

Victorian Studies Association Newsletter



NUMBER 31, SPRING 1983

Ontario, Canada

THE VICTORIAN STUDIES ASSOCIATION NEWSLETTER

Number 31, Spring 1983

Ontario, Canada

Edited for the Victorian Studies Association of Ontario

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This issue includes news of members, notice of the annual conference, communications, an article by J. M. Robson on J. S. Mill's reading in the sciences, and a book review by Michael Laine of Shirley Letwin's *The Gentleman in Trollope*.

NEWS OF MEMBERS

J. M. Cameron, Emeritus Professor, St. Michael's College, University of Toronto, gave a lecture on "Newman: Apostle of Common Sense?" at Newman College, St. Louis, Missouri, on 24 October 1982.

James Martin Gray's annotated edition of Tennyson's *Idylls of the King* in the Penguin English Poets series is scheduled for publication by spring 1983; his work in progress includes papers on the use of simile and metaphor in Tennyson's *Idylls*, and an idyll by idyll reading of the poem set against its critical history.

1983 ANNUAL CONFERENCE

The 1983 annual conference will be held at Glendon on Saturday, 9 April. Speakers will be Frank Turner, Department of History, Yale University, and Joseph Gold, Department of English, University of Waterloo. The subject of Professor Turner's paper is "The Opponents of the Oxford Movement"; the title of Professor Gold's paper is "The Dickens-Davis Dispute and the Demythologizing Process."

COMMUNICATIONS

Intensely Local History--Both the Association itself and the Toronto-York Victorian Studies Option are anxious to enhance the documentation of their brief yet rapidly receding pasts. Anyone who possesses relevant documentary or other records (announcements, conference programmes, course syllabuses, etc.), and who would be willing to part with them, is asked--nay, is begged--to send them either to Dr. Marjorie Garson, the VSA Secretary-Treasurer, at Victoria College, or to Professor Michael Millgate (English, Toronto) or Professor Albert Tucker (History, Glendon College, York), the directors of the Option at the two universities.

George H. Ford, Professor of English, University of Rochester, reports the opening of a large museum in Rochester, New York, which is devoted entirely to displaying American Victorian items. It is called the Strong Museum, or, more completely, the Margaret Woodbury Strong Museum. It is named after a local woman of extraordinary wealth, who devoted her lifetime to collecting items of Victorian furniture, doll houses, everything under the sun. She died some twelve years ago, and a large

team of museum people have been trying to sort out the hundreds of thousands of articles left in her preliminary museum. The museum, as it now stands, is a privately financed affair, like the University of Rochester, although there is not, as yet, any formal connection between these two private institutions. Mrs. Strong left an endowment of some sixty million dollars, one of the largest sums ever left by a private individual for such a purpose. With these funds, the curators were able to construct an altogether new building, in downtown Rochester, and in it are displayed various items from the vast collection. It is assumed that these exhibits will be changed from time to time. Professor Ford hopes that when anyone from the north side of the Great Lakes is driving to New York City, he or she will stop off in Rochester and spend some time at this remarkable display.

Founded in 1980, the Canadian Society of Decorative Arts has been formed, with the generous support of The Macdonald Stewart Foundation, to provide for the first time a forum for all those interested in this important field. Subjects will include interior design, furniture and furnishings, ceramics, glass, metalwork, graphics, textiles, theatre arts, together with certain aspects of architecture, industrial and landscape design. Those interested in membership should write to the Canadian Society of Decorative Arts, P.O. Box 4, Station B, Toronto M5T 2T2.

From their recent newsletter:

The first Annual General Meeting and Conference of the CSDA is to be held in Toronto April 29 and 30, 1983. The organizing committee's tentative agenda appears below. We hope that you will all plan to attend and join us in plotting the future directions for the Society.

The meeting will begin on the evening of Friday, April 29, 1983 with the President's Reception. This will be an ideal opportunity to meet your counterparts from across the country in an informal and relaxed atmosphere.

The Annual Meeting will be held at the Art Gallery of Ontario. The meeting, our first, will provide a unique forum for you to participate in our planning at this pivotal time. Key policy positions will be discussed: the role of CSDA in Canada; defining the decorative arts in this country; methods of developing educational tools and raising awareness; as well as reports from key committees and Provincial Associations. You can find out what's happening across the country. We'll need nominations from you now for the election of the National Council. We need good workers with ideas and drive. You'll be asked to ratify the by-laws, and set the future structure for the CSDA.

After a luncheon the CSDA will be honoured by an address by Henry Sandon who will be previewing the new Gardiner Museum for ceramic and porcelain now rising across from the Royal Ontario Museum. Mr. Sandon, formerly Curator of The Dyson Perrins Museum, The Worcester Royal Porcelain Company, has recently arrived from England to undertake the curatorship of the Gardiner Museum which will play an

important role in the decorative arts in Canada. Please bring a guest who you think might be interested in joining the CSDA.

We hope you'll mark the 29th/30th of April on your calendar. We need your input and hope to meet you all so our first meeting can have a truly national spirit.

TENTATIVE AGENDA

Friday evening, April 29, 1983

President's Reception

7:00-9:00 The Grange, Art Gallery of Ontario

Saturday, April 30, 1983

8:30-9:15 Registration
Jackman Hall, A.G.O.
coffee and croissants

9:30 Business Meeting

11:30-1:00 Luncheon, A.G.O.

2:00 Lecture, Jackman Hall:
Henry Sandon, Director-Curator,
George A. Gardiner Museum of Ceramic Art

3:30 Coffee and Questions
(discussion)

Russell Studies Conference

A Conference on Russell's non-technical writings will be held at McMaster University from Friday, 24 June, to Sunday, 26 June. The Conference is jointly sponsored by the Bertrand Russell Editorial Project and the Institute for the History and Philosophy of Science and Technology of the University of Toronto. Invited speakers include:

Dr. S. P. Rosenbaum, Department of English, University of Toronto, on Russell and Bloomsbury;
Dr. Kirk Willis, Department of History, University of Georgia, on Russell's early views on religion;
Dr. Thomas C. Kennedy, Department of History, University of Arkansas, on Russell and pacifism;
Dr. Brian Harrison, Corpus Christi College, Oxford University, on Russell, women, and the suffrage;
Dr. Peter Clarke, St. John's College, Cambridge University, on Russell and liberalism.

A complete program and registration form will be available soon. The registration fee is \$30. If you are interested in attending or if you want further information contact: The Secretary, The Bertrand Russell Editorial Project, TSH-719 McMaster University, Hamilton, Ont. L8S 4M2 Telephone: (416) 525-9140 Ext. 4896

Litir's Computerized Project on Victorian Studies: Current Status

In January 1980, LITIR (Literary Information and Retrieval) Database initiated its programme to establish a computerized control of the vast amount of current information on the Victorian period. The purpose was to develop a computer database capable of handling a wide variety of tasks--storing and retrieving of information, text-processing for the production of bibliographical data in printed form, and publishing computerized scholarly journals and books.

With the publication of five volumes of its *Annual Bibliography of Victorian Studies* and a *Cumulative Bibliography of Victorian Studies: 1976-1980*, LITIR has accomplished part of this projected goal. LITIR's current active computer file consists of approximately 15,000 entries of books and articles published from 1976 to 1982. Almost an equal number of entries covering the publications from 1970 to 1975, now in the processing stage, will be added to the file by July 1983. This storehouse of information both on line and in printed version is now available to Victorian scholars for research. For on-line searching, the researcher must have an access to LITIR ONLINE, an interactive system which makes possible an extremely rapid instant search of material on a computer terminal.

The printed version of LITIR's computerized information is published as *Annual Bibliography of Victorian Studies*. Each volume of the *Annual* consists of approximately 500 pages (two columns per page) and a comprehensive keyword subject index. This *Annual* is primarily meant as a library subscription serial. The *Cumulative Bibliography of Victorian Studies: 1976-1980*, which is just published, with approximately 14,000 entries classified into seven broad sections and more than one hundred sub-sections, is available to individual scholars at only \$44.00 (a saving of \$66.00 on its regular price of \$110.00).

Having completed its initial phase, LITIR is now trying to reach out to every individual scholar working on the Victorian period through its quarterly bulletin, *Litir Newsletter of Victorian Studies*. The newsletter will try to alert scholars to new projects, seminars, conferences, books, articles, and current trends in Victorian Studies. The subscription to the newsletter is free; its first issue is scheduled for publication by the first week of February 1983.

LITIR's advisory board consists of, among others, Josef Altholz, L. W. Conolly, K. J. Fielding, Juliet McMaster, R. D. McMaster, Sylvere Monod, John S. North, Norman Page, Robert L. Patten, Joanne Shattock, and Michael Wolff.

Victorian scholars as well as publishers and organizations concerned with the Victorian period are requested to send to LITIR information on projects, books, articles, seminars, conferences, programmes, or courses --anything that might be of interest to fellow scholars. Enquiries, correspondence, prepaid orders, and requests for the newsletter should be sent to: Brahma Chaudhuri, Editor, LITIR Database, c/o Department of English, University of Alberta, Edmonton, Alberta, T6G 2E5, Canada.

J. S. MILL, SELF-EDUCATION IN SCIENCE--
WITH A LITTLE HELP FROM HIS FRIENDS*

John M. Robson
Victoria College
University of Toronto

John Stuart Mill was born in 1806, son of a mother about whose influence and character we know almost nothing, and of a father about whom we know perhaps too much. James Mill had abandoned Scotland, its Church, and the ministry of that Church to take up free-lance writing in London in 1802. John, the eldest of nine children, six of whom were born before 1819 when James Mill found regular and well-remunerated employment in the Examiner's Office of the East India Company, grew up not in poverty, but certainly in circumstances that would have made schooling at expensive institutions impracticable, even had James Mill's strong views about education not precluded the thought. So the younger Mill is an example of one educated at home by a father whose own occupation kept him at home, and available as teacher.

John Stuart Mill was, it hardly needs saying, not a natural scientist, either in the sense prevalent in his youth, or in that which became dominant in his mature years. His main interests and contributions lie in what were then called the "moral sciences," the major part of which are now thought of as "social sciences"; it was not odd, however, at least in Mill's youth, for people to have broader acquaintance with both areas than it now is, when most take for granted, rightly or wrongly, that there are two cultures. But, although Mill was, as I shall be indicating, quite well informed in the natural sciences, his energies were largely expended elsewhere, and it should be borne in mind throughout that a career in science was never thought of by him or for him.

James Mill, having been educated at Edinburgh through the patronage of Sir John Stuart--an instructive instance of how in Scotland the poorest child (if male) could receive the best education open to his talents--was part of that fortunate generation whose minds were stimulated by the great teachers of the Scottish Enlightenment. There is no evidence that he was strongly attracted to the natural sciences; his recorded reading and study being dominated by the moral sciences, but he most certainly was aware of the importance of the developments in

*This is the text of a lecture given on 28 January 1983 as part of the symposium marking the moving of the University of Toronto's Institute for the History and Philosophy of Science and Technology to Victoria College. Though I have deleted the specific references to that occasion, I have not added footnotes; I should be happy to supply information to anyone interested. Much detail, including accounts of his reading in all subjects, is given in Appendix B, "Early Reading," of *Autobiography and Literary Essays*, Vol. I of the *Collected Works*, ed. Robson and Stillinger (University of Toronto Press, 1981).

mathematics, physics, and geology; more especially, perhaps, his imagination was captured by the Newtonian model, which he was to attempt to apply to psychology in his *Analysis of the Phenomena of the Human Mind*. He said, while working on that treatise, that if given time he could make the operation of the mind as clear as the road from Charing Cross to St. Paul's; that remark led Francis Place, jr., to comment, fifty years later, "Would that he had done so!" (And a further hundred years later, I feel like adding, "Who said *that* road was clear!") In any case, he wished his son to have an acquaintance with the sciences, though he designed his education to make the boy a polemical propagandist for political and social reform, in the arena and not in the laboratory or study.

John Mill's account of his early education in his *Autobiography* is well known, though actually little studied in detail. What has intrigued and staggered most commentators and casual readers is the early age at which Mill began Greek, but actually such attainments were not so rare then as they now seem. What is more impressive to me is the range of the studies the child engaged in up to the age of fourteen, and his obvious understanding of them. I can only glance at what is relevant to my theme, but again I should warn that I am discussing Mill without specific reference to the historical and scientific context, though I shall try to keep that context in mind.

As one would expect, Mill's scientific education began, under his father's tuition, with mathematics. Starting some months before his eighth birthday (that is, at the beginning of 1814), he worked his way through Euclid's *Elements of Geometry*, finishing the first six books and the eleventh and twelfth (the eight usually studied) in about a year. At the same time he began algebra, and was, according to his father, performing "simple equations with great ease" by December 1814. His texts were Euler's *Elements of Algebra* and Bonnycastle's *Introduction to Algebra*, the latter, Mill reported in a letter of the time, "principally for the sake of the examples to perform." He soon began rather more sophisticated study, by this time apparently working almost entirely on his own. His retrospective account in the *Autobiography* refers to his having learned "elementary geometry and algebra thoroughly, the differential calculus and other portions of the higher mathematics far from thoroughly"; his guide to the higher mathematics was West's *Elements of Mathematics, Comprehending Geometry, Conic Sections, Mensuration, Spherics*, which he began in 1814, and was still using in 1820. Other works he studied include Simson's *Sectionum conicarum*, Kersey's *The Elements of That Mathematical Art Commonly Called Algebra*, Newton's *Arithmetica universalis*, Stewart's *Propositiones geometricae*, Playfair's *Elements of Geometry . . . Plane and Spherical Trigonometry*, Wallace's article on geometry in Brewster's *Edinburgh Encyclopaedia*, and Simpson's *Treatise of Algebra*: he had at least begun all of these by his tenth year.

From that year dates his first encounter with a work in the non-mathematical sciences, the *System of Chemistry* by James Mill's early friend, Thomas Thomson, who for a time shared a house with the Mills in London. The young Mill read the book "with vast ardour," his father reports in 1816, and again in 1818 he says the boy "fastened with great

greediness" upon Thomson's work (probably this time the 5th ed. of 1817, much revised). Mill's own later comment is that he "devoured treatises on Chemistry, especially that of . . . Dr. Thomson. . . ." This too he kept by him for some years.

His mathematical studies continued with another article by Wallace, this time in the *Encyclopaedia Britannica*, where he also read the anonymous treatment of Fluxions, and with Euler's *Introductio in analysiu infinitorum*, and Simpson's *Doctrine and Application of Fluxions*. All this would appear to have prepared him in his eleventh year for Newton's *Principia*, although the only evidence is a rather suspect comment by Lady Romilly, who, in a letter to Maria Edgeworth, comments that the young Mill was "observed twice when he came out of a room where he had been shut up with Newton's principia before him, that he was but just awake." More certain is his work on Keill's *Introductiones ad veram physicam et veram astronomiam*, as part of what Mill refers to as "the application of mathematics." A couple of years later, in 1819, he was working on Simpson's *Select Exercises for Young Proficients in the Mathematics*, performing the exercises "without book," as he was to note not infrequently of his mathematical studies. Earlier, in 1817, he had used Robison's *Elements of Mechanical Philosophy*, and about this time encountered another work that captivated his attention, Joyce's *Scientific Dialogues, Intended for the Instruction and Entertainment of Young People*, which in its six volumes includes sections on Mechanics, Astronomy, Hydrostatics, Pneumatics, Optics and Magnetism, and Electricity and Galvanism. "I never remember being so wrapt up in any book, as I was in Joyce's . . .," he later comments; "and [he adds] I was rather recalcitrant to my father's criticism of the bad reasoning respecting the first principles of physics which abounds in the early part of that work." What evidently was happening was an efflorescence of that excitement bright young people feel over the unfolding of surprising and mysterious phenomena in the experimental sciences. The young Mill, however, had no access to any apparatus, as he was to bemoan, and so concentrated on the theoretical rather than the experimental side--given his own devastating depreciation of his mechanical abilities (he was long years learning to tie his shoelaces), it is perhaps as well that no fragile beakers or explosive chemicals came into his hands.

He was, however, briefly exposed to an institutional scientific education when, in the company of his father and Jeremy Bentham, who were almost certainly displaying their prodigy, he visited in 1818 the Royal Military College at Bagshot, where Wallace, another old friend of his father's, taught mathematics; Wallace was the author of several of the texts Mill had used, which were on the cadets' curriculum. I cannot resist quoting at length from a letter James Mill wrote to David Ricardo about the visit, a letter that says far more than its words literally imply.

[Although attendance was closely restricted,] the great authorities of the place united in an invitation to John to attend [a course of lectures on Chemistry], and the opportunity I thought of some importance, as now the time was come when I wished him to see a course

of chemical experiments. The distinction of this invitation he owed to a little reputation he has acquired, very accidentally. Among the Professors here are two or three gentlemen of Oxford and Cambridge, really clever men, and another very accomplished Oxford scholar, tutor to the Governor's sons. These gentlemen and I having got intimate, and taking our walks together, one of them called upon me one evening when I was out, and missing me fell into conversation with John, and asked him about his studies. The account the boy gave him of what he had done he mentioned to the rest; and the whole appeared either folly or cheat; that I was either fool enough to let the boy pass over a multitude of things without knowing them, or wished to impose on others by making the semblance of knowledge in him pass for the reality; as no child they concluded could possibly know all that he told his interrogator he had done. An occasion was soon taken to put him to the test, by inviting me to the house of one of them, when I was requested to bring the boy along with me. All were present, and as their purpose was to me unknown, I was a little surprised when they began a rigid examination. The consequence was that they expressed extravagant admiration, as absurd, I told them, as their scepticism which they mentioned to me, had been before. Nevertheless they trumpeted their admiration, and he began to be taken too much notice of; the governor begged he might be allowed to go to his house as much as possible, and make friendship with his boys, and so the thing has gone on. I was anxious he should hear the lectures, and I was unwilling to appear to slight the compliment which had been paid him, by taking him away: and I was still more unwilling to leave him to the spoiling of the notice he is receiving. I have arranged matters accordingly, thus. This week and the next will finish the said lectures, all but a few on geology which he can learn from books.

And so John was allowed to stay for one more week. There is no indication that he regretted not being enrolled at the College, though had he been he would certainly have had greater access to applied science.

In that same year, 1818, Mill began his study of logic with Aristotle's *Organon*. This was of course most significant, for his greatest interest in science was in method, which he attempted to codify and explain by uniting the traditional deductive logic with a new account of induction. I enter on this broad avenue only to desert it immediately for the less travelled side streets; there is a busy literature on Mill's attempt to accommodate scientific method within his system, not amounting to a traffic gridlock, but sufficiently heavy to make our less crowded way more pleasant.

In the spring of 1820 Mill was sent off to the south of France to live with the family of Sir Samuel Bentham, Jeremy's inventive younger brother. There, with no sign of slacking, the fourteen-year-old pressed on with his self-education, but also was tutored, and took lecture courses at Montpellier. First, and with a view to improving his French (which soon became a ready second tongue for him), he worked through Legendre's *Eléments de géométrie*, read an article in the journal *Annales de Chimie*, and resumed his studies of fluxions with Lacroix's *Traité du calcul*

différentiel et du calcul intégral. He also worked on Lagrange's *Théorie des fonctions analytiques*, Biot's *Traité analytique des courbes et des surfaces du second degré* (republished as *Essai de géométrie analytique*), and Lacroix's *Elémens d'algèbre*. While he began his mathematical studies in France on his own, he later had the benefit of private tutoring by M. Lenthéric, who set him many of the exercises he performed in these texts. And he continued to read his old favourite, Thomson's *Chemistry*.

A great stimulus in this year came through his study of Jeremy Bentham's "Chrestomathic Tables," which laid out in diagrammatic form the whole range of human knowledge. His enthusiasm is again reminiscent of that shown by other bright youngsters, who typically are spurred by the vision of encompassing learning in systematic arrangement. Which of you did not dream of reading a great encyclopaedia from A through Z--remembering everything? Or, like a friend of mine, tried to read all the books on the reference shelves of the (then) Toronto Public Library on College Street? Very soon after looking over the "Chrestomathic Tables" Mill encountered, apparently for the first time, what we call the life sciences, as he became engrossed in a synoptic table of insects prepared by George Bentham, Samuel's son. And his passion for classification led him to work on chemical tables as well.

George Bentham, Mill's elder by six years, played an important part in the boy's education. He helped him with his French, and joined with him in mathematics, though probably he was there not so advanced as his young companion. But his greatest contribution was his induction of Mill into the ranks of the botanists. Bentham, who was to become one of England's greatest botanists, was already working on his study of the plants of the Pyrenees, and he introduced Mill to the joys and excitements of collecting as well as of classification. This became and remained Mill's avocation throughout his life. One or two instances only: in 1823 he went with George Bentham and some other friends to the Hackney Nursery, "then at the height of its fame," where "they were impressed with the palms, bananas, and other stove plants and ferns." Forty years later, George Bentham was gratified to receive a letter from Mill (as well as ones from Lyell and Darwin), congratulating him on an address to the Linnean Society. It is fitting that Mill's last collecting expedition, in the south of France, just preceded and may have contributed to his final illness. The botanic theme I shall return to; for now all that needs to be added is that he studied carefully Picot de Lapeyrouse's *Histoire abrégée des plantes des Pyrénées*, which he used as an authority for some remarks in a letter to his father concerning the botany of the region. This study, combined as it was with extensive field trips, made Mill aware of topography and other aspects of geography, and Lady Bentham joined the ranks of his tutors by giving him a geology lesson concerning the Pic du Midi. Subsequently Mill's descriptions of landscape, while not noteworthy as literature or as natural science, show, even through their attempts at the picturesque, his awareness of soils and geology.

We know little of the university lectures he attended, except for those in logic, of which many of his notes are extant; interestingly, that course was designed as an introduction to the philosophy of the

sciences, and began with what the boy thought an excellent account of the necessity of logic to scientific study. We are privileged with a few glimpses into the lectures on Chemistry and Zoology that he also attended. Those on Zoology, intended for medical students, dealt with the utility of the study, and how to become a Zoologist. The lectures on Chemistry, a continuation of the previous session's, covered a wide range of inorganic materials. Apart from merely recording the topics covered in his diary, the young student made a few comments that suggest the antiquity (and cruelty) of course evaluations. Of M. Joseph Anglada, the lecturer in Chemistry, he says: "Il ne fait pas beaucoup d'expériences; en effet le seul professeur qui en fait beaucoup ici ou qui les fait bien est M. Bérard fils, et son cours n'aura lieu qu'au printemps prochain." M. Provençal, after four lectures in Zoology, became ill; when he returned, it was to earn this comment from the fourteen-year-old Mill: "[Il] traita l'organisation générale de l'homme et des animaux, mais d'une manière si embrouillé et parlant si vite que je ne pus comprendre ce qu'il disait, encore moins l'écrire. . . ." *Plus ça change!*

It is worth noting that through these studies Mill met Antoine Jérôme Balard, later a distinguished chemist, whom he thought of as his first friend, and, though their later correspondence is lost, one can reasonably assume a shared and stimulating interest kindled by their friendship.

After Mill's return to England in 1821, his education, so far as is recorded, centred on philosophy and law; he took up a position in the East India House in 1823, on his seventeenth birthday, and soon was deeply engrossed in various groups (overlapping in membership) devoted to utilitarian reform. During the decade of the 1820s there is, in fact, no evidence of scientific study, except for his developing interest in field botany, shown in the journals of his walking tours.

In the 1830s a little more evidence emerges from his attempts to develop his ideas on logic, for he soon discovered that problems over inductive method required a "comprehensive and . . . accurate view of the whole circle of physical science," which he had not the means of acquiring. However, he then read Whewell's recently published *History of the Inductive Sciences*, and also returned to Herschel's *Discourse on the Study of Natural Philosophy*, which he had reviewed on its first publication in 1831--that he chose to review it then indicates at least a continuing interest. (One comment from that review merits quotation here: "To this blessed consummation [the equal distribution of happiness], physical science is capable of contributing invaluable assistance; not, however, by the truths which it discloses, but by the process by which it attains to them. It is an example, and the only example, of a vast body of connected truth, gradually elicited by patient and earnest investigation, and finally recognized and submitted to by a convinced and subdued world.") These works, by providing many examples of applied induction, enabled him to proceed with his account. His interest was, of course, as already indicated, in method, on which I do not wish to dwell, but Whewell's work in particular demands a kind of understanding that goes beyond passive absorption of examples.

Assistance had also come to Mill from J. P. Nichol, the astronomer, a friend and fellow radical, who read the early draft of the *Logic*; and then Mill came across Auguste Comte's *Cours de philosophie positive* which, though again its main interest for Mill lay in method and the philosophy of history, gave a map of scientific development of great importance to him. Another personal acquaintance was also of use: Mill's younger brother George was living at the time as a pupil in the house of William Benjamin Carpenter; the second edition of Carpenter's *Physiology* was reviewed by Mill in 1842 in the *Westminster*, undoubtedly as a result of his reading it for the sake of examples incorporated in the *Logic*.

Finally, just as the *Logic* was about to go to press, he met Alexander Bain, the young Scot who was to become Mill's philosophical heir; Bain devoured the treatise in manuscript, and, working through the summer of 1842 in London, and, back in Aberdeen in the fall, with the assistance of John Shier, who assisted Thomas Clark, the Professor of Natural History there, Bain "enriched the [work] with a great number of additional examples and illustrations from science; many of which," Mill says, "I inserted nearly in his own words." Bain's assistance continued throughout the publishing history of the *Logic*, as he kept supplying Mill with examples, especially for the third edition (1851), the sixth (1865), and the eighth and last (1872). Before that last edition, Bain's own *Logic* had appeared, and Mill refers to it extensively. The importance of Bain's contribution was recognized by Mill in a comment of 1869 to Cliffe Leslie: "The physical illustrations in my *Logic* were all reviewed and many of them suggested by Bain, who has a very extensive and accurate knowledge of physical science. He has promised me to revise them thoroughly for the next edition [the 8th], and to put them sufficiently in harmony with the progress of science, which I am quite aware that they have fallen behind." The documentation of the interchanges between Bain and Mill is fullest on the question of the conservation of force, the account of which was much revised in later editions of the *Logic*; there are several long letters on the subject, and two papers in which Mill and Bain outlined their understanding of the matter.

A detailed study of the variants among the editions is necessary for full appreciation of the amount and effect of the introduction of various scientific examples in Mill's treatise; I must content myself with a few general observations. It is interesting, first, to note that Mill expressly chose examples from the "mathematical and physical sciences" rather than the "mental and social" ones because he believed the conclusions were less in dispute; he even resisted Bain on this matter, who wished that more examples should be taken from psychology (that is, for both Mill and Bain, associationist psychology).

Second, just under one hundred scientists and scientific writings are mentioned or quoted in the *Logic*, their scope being quite remarkable, even when one admits that some references are merely *en passant*, and that a not inconsiderable number occur in passages taken from Whewell, Herschel, and Paris, whose *Pharmacopia* provided many examples (probably as a result of Bain's assistance) in the proof stage of the first edition.

Third, some of the citations have special interest. For the non-specialist, there are, of course, a few delightful titles, such as Brown-Sequard's "On the Relations between Muscular Irritability, Cadaveric Rigidity, and Putrefaction," Wells' *An Essay on Dew and Several Appearances Connected with It*, and Graham's "Notice of the Singular Inflation of a Bladder." Some of the Bridgewater Treatises, devoted to a demonstration of God's providence in the natural world, are cited, and one can reasonably assume Mill's acquaintance with others in that remarkable series. Probably the most interesting for modern students is the introduction of Darwin's *Origin of Species* in the first edition of the *Logic* after the *Origin's* publication in 1859, where Mill gives a circumspect adherence to Darwin's theory as a hypothesis; that he is not more enthusiastic reflects not hesitation on religious grounds, of course, but, I believe, difficulty in erasing his and his times' unconscious assumption of Aristotelianism. (The difficulty is very like that faced by non-scientists like myself, brought up on Newtonian physics, in fully accepting--let alone comprehending--quantum theory.)

A fourth matter of interest is found in the discussion of probability, the most revised part of the *Logic*. Here Mill was expressly indebted to Augustus De Morgan and his son, George Campbell De Morgan, who wrote detailed criticisms. Much of the controversial matter in the *Logic*, it may be noted, has to do with the philosophic foundations of mathematics, and it is possible that Mill, although he most clearly is himself responsible for both argument and conclusions, discussed the problems with De Morgan and perhaps others. His scrupulosity in admitting debts lessens likelihood of derived ideas. In one area, it should be admitted, he is, if not less scrupulous, less candid; in later editions he revised extensively his account of debts to Comte, from whose practical views he had by then seriously departed, in large measure because of differences over the role of women and the scientific importance of phrenology. Though Mill was sceptical about the relation of brain weight to intelligence, he was pleased to find evidence that the heaviest brain ever weighed was that of a woman.

This account threatens to become simply a listing of matters that interest me, so I must mention two curiosities that should interest at least a few others. It has been much commented on that Dickens not only gave fictional disembodiment in *Bleak House* to the theory of spontaneous combustion of human beings, but actually believed that excessive drinking of alcohol caused it. It has not been noted that in the manuscript of the *Logic* Mill too gives credence to the phenomenon, but revised the passage to delete the statement before the work was printed. Commenting on the rapidity with which alcohol passes through the system, he remarks, in the first edition, that that fact, "combined with the high combustibility of alcohol, or in other words its ready combination with oxygen, may perhaps help to explain the bodily warmth immediately consequent on drinking spiritous liquors." An innocent enough statement, but in the manuscript he had said that the fact "helps to explain the spontaneous combustion of spirit-drinkers, and many other phenomena." Why he made the revision we do not know, but it at least suggests that common scientific belief among non-scientists included acceptance of alcoholics' spontaneous combustion, and that Dickens was not in a state

of isolated ignorance--though he was typically stubborn in refusing to reconsider.

The other curiosity has to do with dating the earth. In manuscript Mill had, perhaps without thought, referred to its age as being some 5000 years, reflecting the chronology based on the Biblical accounting of Bishop Ussher; this passage was revised so that reference was made vaguely to vast ages--a revision that led me to write on my notes "Man, remove that Ussher!" Again, one does not want to speculate on the reasons without evidence, but I should be surprised if Mill was not a *courant* of geological theories and controversies. One must remember that Mill unquestionably read regularly the quarterly reviews, in which science, not always of a markedly popular kind, often appeared. His own editing of the *London and Westminster* provides some examples of his interest and knowledge, one of which may be cited. To his sub-editor, John Robertson, he wrote in 1837: ". . . I differ from you about geology not being called for [in the *Review*]. I think the zoological speculations connected with geology are quite in season just now, and Nichol, I am sure, would do it with originality and well. . . . You may think him not a popular writer, but you will think quite differently when you read his *Architecture of the Heavens*." "Popular," of course, is a variable term.

In what I have been saying about scientific examples, I may have suggested that one can gain a sense of the *Logic's* scientific riches by looking at names and isolated passages; in fact the work, especially Book III, must be read intently to see how Mill incorporates in a comprehensive theory the most advanced scientific information available to him. It is his masterwork, and one of the great legacies of the nineteenth century, not least in giving us a window on the best science that was thought and read by humanists at the time. That echo of Matthew Arnold is not innocent--I'm implying that Arnold was as far behind Mill in scientific understanding as Mill was behind him in poetic art.

The successive editions of the *Logic* take us right through Mill's life and so, although there is little evidence elsewhere of a detailed concern with scientific matters, one can reasonably assert that he took an intelligent and informed interest. What evidence there is, as already mentioned, mostly shows him as a field botanist: he wrote accounts for the *Phytologist*, objected publicly to indiscriminate collecting of rare species and to the destruction of natural habitats, accumulated an impressive herbarium much of which went finally to Kew Gardens, and kept extensive notes, many of which are extant. He also, largely because of his own and his wife's ill-health, kept informed about medical science at the practical level; again there are notes indicating reading as well as consultation. And one final instance shows that he retained an interest and some ability in his first science, mathematics. In one of many letters to Augustus De Morgan he says, in 1865, when he was fifty-nine:

. . . I have forgotten almost all my mathematics; but my memory being more retentive of methods than of results, I have kept a sufficient hold of the former to be able to find my way back to the easier general theorems without book. . . . As one of these

mathematical exercises, it occurred to me to ask myself what is the curve of which the equation is $xy=a^2$? I soon came to the conclusion that it is a pair of opposite equilateral hyperbolas, referred to the asymptotes. This being the case: what is there to say about the other pair of hyperbolas, considered as referred to the same axes? The coordinates being in this case of opposite signs, the equation must be $xy=-a^2$, from which it follows that the parameter . . . of this last pair of hyperbolas, the constant mean proportional between the variable coordinates, has for its symbolic expression $a\sqrt{-1}$.

And (though the example is far from recondite to a mathematician) the letter continues in a way that makes me ask what he might have been doing if he hadn't forgotten almost all his mathematics.

Rather than go on with more remarkable instances of the mind of this remarkable man, I must move to a conclusion in keeping with my argument. Mill was largely self-educated in science, mathematics being his strongest area; his interest began very early, and was sustained, it would appear, throughout life, though the only study he persistently engaged in was botany. His principal effort was to apply his knowledge in elucidating scientific method, but the record is not simply that of a gorged file cabinet suddenly spewing forth its contents. Though there is controversy over his theory, no one pretends that it is not a worthy opponent for the best minds to wage dubious battle against. Even admitting that the Victorian day must have contained many more than twenty-four hours (or that their physiological clocks were calibrated against sidereal time in a different way from ours), when one sees how busy his life was, there is no surprise that he needed help in coming upon his data: his friends, such as J. P. Nichol, George Bentham, Augustus De Morgan, and pre-eminently Alexander Bain, made his way easier and better lit. There is no evidence that he took part in that favourite nineteenth-century pleasure, attendance at public lectures on science, and indeed I have referred to his confessed regret that he lacked opportunity to observe and engage in experiments. He had a very low--one might well say an appropriately low--view of the educational institutions of his day, though he thought they were improving after the middle of the century, and so he had little or no regret that he had not himself had a formal education. But he most assuredly thought that general education should include science, as I shall demonstrate in conclusion by quoting some observations from his *Inaugural Address* as Rector of St. Andrews University. He offers

a few words on the great controversy of the present day with regard to the higher education, the difference which most broadly divides educational reformers and conservatives; the vexed question between the ancient languages and the modern sciences and arts; whether general education should be classical--let me use a wider expression, and say literary--or scientific. . . . This question . . . seems to me, I confess, very like a dispute whether painters should cultivate drawing or colouring, or, to use a more homely illustration, whether a tailor should make coats or trousers. I can only reply by the question, why not both? Can anything deserve the name of a good education which does not include literature and science too? If

there were no more to be said than that scientific education teaches us to think, and literary education to express our thoughts, do we not require both? and is not any one a poor, maimed, lopsided fragment of humanity who is deficient in either?

How many of us will now limp off?

BOOK REVIEW

As a means of both providing fuller coverage of recently published works in the Victorian field and increasing the range of participation among members in the shaping of the *Newsletter*, the editor requests that readers send in notices or reviews of new books that they consider to be of importance in their own areas of special interest.

The Gentleman in Trollope: Individuality and Moral Conduct. By Shirley Robin Letwin. Cambridge, Mass.: Harvard University Press, 1982. ix + 303 pp.

In many ways this is a surprising book: surprising in the ways in which it refuses to be categorized, and surprising in the ways in which it is very good indeed. It is certainly one of the most interesting books to have been written about Trollope since the revival of interest in that author some fifteen years ago. Its publication marks the centenary of Trollope's death, an anniversary that seems to have passed without very much in the way of publicity or ceremony. Many readers of Trollope's novels will fail to see how Shirley Letwin has done much to redress the balance, for this is a peculiar book in the best sense of that word.

In her Preface, she tells us that her readers need not be familiar with the novels to which she refers. She says, "the characters discussed will be like the people whom they have come to know through anecdotes in conversation or reports in a newspaper." It would, I think, be unwise to take that statement too literally; such an approach has certain built-in disadvantages, not the least of which is to engender the belief that somehow Trollope's novels are about "real people" and that, as he himself indicated somewhat disingenuously in his *Autobiography*, once conceived, they directed the text and controlled the plot. Her view of Trollope and her approach to his texts demonstrate a great deal more sophistication on her part and imply a great deal more subtlety on his than is suggested by such an easy view of the novel of manners.

It is important to realize that Shirley Letwin does not assume the role either of the literary critic or of the social historian; her view, as she explains it, is broader in scope. She undertakes "to explain a neglected development in Western civilization and to clarify what connects and distinguishes moral ideas that have long been floating about haphazardly." The medium through which she proposes to do that is an analysis of the morality of a gentleman as found in Trollope's novels because, as she suggests, the morality of a gentleman "offers a more complete and coherent understanding of a human condition than any other

known to me." She chooses Trollope not, it appears, through great love; she says that she might have chosen another English novelist--Mrs. Gaskell or Jane Austen, but because of his range of character and circumstance and the fullness of detail with which that is studied. Letwin objects both to interpretations which suggest Trollope's ethical system supports a kind of moral relativism and to those which suggest that he subscribes to an abstract and rigid code of manners. To take a position between these two and not to be seen to be trimming is not easy, but Letwin, with some grace, provides a subtle and convincing argument which is neither false to Trollope's text nor to his talent.

In presenting that argument, Letwin shows a certain spirit of adventurousness. "The most perfect gentleman in Trollope's novels," she says, "is Madame Max Goesler." Madame Max is somewhat exotic, of humble, foreign birth, and of Jewish origin. There can be no question but that Trollope admires her beauty, her intelligence, and her integrity. For Letwin, she not only exemplifies the qualities shown by the authentic English gentleman but also serves as the epitome of the philosophical ideal which they represent. In order that we might understand this, the first quarter of her book is given over to matters of definition and analysis during which the novels of Trollope are scarcely referred to. The purpose of this preliminary material is to point out that the ideas that have formed the moral views of Western civilization have at their roots the belief that human life is shaped by the struggle between passion and reason, the flesh and the spirit, producing what she refers to as "the self-divided man." The morality of the self-divided man is founded on the suppression of the passions and on the belief in the moral primacy of reason, fixity, and order. Letwin argues that to read Trollope's novels as though they were written from the standpoint of the self-divided man is to make a very grave mistake indeed.

In a chapter with the somewhat misleading title, "Virtue without Struggle," Letwin argues that the morality of a gentleman is one in which the "dichotomies that plague the self-divided man disappear." The gentleman conquers change and disorder, not by trying to overcome it or repress it but by "developing a steady way of dealing with it"; such conduct, she says, constitutes his moral excellence and is called integrity. She claims that the virtues that produce this integrity are not the traditional ones, but are discrimination, diffidence, courage, and honesty, virtues that, not surprisingly, lead to steady conduct in the world and are to a very great extent divorced from their attachment to any higher spiritual reality. In her analysis of these virtues, Letwin states that the gentleman's "motives are more important than his intentions or actions." Here is where Madame Max Goesler's claim to gentlemanliness rests. Letwin is quite right; no reader can fail to admire Madame Max. In refusing to marry the old Duke of Omnium, and in her conduct toward all members of the Palliser family and toward Phineas Phinn, whom she eventually does marry, she displays an awareness of a complete and integrated self that removes any suspicions that her foreign birth and somewhat *outré* style may have created. She is able to do this, Letwin argues, because her conduct, rather than being fixed, was flexible and because that flexibility was guided by her respect for her own personality and the personality of others. It is acting with

fine discrimination in terms of that respect and that perception, rather than acting with the intention of conforming to a fixed moral code or in such a way as to produce a desired result that is indicative of the purity of her motives. Letwin extends this view in analysing the conduct of Plantagenet Palliser, Duke of Omnium, who Trollope said "is a perfect gentleman. If he be not, then I am unable to describe a gentleman." In his conduct, Letwin sees the same respect for the integrity of personality and responsibility for fostering it in himself and deferring to it when found in others, conduct motivating his actions in such major matters as accepting a marriage that was less than ideal and a wife whose conduct provided him with social and political difficulties, and in minor ones such as rudeness to an importunate guest whose request for political support violated that integrity. By these standards, the conduct of characters such as Mr. Scarborough, who lies about his marriage and deceives both his sons and his solicitor, and the Dean of Brotherton, a man of low birth who assaulted the Marquis of Brotherton for calling his daughter a name Trollope said that "we have not dared to print," are not only excused but approved.

In the final half of her book, Letwin inspects the motives of Trollope's characters as they act in the realm of Love: "the severest test of a gentleman," she says, "is his conduct in love." A gentleman does not impose "the cold discipline of reason on the frenzy of passion, but [teaches] himself to respond to a particular experience in a different preferable way." Similarly, she analyses gentlemanly conduct in the light of personal and public ambitions and in the light of religious feelings.

Letwin's closing chapter is entitled "The Danger of Being a Gentleman," after Harold Laski's 1932 book suggesting the incongruity of such a stance in a modern world. Here Letwin examines the dark side of Trollope, the side represented by his *Life of Cicero*, by *The Way We Live Now*, and by the defeat of Mr. Wharton at the hands of Ferdinand Lopez in *The Prime Minister*. She argues that Cicero's life is for Trollope a true tragedy, that a swindler like Melmotte is only able to deceive "sham gentlemen" and that Wharton's flaw was not that he was not a gentleman but that he had insufficient self-confidence in his beliefs--in the integrity of his own personality. The book ends with a kind of low-key plea for the preservation of the values that she sees in gentlemanliness. Letwin argues that there is no need for these values to disappear in a modern world, for "there is nothing in the nature of a gentleman that makes him dependent on circumstances."

There are some difficulties with Letwin's position, at least as it is derived from Trollope's novels. We are shown a world of motives with insufficient attention to results, and she is unable to account for the way in which Trollope adjusts his plots in order to ensure that the reader is left with the impression that virtue is power--that right makes might. In using Trollope's novels to develop a philosophical position, it is as well to admit that Trollope stacks his deck. Letwin argues that much is lost by refusing to acknowledge that a flexible course of conduct, incorporating what she sees as the gentlemanly virtues and guided by pure motives, is proof against the anxiety and social disorder resulting from moral codes founded on the assumption

that man is self-divided. We may not be able to agree with all our hearts, but we must agree that she has found her ally in Trollope and that she has written an intriguing and thoughtful book.

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