things possible."

The Baconian concept of experimental philosophy fired the imaginations of scholars for many years afterwards. Isaac Newton, for example, was following in the Baconian tradition when he developed his theory of gravity and wrote his *Principia*. The physicist, Robert Boyle, another disciple of Bacon, wrote in 1664, that

>the other humane studies I apply myself to, are natural philosophy, the mechanics, and husbandry, according to the principles of our new philosophical college, that values no knowledge but as it hath a tendency to use.

The new philosophical college to which Boyle referred was the Invisible College comprised of a small group of scholars whose academic freedom was disrupted by England's Civil Wars around

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1645. The group met weekly at Gresham College or Oxford, to exchange ideas and to attempt to put their knowledge to practical uses. Other like-minded students such as Boyle were drawn into the society which continued to expand until 1660 when it developed into the Royal Society of London for the Promotion of Mutual Knowledge. It was not long until this society had its counterpart in nearly every major city in Europe.

The new world was not unaware of the new philosophical trends despite its long and uncertain lines of communications. Nor were the men of New England too preoccupied with the problems of the wilderness and the establishment of a new civilization to be fascinated by the possibilities of philosophical experimentation. Increase Mather had no difficulty in 1683 in finding sympathetic friends when he decided to "Promote a design for a private Philosophical Society in Boston." His son, Cotton Mather, called it "a Philosophical Society of agreeable Gentlemen who met once a Fortnight for a conference upon Improvements in Philosophy and Additions to the Stores of Natural History." Though the Society was not able to survive for more than a few years, the important fact, as Kenneth Murdock writes, "is that Mather's society, while it lasted, discussed matters worthy of the attention of the Royal Society at late as 1712."  

The idea of banding together for mutual improvement was given a somewhat different slant when Cotton Mather organized a group of fourteen "Congenial Gentlemen" for the purpose of improving the civic and religious conditions of Boston. In his diary for the 12th of February, 1701, Mather records that he established two societies, one for the suppression of disorders in the town and the other for the propagation of Christianity.

A number of our more significant Gentlemen, have combined with me, to sett up a Conversation at each other's Houses, upon the Point, what is the Present State of the Christian Religion, at home and abroad, and what we may do for the Service of it? God knows whether here we may not have laid the Foundation for some actions of a great and good influence, upon the evangelical Interests.  

Mather, an indefatigable organizer, was constantly starting new groups in different neighborhoods. He would try to whip up the spirits of apathetic clubs by preaching to them, taking his text from Ecclesiastes 4.9, "Two are better than one. . . ." He at least took his sermons to heart, for, in 1711 when he took stock of his activities, he found that he was affiliated with more than twenty of these societies.

Thus was the pattern established in the colonies when Franklin and his friends formed what was to become the most important of all the American mutual improvement societies—the Junto. The origin of Franklin's idea, however, is a moot point. Carl Van Doren in his *Benjamin Franklin* suggests that Franklin fashioned his club and the method of posing questions after Mather's neighborhood benefit societies. Though there is a slight similarity between each group's method of phrasing questions and the interest in town affairs, there is indisputable evidence that Franklin's club was in theory an English importation. Nicholas Hans in his "Unesco of the Eighteenth Century," writes:

Since the time of Bacon the idea of establishing an international centre of scientific investigation for the diffusion of the light of knowledge among nations was a favorite scheme of the scientists and philosophers of the seventeenth and eighteenth centuries. It was usually alluded to as the 'Salomon's House' among virtuosi and later among the Freemasons. . . . When Franklin arrived in England as a young man he slipped into the midst of the movement. John Theophilus Desaguliers, the ideological founder of the "speculative" masonry was at the height of his fame as the first public lecturer on "experimental philosophy" and the secular private academies with their new methods and curriculum began to flourish.

No sooner had Franklin returned to Philadelphia than he established his famous quasi-masonic club Junto. . . .

Though Franklin was undoubtedly acutely aware of this new movement of experimentation and dissemination of knowledge, the

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basic program for the Junto was certainly acquired from John Locke's plan for a mutual improvement society set forth in his *A Collection of Several Pieces* in 1720. That Franklin read this book is certain, for it is recorded in the minutes of 1732 of the newly organized Library Company of Philadelphia that Locke's book was presented to the Company as a "gift of B.F." It is most likely that Franklin first read it while he was in England in 1725-26, for as Hans states, after Descartes, Locke was the most popular philosopher at this time. There seems little doubt that Franklin did read the book before 1728.

The similarity in the rules is so striking that it cannot be explained by coincidence. Locke's *Rules of a Society which met once a week, for their improvement in useful knowledge and for the promotion of truth and Christian charity* are as follows:

I. That it begin at six in the evening, and end at eight; unless the majority of two-thirds present are inclined to continue it longer.

II. That no person be admitted into the society without the suffrage of two-thirds of the parties present, after the person desiring such admission, hath subscribed to the rules contained in this paper, and answered in the affirmative to the following questions:

1. Whether he loves all men, of what profession or religion soever?
2. Whether he thinks no persons ought to be harmed in his body, name or good, for mere speculative opinions, or his external way of worship?
3. Whether he loves and seeks truth for truth's sake; and will endeavour impartially to find and receive it himself, and to communicate it to others?

III. That no person be admitted occasionally, without a good testimony from some of the society that knows him, and he answering in the affirmative to the above mentioned questions.

IV. That every member in his course, if he pleases, be
moderator (And the course here meant, is that their surnames, according to the alphabet); whose care must be to keep good order, to propose the question to be debated, recite what may have been said to it already, briefly deliver the sense of the question, and keep the parties close to it; or, if he please, he may name one to be moderator for him. The question for the ensuing conference to be always agreed, before the company departs.

V. That no person or opinion be unhandsomely reflected on, but every member behave himself with all the temper, judgment, modesty, and discretion he is master of.

VI. That every member place himself to the left hand of the moderator, in order, as he happens to come in; and in his turn speak as plainly, distinctly, and concisely as he can to the question proposed, directing his discourse to the moderator.

VII. That no more than one person speak at once; and none object till it come to his turn to speak.

VIII. That, the question having gone around, if the time will permit, and the company pleases, it may be discoursed again in the same order; and no weighty questions to be quitted, till a majority of two-thirds be satisfied, and are willing to proceed to a new one. That when a controversy is not thought, by two-thirds of the company, likely to be ended in a convenient time; then those two-thirds may dismiss it, and, if they please, another question may be proposed. That two-thirds of the company may adjourn the ordinary subject in question, for good and sufficient reasons.

IX. That no question be proposed, that is contrary to religion, civil government, or good manners; unless it be agreed to debate such questions, merely and only the better to confute it.

We whose names are here underwritten, proposing to ourselves an improvement in useful knowledge, and the promotion of truth and Christian charity, by our becoming
of this society, do hereby declare our approbation of, and consent to, the rules before written.⁶

Franklin's plan for the Junto is found in his Writings and in his Autobiography. From the Autobiography is the following description of the club:

I should have mentioned before, that, in the autumn of the preceding year, 1728, I had form'd most of my ingenious acquaintances into a club of mutual improvement, which we called the JUNTO; we met on Friday evenings. The rules that I drew up required that every member, in his turn, should produce one or more queries on any point of Morals, Politics, or Natural Philosophy, to be discuss'd by the company; and once in three months produce and read an essay of his own writing on any subject he pleased. Our debates were to be under the direction of a president, and to be conducted in the sincere spirit of inquiry after truth, without fondness for dispute, or desire of victory; and, to prevent warmth, all expressions of positiveness in opinions, or direct contradiction, were after some time made contraband, and prohibited under small pecuniary penalties.⁷

The more specific rules for a club established for mutual improvement are found among his miscellaneous writing. First of all, there is a list of twenty-four questions to be answered at each meeting which deal with local gossip of a business and political nature. The second rule in the list would seem to indicate that the members of the Junto were in demand as after-dinner speakers. "What new story have you lately heard agreeable for telling in conversation?" Other questions such as number 17, "Is there any man whose friendship you want, and which the Junto, or any of them, can procure for you?" and number 19, "Hath any man injured, from whom it is in the power of the Junto to procure redress?" give a distinctly masonic flavor to the organization. After

these two dozen questions there follows the requirement for membership:

Any person to be qualified as a member of the Junto to stand up, and lay his hand upon his breast, and be asked these questions, viz.

1. Have you any particular disrespect to any present member? Answer. I have not.
2. Do you sincerely declare, that you love mankind in general of what profession or religion soever? Answer. I do.
3. Do you think any person ought to be harm'd in the body, name or goods, for mere speculative opinion, or his external way of worship. Answer. No.
4. Do you love truth for truth's sake, and will you endeavour impartially to find and receive it yourself, and communicate it to others? Answer. Yes.

It can thus be seen that three of Franklin's four rules for membership are identical with the three requirements that Locke sets forth. The inclusion of such phrases as "no person ought to be harm'd in his body, name or goods, for mere speculative opinions, or his external way of worship" in both sets of rules cannot be coincident. It is apparent, too, from a comparison of the plans that the manner of conducting the meetings and the primary objectives were the same. The only difference between the two groups was that the Philadelphia group not only resembled a masonic lodge, but that it was also something of a Chamber of Commerce, as evidenced by its weekly ritual of opening the meeting with questions about the gossip of the day, about who was new in town and what his connections were, who had lately set up in business, and who had recently failed financially, and why. Though the principal object of the organization was the furtherance of philosophical experiments, Franklin candidly admitted that a secondary objective was the promotion of business and that he personally had profited from it.

These were the objectives Franklin published. But the choice of a name was unfortunate, for the word Junto, as defined in the New English Dictionary, meant in one sense, at least, "a body of men who have joined or combined for a common purpose, especially of a political character." One person, in fact—James Logan, the proprietary secretary—thought the group had banded together for the purpose of political intrigue. As he stated in a letter to William Penn, Logan accused them of being the tools of Sir William Keith, the former governor, and of serving him in his baseness and duplicities by soliciting favorable sentiment for him. But as Franklin himself had once been a victim of Keith's delusive promises, it scarcely seems likely that the Junto would have desired to promote Keith's interests. However, the fourteenth and fifteenth questions that the members answered weekly did indicate that any new legislative move would not go unnoticed by them. The question, "Have you lately observed any defect in the laws of your country, of which it would be proper to move the legislature for an amendment? Or, Do you know of any beneficial law that is wanting?" is a
more or less academic one; but the fifteenth asks bluntly, "Have you lately observed any encroachment on the just liberties of the people?" It was no secret at that time that Franklin's sympathies did not lie with the proprietary family and their followers. Logan's mistrust was no doubt allayed as the group pursued their philosophical discussions, for he was generous and encouraging to the club a few years later when it developed into the Library Company of Philadelphia.

As noted earlier, one of the rules of the Junto declared that every three months each member must produce an original essay upon any subject he chose. In addition, the men were required to do a certain amount of research each week in order to discuss intelligently the topics of their fellows. Since the members were not men with extensive private libraries, and since their meeting-place, the Indian King Tavern, offered no facilities for reference, the problems of settling the points in question and of preparing their essays was a serious one—serious enough to lead before long to discouragement and eventual abandonment of the club. Fortunately, before the members' enthusiasms had waned, Franklin made a proposal that served as a temporary expedient. The club was then meeting in a room at the home of one of the members, Robert Grace, and Franklin suggested that everyone bring to the clubroom his personal collection of books to form a common library. This was done willingly enough, although the display the books made in the room in Pewter Platter Alley was somewhat meagre. Though good in theory, the plan of a union library was not practical. Books were precious possessions and the members were soon eyeing one another askance and looking for signs of wear in their volumes. The fears of the owners were probably not without justification, for one member of the group already had the reputation of not treating a book with proper respect. Thomas Godfrey, in whom James Logan had recognized signs of genius, was so insensible of his privileges when Logan gave him of free access to his books, that Logan was forced to countermand the use after discovering Godfrey dogearing the valuable volumes. Thus, after a year, though the library had been of great service, each member packed up his contribution and the library was dispersed.

Resourceful as always, Franklin now conceived his first idea of a civic nature, that of a subscription library—the first of its kind.
in England or America, though not unlike the formation of the Public Library of Zurich, Switzerland, a hundred years earlier. He visualized a library useful to the citizens and supported by their cooperation. This was in contrast to the scholarly private library of James Logan and the ecclesiastical library of Christ Church which were already in existence.

In the summer of 1731 the Junto members solicited among their friends until they had found thirty-eight men who were willing to pay an initial fee of forty shillings and annual dues of ten shillings. The name of the group was to be known as The Library Company of Philadelphia. The motto of the library was *Communiter bona profundere deus est*—"for the increase and diffusion of knowledge among men."

The project went on apace so that by November 8, 1731, the first directors' meeting was held at Nicholas Scull's inn, the Bear Tavern. The Articles of Association, drawn up in July, 1731, had designated a board of ten directors, one of whom was to act as secretary and another as treasurer. Nine directors met at Scull's inn, late in that November afternoon. Six of them, as well as the inn-keeper himself, were original Junto members: William Parsons, Thomas Godfrey, Robert Grace, William Coleman, Joseph Breintnall, and Franklin.

These were true sons of the eighteenth century who met around the table of the Bear Tavern. The thumbnail sketches that Franklin made of his friends in his *Autobiography* shows their "Universal Genius." They were for the most part young men at this time but already showed evidence that, like most of the active members of the Library Company, much of the scientific and political destiny of the colony lay in their hands.

Joseph Breintnall, "a copyist of deeds for the scrivener," was elected the secretary of the group. He was associated with Franklin in the management of a little stationer's shop which sold blanks of all sorts, "the correctest that ever appeared among us. . . ." For some months he continued the *Busybody Papers* which Franklin had begun for *The American Mercury* in 1728. Breintnall was also an ardent gardener and was a close friend of the botanist John Bartram. According to Franklin's delightful description, he was "a good natur'd friendly, middle ag'd man, a great lover of poetry, reading all he could meet with and writing some that was tolerable;
very ingenious in many little Nicknackeries, and of sensible con-
versation.”

William Coleman, the treasurer, “then a merchant’s clerk,”
Franklin praised for having “the coolest, clearest head, the best
heart, and the exactest morals of any Man I ever met with.” Later
a merchant of great wealth and one of the provincial judges, Cole-
man retained his friendship with Franklin until his death nearly
forty years later.

To Thomas Godfrey, the father of the author of The Prince of
Parthia, Franklin could not give such unqualified praise. He was a
“. . . self-taught mathematician great in his way, and afterwards
inventing what is now called Hadley’s quadrant. But he knew
little out of his way and was not a pleasant companion, as, like most
great mathematicians I have ever met with, he expected universal
precision in everything said, or was forever denying or distinguishing
upon trifles to the disturbance of all conversation. He soon left us.” Nevertheless, Godfrey was a brilliant mathematician and an
experimenter in optics.

Another mathematician was William Parsons, who, though “bred
a shoemaker,” loved to read and “had acquired a considerable share
of mathematics, which he first studies with a view to Astrology, that
he afterwards laught at.” Parsons evidently later combined the
cobbling of shoes with the cobbling of sherry, for the Pennsylvania
Gazette for February 12, 1740, carried an advertisement stating
simply, “Very good Canary-Wine and Lime-Juice, to be sold by
William Parsons, in Second Street, Philadelphia.” The shoemaker
had sufficient mathematical skill to be appointed the proprietary
surveyor, in which capacity he established the original town lines of
Easton and Reading. Another surveyor was the host of the evening,
Nicholas Scull, who became surveyor-general. A tavern-keeper and
a cartographer, Scull “loved books and made a few verses.”

The wealthiest member of the group and a descendant of the
British aristocracy was Robert Grace, “a young gentleman of some
fortune, generous, lively and witty; a lover of punning and of his
friends.” A Quaker ironmaster and a skilled metallurgist, it was
to his furnace at Warwick that Franklin went, in 1742, to get the
plates cast for what was to become the famous Franklin stove. In
addition to belonging to the Junto, Grace was also a member of
that gay and reputedly wicked group known as the Bachelors’ Club.
Another one of the directors, the Quaker physician Thomas Cadwalader, was the first native American to hold a European medical degree, conferred by the University of Rheims. After graduation and a surgical internship in London, he returned to Philadelphia in 1730 and began a long series of anatomical lectures for the benefit of the local doctors. In 1745 he attracted considerable attention with his theory on the much disputed subject of fever. His pamphlet, published by Franklin, *Essay on the West India Dry-Gripes: with the Method of preventing and curing that cruel Distemper*, revolutionized the treatment of this widely prevalent disease and attributed the cause to Philadelphia's favorite beverage, rum punch, which, made of Jamaica rum distilled through lead pipes, resulted in mild cases of lead poisoning. When the punch was no longer drunk the malady disappeared.

Another of those who met that evening was one of the colonies' best scholars, Thomas Hopkinson, a former student at Oxford, a successful merchant, and later Admiralty Judge and Provincial Councillor and the first president of the American Philosophical Society. The father of Francis Hopkinson, author of the revolutionary satire, *The Battle of the Kegs*, and grandfather of Joseph Hopkinson, author of *Hail Columbia*, Thomas Hopkinson was noted not only for his knowledge of the classics and his scintillating and charming conversation, but also for his interest in science. Having observed the phenomenon of grounding in electricity, he had devised the series of experiments which led Franklin to the construction of the lightning rod.

Still another scientifically-minded director was the Anglican Philip Syng, Jr. A silversmith by profession, he, too, was fascinated by electricity and in 1747 constructed a simple labor-saving portable machine for producing electricity by friction.

Of the two remaining guests at Nicholas Scull's, little or nothing is known. John Jones was a cordwainer, as he identified himself in an extract from his will. Anthony Nicolas may possibly have been the same Anthony Nicolls who, in 1730, built the first fire engine in Philadelphia. Franklin, of course, is too well known for his inventions, printing press, governmental posts, diplomatic missions, and general concern with civic problems to be given a detailed discussion here.

Thus the destiny of the Library Company lay in the hands of
men of varying backgrounds, self-taught artisans, merchants of wealth, and gentlemen of professions, who were united in a common love of books and learning. Avid to increase their knowledge and broaden their interests, they were willing to devote a considerable amount of their spare time to the manifold duties and problems of founding a library.

The development of the Company is an interesting story, but the emphasis of this account is to be placed on the development of the scientific aspects of the library. When the first order was sent in 1732 for forty-seven books, eleven of them were in the field of science, three were on philosophy, none on religion, nine in both literature and history, and a sprinkling in each of the other areas of knowledge. The first book order began a long and profitable relationship with their London agent, Peter Collinson, a member of the Royal Society and a botanist of note, who encouraged the group in Philadelphia with his gifts and by rendering his services gratis.

The proprietors of Pennsylvania, John and Thomas Penn, also took cognizance of the new organization by the presentation of valuable gifts. Aware of the origin of the Library, their gifts were not books but scientific equipment of incalculable value to the Philadelphians. With the gifts from the Penns of an air pump, telescope, and camera obscura, the library took on a dual role of a museum and a library. Just as the Royal Society of London developed a rich store of scientific apparatus and natural curiosities, so did the
Library Company through the generous gifts of the Penns and many others, members and non-members alike. Of all the articles in the museum there was only one for which the Company was obliged to give recompense, and that was a life-membership in exchange for Matthew Clarkson’s collection of fossils.

The development of this secondary aspect of the Company cannot be over-emphasized, for as important as the library was for fulfilling the literary needs of Philadelphia, perhaps its role as a scientific institution was of even greater value. While it was possible to import books from England or to choose from the modest selection offered at Andrew Bradford’s “The Sign of the Bible,” the scientific machines and the natural and historical curiosities the Company was accumulating were out of the range of personal ownership for most citizens.

It was altogether fitting, therefore, that the arrival of the air pump and its caretaker, Mr. Jenkins, should be feted with a gala party at the Tun Tavern, where all enjoyed a good dinner and a pleasant evening of “facetious agreeable conversation.” There was
nothing facetious about the interest in the gift, however, for it was promptly taken to James Hamilton’s office and assembled where the members could at once begin making experiments. The pump was a costly, delicate instrument requiring great care in handling. To protect its many breakable parts, a large cabinet was built with glass doors which would be both ornamental and yet serviceable.

The expense and care required in the maintenance of the pump was well-expended, for it quickly became one of the Company’s most sought after possessions. Not only could the public come in and look at the machine through the glass doors of the case, but visitors also had an opportunity to see it in action. In 1740 Isaac Greenwood, professor of mathematics, received permission from the Company for the use of the pump and the outer room adjoining the library in order to conduct a series of mathematical and scientific lectures, thus enlarging the Library’s function even more by serving
as the Gresham College of Philadelphia. The air pump was in frequent demand even as late 1811: in October of that year Benjamin Tucker requested the loan of the pump and its apparatus for a course of lectures that he was planning to give during the winter. His request was approved, the board asking only that he give satisfactory security and return the pump and parts uninjured by the thirty-first of March. The series of lectures was evidently well-attended, since Tucker made the same request the following October, again receiving permission on the same terms as before.

The air pump was but one of the valuable presents of John Penn. He also gave a camera obscura, a double microscope, and a telescope. Thomas Penn, not to be outdone by his brother, gave the Company a machine for producing electricity. Thomas Penn's gift was of great importance to the library because it enabled the members to carry on more advanced experiments than possible with the tube, complete with directions for use, presented to them by their London agent, Peter Collinson. With Penn's gift they were thus able to take their place among the scientific experimenters working all over the world. As Franklin explained in a letter to Peter Collinson on July 29, 1750, he was sending the agent a paper describing the group's latest experiments, even though

... it happens to bring ... nothing new (which may well be, considering the number of ingenious men in Europe, continually engaged in the same researches,) at least it will show, that the instruments put into our hands are not neglected; and that, if no valuable discoveries are made by us, whatever the cause maybe, it is not want of industry and application.\(^\text{30}\)

Three years earlier, however, at least one improvement had been made by the Philadelphia experimentalists. On the 11th of July, 1747, Franklin wrote Collinson that

... the European papers on electricity frequently speak of rubbing the tube as a fatiguing exercise. Our spheres are fixed on iron axes, which pass through them. At one

\(^{30}\)Benjamin Franklin, *Works*, ed. by Jared Sparks (Boston, 1856), v. 5, p. 226.
end of the axis there is a small handle, with which you
turn the sphere like a common grindstone. This we find
very commodius, as the machine takes up but little room,
is portable, and may be enclosed in a tight box, when not
in use. . . . This simple easily-made machine was a con-
trivanve of Mr. Syng's.  

In the same letter Franklin gives credit to another member of
the Company. In explaining the experiment which proved that
points are capable of throwing off as well as attracting electrical
fire, he tells Collinson that "this power of points to throw off elec-
trical fire was first communicated to me by my ingenious friend,
Mr. Thomas Hopkinson. . . ."  

That these experiments certainly did not go unnoticed was evi-
dent by the fact that the great scientist Mikhail V. Lomonosov,
himself a Russian counterpart of the "Men of Universal Genius,"
gave credit to their efforts. He stated in 1752 that "people in St.
Petersburg learned very soon of Franklin's experiments, and one
of the Academicians G. V. Reichmann, who had long worked on
electricity, repeated them and inserted a description of them in
the St. Petersburg News."  

The possibilities of harnessing electricity for therapeutic uses did
not escape the Philadelphia group. Joseph Priestley in his History
of Chemistry reported that the first instance of the application of
electricity for medical uses was made by a professor of medicine in
Halle, Germany, in 1744. The professor was able to cure a woman
of a contracted little finger in a quarter of an hour.  

It was only
a few years later that Franklin was trying to effect cures electrically.
In a letter to John Lining in Charleston, S. C., on the 18th of
March, 1755, Franklin explained an experiment he had conducted

11 Ibid., v. 5, p. 188 and note.
12 Benjamin Franklin, Works, ed. by Jared Sparks (Boston, 1856), v. 5, pp.
182-3.
13 Boris N. Menshutin, Russia's Lomonosov, Chemist, Courtier, Physicist,
Poet (Princeton, N. J., 1952), pp. 85-6. Reichmann was killed on July 26,
1753, by receiving a charge through his "thunder machine" during a par-
ticularly violent electrical storm.
14 Joseph Priestley, The History and Present State of Chemistry with
during which six men were knocked down by electricity, and con-
tinued that he

... had seen a young woman, that was about to be elec-
trified through the feet (for some indisposition), receive
a greater charge through the head, by inadvertently stoop-
ing forward to look at the placing of her feet, till her fore-
head (as she was very tall) came too close near my prime
conductor; she dropped, but instantly got up again, com-
plaining of nothing. ... Too great a charge might, instead,
kill a man, ... It would certainly, as you observe, be the
easiest of all deaths. ... 15

The group surely had performed a number of such experiments
prior to 1750, for it was in that year that Thomas Cadwalader was
credited with saving the life of the son of Governor Belcher of
New Jersey through a therapeutic use of electricity.

There is no doubt that the members of the Library Company
were very serious in their scientific pursuits. A glance at the cor-
respondence between Franklin and Collinson especially shows that
their intent was to achieve a fundamental understanding of the
phenomenon of electrical charges and the use to which it could be
put. However, they were not too awed by electricity to have some
fun with it. In another letter to Collinson in 1748, Franklin de-
scribed a picnic which was surely great sport for those attending:

... Chagrined a little that we have been hitherto able to
produce nothing in the way of use to mankind; and the
hot weather coming on, when electrical experiments are
not so agreeable, it is proposed to put an end to them for
this season, somewhat humourously, in a party of pleasure
on the Skuylkill. Spirits, at the same time, are to be fired
by a spark sent from side to side through the river, with-
out any other conductor than the water; an experiment
which we some time since performed to the amazement of
many. A turkey is to be killed for our dinner by the elec-
trical shock, and roasted by the electrical jack, before a

15 Benjamin Franklin, Works, ed. by Jared Sparks (Boston, 1856), v. 5,
pp. 352-3.
fire kindled by the electrified bottle; when the health of all the famous electricians in England, Holland, France, and Germany are to be drank in electrified bumpers, under the discharge of guns from the electrical battery.

An electrified bumper is a small, thin, glass tumbler nearly filled with wine, and electrified as the bottle. This when brought to the lips gives a shock, if the party be close-shaved, and does not breathe on the liquor.36

While some of the members of the Company were making electrical experiments, there were other members who were making outstanding contributions in other fields. John Bartram, who was

36 Ibid., v. 5, pp. 210-11 and note.
given an honorary membership in 1743, and Joseph Breintnall were studying the flora and fauna of the colonies, and corresponding with Collinson about their findings. Breintnall also was interested in weather observations through which he won notice of the scientists of England. Peter Collinson wrote to the Company's secretary on January 31, 1738, thanking him for some samples of snake-root and telling him that he "has many thanks from the Royal Society for thy account of the Aurora Borealis, as mentioned in thine of November 24. . . . We had, last December 5th, a very remarkable and uncommon bloody Aurora borealis, which was seen all over Europe. Pray does thee remember if it extended to your parts." Breintnall also made impressions of the plants he found growing near Philadelphia, which, along with observations of the weather for several years, were presented to the Library Company after his death in 1746.

At the same time that Breintnall was making his leaf prints and noting the aurora borealis, John Bartram was drawing international attention to himself. He, too, was a frequent correspondent with Collinson. In May, 1738, he wrote to Collinson:

I am almost overjoyed in reading the contents of this letter—wherein thee acknowledged thy satisfaction of my remarks on the Locusts, Caterpillars, Pigeons and Snakes. I am very thankful to thee, and the Royal Society, for taking so much notice of my poor performance. It is a great encouragement for me to continue my observations of natural phenomena."

Collinson was not only encouraging Bartram to continue his botanical discoveries, but was also hopeful of launching him on a profitable trade of ginseng roots with China. On February 24, 1738-9, he wrote Bartram to send him all the ginseng plants he could procure and plant them in his garden and raise all he could from the seed as it would be a profitable item to export to the Orient where it was highly valued. Though the scheme came to nothing, a friend of Collinson did carry a parcel of Bartram's seed into the Orient.

18 Ibid., p. 120.
Bartram was not only concerned with the natural history to be found on top of the earth, but also with what was below the surface. Many years before the first geological survey was made in America, Bartram wrote to Dr. Alexander Garden on March 14, 1756:

I have often thought of proposing a scheme, which I am apt to believe would be of general benefit to most of our colonies, if put in practice. . . .

It is, to bore the ground to great depths, in all the different soils, in the several provinces, with an instrument fit for the purpose, about four inches diameter. The benefit which I shall propose from these trials, is to search for marls, or rich earths, to manure the surface of the poor ground withal. Secondly, to search for all kinds of medicinal earths, sulphurs, bitumens, coal, peat, salts, vitriols, marcasites, flints, as well as metals. Thirdly, to find the various kinds of springs, to know whether they are potable, or medicinal, or mechanical.

Now, to bring this into practice, suppose there was appointed in every province, a curious, judicious, honest, careful man, as overseer, that he should choose such men as understood boring in rocks and earths, and furnish them with proper instruments; that he, or any whom he may depute under him, shall take particular care to write down, in a book for that purpose, the time and place, when and where, they began to bore, and the particular depth of every stratum they bore through, examine curiously the contents of the bit, every time the augur is drawn out, and the depth from whence it was drawn. Minute it down. . . . By this method, we may compose a curious subterranean map. 19

Bartram was commissioned by friends of Collinson to furnish them with plants from America. By 1737, he had sent more than 200 specimens to be named. Almost every ship that left the port of Philadelphia for London bore in its hold some of Bartram's specimens of flowers, seeds, turtles, badgers, frogs, snakes, and fossils.

19 Ibid., pp. 393-4.
In return the incoming boats carried cargoes of paper, clothes, and samples from Collinson to his American friend.

Bartram's achievements received high recognition in 1769 when he received word from C. M. Wrangel in Stockholm that "the Society of Science, in Stockholm, which has from its first institution been known for the greatest delicacy in choosing members of distinction and note, has manifested their great desire for you by choosing you a member unanimously, at the proposal of Professor Bergius."

Not to be outdone by his colleagues, another member of the Library Company, Robert Grace, also acquired a scientific proficiency which was used to advantage on both sides of the Atlantic. Collinson wrote in 1737, that "our friend, Robert Grace, . . . has taken some pains to make himself master of fluxing metals. He will be able to give our friend Wolley some satisfaction as to the richness and quality of his ores." Grace was also a botanist of sufficient learning for Collinson to tell Bartram in April, 1739: "... Obeliscothea, Hort. Eltham or Chrysanthemum. This plant I have long in my garden. I much admire it for its duration in flower. My friend Grace can tell thee if it is his Corona or Tower flower. Pray ask him."

Another honorary member of the Company, James Logan, although confined to his chair, quietly watched over all these experimenters. He was the acknowledged scholar and patron of them all. Collinson frequently referred Bartram to Logan for help in finding the proper equipment which the Master of Stenton would usually lend or buy for him. Franklin liked to drive out to Logan's home to show him his latest experiments in electricity, while Godfrey went to him to receive help in the study of optics necessary for his new version of Davis' quadrant.

The men of the Library Company during these years were bringing international fame to themselves and their city with their research in botany, astronomy, electricity, metallurgy and medicine. The index to the Philosophical Transactions of the Royal Society of London lists eight articles by John Bartram, two by Joseph

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30 Ibid., p. 97.
31 Ibid., p. 131.
Breintnall, eleven by Franklin, and five by James Logan, one of which dealt with Godfrey's improvement of the quadrant. International scientific cooperation was still furthered by the Company's participation in the observation of the transit of Venus in 1769, setting up its telescope at the point of Cape Henlopen.

Not all the contents of the museum were elaborate scientific equipment. There were many strange objects that were given to the Company by ships' captains. These treasures ranged from foreign coins, sea cocoa-nuts, porpoise heads and cloth of the Otahite Indians. Even Captain Cook contributed to the store with plaits of hair from the heads of the native islanders. And from England Benjamin West sent the hand of an Egyptian mummy.

Nor did all the objects come from exotic places. Local citizens finding some curious object in their immediate locale would send it to the museum, as did the county surveyors when they dug up an iron sword with "TS" while digging the foundations for a new bridge in Second Street. A resident of Middletown, near Harrisburg, sent the Company some fossils he found while strolling along the banks of the Susquehanna. The Company was able to help Charles Willson Peale complete his "great American Incognitum" by giving him from its collection a thigh bone in exchange for a "handsome Humerus."

Until Peale's museum was completed, the public depended upon the Library's collection for entertainment and instruction. One morning a week was set aside when the Philadelphians could come in free-of-charge and look at the curiosities exhibited there. An idea of what they could see is found in the list printed in the Catalogue of 1770:

A curious air-pump, with its apparatus, given by the Honourable John Penn, Esq.

An electrical apparatus; a large pair of globes; a large reflecting telescope; a large double microscope; a large Camera Obscura, given by the Honourable Thomas Penn, Esq.

Pennsylvania fossils &c. given by Mr. Bartram.

Instruments and Utensils of the Eskimaux, given by the Nort West Company.
A Snake's skin, twelve feet long, and sixteen inches over.
A Piece of Marble, lately dug out of the ruins of Herculaneeium.
An Antique pewter dish, given by Mr. Stephen Pashall.
A very beautiful Concha, given by R. G.
A Malabar manuscript, on leaves, given by the Reverend Mr. Hugh Jones.
A Sea Feather.
Some curious Snakes, Scorpions, &c. in a bottle of spirits.
A twelve inch concave reflecting Mirrour, given by B. F.
Mitchell’s Map of North America.
Prospect of London from Westminster-bridge to London Bridge, by Messieurs Bucks.
Prospect of Portsmouth, by ditto.
A large cabinet, containing a very curious collection of American Fossils, with several species of Earth, Clay, Sand, &c. and explained by a numerical list of Catalogue, giving an Account from what Place each Sample was brought. This Collection was the Work of Mr. Samuel Hazard, late of this City, merchant and was purchased for the Company since his Decease.
Two Manuscripts in rolls, in the Russian Language, and Characters, given by Mr. Lewis Timothy.
The Hand and Arm of an Egyptian Mummy presented by Mr. Benjamin West.
A hydrostatical Balance with its appurtenances.
A valuable Collection of antient Medals.\(^2\)

This list shows the variety of objects on display for the visitors and citizens of the city. Though the Penns never heeded Franklin’s frequent pleas for a system of public schools, they did, unwittingly, through their gifts initiate at least a partial substitute for public education. The multiplicity of purposes to which the museum was put has been mentioned before. It served as a workshop for the

\(^2\) *Catalogue* of the Library Company of Philadelphia, 1770, pp. 4-5.
experiments of the "Men of Universal Genius" as well as an ideal place to hold public lectures demonstrating the philosophical equipment. It aided Peale to complete his American Incognitum and helped round out the statistics on the transit of Venus. Most of all, however, it served the ordinary citizen of Philadelphia, who could see the curiosities found in his own locale and wonder upon those from such far away places as the South Sea Islands and the land of the Eskimos. It certainly contributed something to the visitor's awareness of other lands and customs, leaving him a little less provincial and insular in outlook, thus following the tradition of Salomon's House wherein all knowledge was directed to the benefit of mankind.