THOMAS HUXLEY

MAKING THE "MAN OF SCIENCE"

PAUL WHITE

CAMBRIDGE
UNIVERSITY PRESS

PUBLISHED BY THE PRESS SYNDICATE OF THE UNIVERSITY OF CAMBRIDGE
The Pitt Building, Trumpington Street, Cambridge, United Kingdom

CAMBRIDGE UNIVERSITY PRESS
The Edinburgh Building, Cambridge CB2 2RU, UK
40 West 20th Street, New York, NY 10011-4211, USA
477 Williamstown Road, Port Melbourne, VIC 3207, Australia
Ruiz de Alarcón 13, 28014 Madrid, Spain
Dock House, The Waterfront, Cape Town 8001, South Africa

http://www.cambridge.org

© Paul White 2003

This book is in copyright. Subject to statutory exception
and to the provisions of relevant collective licensing agreements,
no reproduction of any part may take place without
the written permission of Cambridge University Press.

First published 2003

Printed in the United Kingdom at the University Press, Cambridge

Typeface Palatino 10/12 pt.   *System* LaTeX 2_ε [TB]

A catalog record for this book is available from the British Library.

Library of Congress Cataloging in Publication Data

White, Paul, 1961–
Thomas Huxley : making the "man of science" / Paul White.
p. cm. – (Cambridge science biographies)
Includes bibliographical references and index.
ISBN 0-521-64019-9 – ISBN 0-521-64967-6 (pbk.)
1. Huxley, Thomas Henry, 1825–1895. 2. Evolution (Biology)–England–History–19th century. 3. Religion and science–England–History–19th century. 4. Literature and science–England–History–19th century. 5. Naturalists–England–Biography. I. Title. II. Series
QH31 .H9 W55 2003
570′.92–dc21
[B]   2002067654

ISBN 0 521 64019 9 hardback
ISBN 0 521 64967 6 paperback

Contents

Illustrations *page* xi
Acknowledgments xiii

Introduction 1

1. Science at Home 6
   Imperial and Sentimental 9
   A Woman's Writing 11
   Improvement by Domestication 19
   Pressing Points of Economy 22
   Conclusion: Fairylands of Science 28

2. Gentlemen of Science? Debates over Manners and Institutions 32
   The Survey Man 35
   The British Cuvier 38
   The "Genius" 45
   Instituting Biology 51

Why *Darwin's* Bulldog? 58
Conclusion: Rag-and-Bone Men 62

3. Science as Culture 67
Science Writing and the Periodical Press 69
Literature and Liberal Education 75
Friends and Enemies of Culture 81
Scientific Imagination 94
Conclusion: One Culture or Two? 97

4. The Worship of Science 100
Holy Man 103
A Broad Church 111
The Classroom 121
Conclusion: Metaphysical Society behind Closed Doors 130

5. "Darkest England": Science and Labor in the 1880s and 1890s 135
"A Copious Shuffler" 138
Land, Leadership, and Learning 141
Arming for War 148
The General's Scheme 155
"A Fair and Adequate Trial" 161
Conclusion: The Limits of Evolution 166

Conclusion: The End of the "Man of Science" 170

Bibliography 175
Index 199

Illustrations

Cover: Thomas Huxley, c. 1861.

1 Thomas Huxley in 1846 *page* 12

2 Henrietta Heathorn 13

3 Richard Owen at the Museum of Practical Geology, 1857 53

4 Huxley at the Natural History Museum, 1885 59

5 The British Association for the Advancement of Science, 1865 (*Punch* cartoon) 65

6 Matthew Arnold, 1872 84

7 Huxley on the London School Board, 1871 123

8 Our National Church, c. 1882 132

9 The Salvation Army scheme, 1890 158

1

Science at Home

> I have nearly traversed half the globe and have found only error and discord till I came to your cottage, where truth and happiness reside.
>
> – Bernardin de St. Pierre, *The Indian Cottage*[1]

In 1846, Thomas Huxley received an appointment on HMS *Rattlesnake*, a survey vessel bound for the South Seas. In his shipboard diary, the twenty-one-year-old called himself a "man of science," but the designation was highly tenuous. His official title was assistant surgeon, a low-ranking officer in Her Majesty's Navy. With only two years of formal schooling, Huxley had been apprenticed to general medical practitioners in Coventry and London's East End. With the help of a scholarship, he had taken courses at Charing Cross Hospital and had read comparative anatomy and physiology in the library of the Royal College of Surgeons. Having completed the first examination for the degree of Bachelor of Medicine at University College, but lacking the financial means to continue his education, he entered the navy in 1845. A position on a survey voyage afforded a young man an excellent opportunity for furthering a career in science; however, Huxley was not the official naturalist on the *Rattlesnake*. This title fell to the ornithologist John MacGillivray, whose father was a professor of natural history at Aberdeen. Such dredging and dissection as Huxley desired to perform would have to be supplementary to his medical duties. His scientific findings were not guaranteed a place within the official report of the voyage.

[1] Bernardin de St. Pierre 1828: 288.

Huxley's status as a "man of science" thus was uncertain. But both the cultural identity and social role of scientific practitioners were themselves undergoing pronounced transformation at this time. A restructuring within learned societies and educational institutions, and the emergence of an ideology in which gentlemanly character could be acquired, alongside one in which it was innate, had together opened possibilities for young men like Huxley, the youngest son of a failed schoolmaster. Paid positions, however, were still scarce, and precisely what sort of community these men were entering remained unclear.[2] To obtain his naval post and subsequent appointment aboard the *Rattlesnake*, Huxley had to move in circles where patronage operated in tandem with meritocracy, yet where the criteria of merit were not firmly established. Like other aspiring scientific practitioners whom he would later befriend – William Carpenter, John Tyndall, Edward Forbes – Huxley presented himself as hard working, self-reliant, and averse to the entrenched privileges of aristocracy. But like them also, he positioned himself within a high-culture tradition whose bearers possessed inherent and lofty powers that raised them above other commercial and professional men.

In fashioning himself as a man of science, Huxley drew in part on models of genius he had gleaned from romantic literature.[3] He copied long citations from Carlyle's essay "Characteristics" into his diary while still a medical apprentice in 1842, passages that conveyed this romantic persona in some detail. According to Carlyle, genius dwelled in solitary minds whose sparks of thought, once kindled, could inspire action in the multitude. Genius was a heroic intellectual force, which swept the individual along as it carried the age, and yet remained mysterious even to its visionary self.[4] Conceived by eighteenth-century writers as an inborn and effortless capacity, genius lingered on in the Victorian period to describe a variety of self-made man fraught with contradictions: the genius-at-work whose peculiar labor was original rather than mechanical, moral rather than base.[5] Genius was innate, like nobility, yet it often resided in those of humble birth. It consisted partly of

[2] On scientific vocations in the first half of the nineteenth century, see Kargon 1977, Berman 1978, Cannon 1978, Morrell and Thackray 1981, and Inkster and Morrell eds. 1983. On the mid- and late-Victorian period, see Heyck 1982, J. Secord 1985 and 1986b, Schaffer 1988, and Gay 1997. The shifting meanings of "character" in the Victorian period are discussed in Collini 1991.

[3] On romantic models of genius, see Schaffer 1990. Other historical discussions of genius include Battersby 1989, Murray ed. 1989, and Shapin 1990.

[4] Carlyle 1831, quoted in T. H. Huxley Papers, Imperial College of Science, Technology, and Medicine Archives, London (hereafter HP): 31.169, "Thoughts and Doings", journal entry for April 1842.

[5] For eighteenth-century accounts of genius, see, for example, Gerard 1774.

characteristics such as intuition, mental suppleness, and refined discrimination that the Victorians increasingly identified with feminine nature. Yet they also held genius to be firm in its grasp and disciplined – allegedly masculine qualities of mind.[6]

Huxley's character as a man of science thus slipped between Victorian conventions of class and gender. In the early stages of his career, he utilized models of genius in conjuction with Victorian ideals of domesticity. He presented himself as someone injured by the strife and self-interest that governed public life and whose manhood depended on securing a place of work that was removed – like the Victorian sanctuary of "home" – from the sordid intrigue of politics and the grinding routine of professional pursuits.[7] By identifying scientific work with the pure and often feminized domestic sphere, he claimed moral distance from the allegedly corrupt character of other forms of masculine, remunerative work. Huxley's "man of science" was, fundamentally, a gender identity, which entailed particular constructions of the home and of women.[8]

Despite the solitary nature of genius, and Huxley's own tendency to brood while aboard the *Rattlesnake*, his scientific identity was formed not in isolation, but through a process that involved the active contributions of women.[9] Huxley met Henrietta Heathorn, the woman who would eventually be his wife, while he was on shore leave in Sydney in 1847. After four or five meetings over a period of six months, they became engaged. Because of Huxley's difficulties in establishing himself as a man of science after his return to England, the couple could not marry until 1855, an extremely long engagement even by Victorian standards. Over this eight-year period, in which Heathorn resided in Australia and Huxley on board a surveying vessel and then in London, they exchanged several hundred letters and kept journals for each other to read during the long intervals of separation. Their correspondence was perhaps the most important medium through which his identity as a man of science and hers as a wife were shaped. Their protracted separation and arduous social climb forced to the surface many of the assumptions about and contradictions concerning gender during the Victorian period.

[6] The gendering of manners and mental characteristics in the eighteenth and early nineteenth centuries is examined in Outram 1989, Schiebinger 1989, Vincent-Buffault 1991, and Barker-Benfield 1992.

[7] On the Victorian ideology of "separate spheres" of work and home, see, for example, Houghton 1957 and Davidoff and Hall 1987. See also, however, Vickery 1993 and Wahrman 1993, for critical accounts of historians who have taken this ideology as descriptive, rather than prescriptive, of gender relations in the period.

[8] On Victorian masculinity, see especially Hilton 1989, Clarke 1991, and Tosh 1991.

[9] Works on gender and the sciences important in framing this account include Outram 1987, Jordanova 1989a and 1993, Daston 1992, and Goldstein 1994.

Imperial and Sentimental

Identity troubles appear early in Huxley's journals and correspondence written aboard the *Rattlesnake*. As surgeon-naturalist on a survey expedition venturing into uncharted waters and visiting unseen isles, Huxley could explore the dark interiors of little-known forms of marine life and make their contents his own.[10] Even before the ship's captain, Owen Stanley, began sounding the Torres Straits and naming islands and mountain peaks for himself, Huxley was working to affix his own name to the field of marine invertebrates, reclassifying Cuvier's Radiata and installing a new order of his own designation.[11] At sea, he had hoped to find an intimate, loyal community of scientifically minded fellows, an auspicious blend of culture and empire in which commerce and militarism were civil.[12] Just a few months after departing England, however, he described how his shipmates made fun of his books and threw his laborious dissections overboard as waste, while the captain remained aloof, apparently disrespectful of learning. Withdrawing from this rough fraternity, Huxley pined for the "social ease" and "friendly influences of a home circle." Above all, he longed for the fellowship of his sister Lizzie, her cultivated mind and taste, her "tenderest heart," and her "more than man's firmness and courage."[13] With both this sister, now emigrated to the United States, and Edward Forbes, a well-placed London naturalist who would become his chief patron, he located the trust and sympathy he missed on board the *Rattlesnake*. With them, he began to share his community of flora and fauna and his arduous search for zoological symmetries.[14]

When he was not dredging and dissecting, or reconstituting a domestic sphere through correspondence, Huxley had the company of novels. Many of these were of the sentimental genre and explicitly linked the occupations he plied in isolation on shipboard: the study of nature and the pursuit of hearth and home. Among the books that his coarse companions mocked were romantic tales about cultured men of feeling whose mission was to domesticate the world with truth. In Goethe's *Werther* and Carlyle's lives of Heine and Jean Paul, men of genius performed

[10] On the extensive utilization of imperial motifs by British naturalists during the period, see J. Secord 1982, Browne 1992, and Drayton 2000.

[11] Huxley's early research program, which was guided by a classification scheme known in contemporary zoological circles as Quinarianism, and his relationship with the chief author of that scheme, William Macleay, are carefully examined in Winsor 1976: 81–97.

[12] See especially his letter to his sister Lizzie, 6 October 1846, in L. Huxley ed. 1900, 1: 26–7.

[13] Diary entries for 10 January and 25 December 1847, in J. Huxley ed. 1936: 15, 71.

[14] On patronage relations as forms of domesticity, see especially Outram 1987.

through learning what women could achieve through feeling: the refinement of rough and rude nature and the softening of harsh men whose public lives were devoted to struggle.[15]

In a letter to his mother from Mauritius, the setting of Bernardin de St. Pierre's Rousseauist fable *Paul et Virginie*, Huxley expressed both attraction and antipathy toward the ideals of sentimental fiction. "In truth," he wrote, "it is a complete paradise, and if I had nothing better to do, I should pick up some pretty French Eve (and there are plenty) and turn Adam." Instead, he visited the tombs of two storybook lovers, whose tale he believed to be "a fiction founded on fact": "Paul and Virginia were at one time flesh and blood, and . . . their veritable dust was buried at Pamplemousses in a spot . . . visited as classic ground." The resting place was a garden wilderness; the lovers' ashes lay in two funeral urns, each raised on a pedestal. Huxley made a sketch of the scene and, returning with a pair of roses to scent his desk, was prompted to remark, "I never was greatly given to the tender and sentimental, and have not had any tendencies that way greatly increased by the elegancies and courtesies of a midshipman's berth."[16]

Though Huxley was more at home with nature and novels than with other agents of empire at sea, he could not be a sentimental culture hero without a host of guilty associations. His berth filled with books, testimonies of domestic affection, and exhibitions (fragrant and foul) of natural beauty, he had to insist to his mother and to himself that his sentimentalism had been extinguished by intercourse with a world ruled by self-seeking and discord.[17] Epitomizing the middle-class Victorian morality Huxley was espousing, Samuel Smiles would characterize the home as a place of enlightenment and civility, "suitable for the growth of the manliest natures," while criticizing writers like Rousseau and Bernardin de St. Pierre as effete.[18] By mid-century in England, the pure and regenerative ethos of the home had been reconstructed by several generations of writers with the expressed object of bounding women's domain. Men's work too was refashioned as a wilderness of strenuous trial, the necessary complement to and practical support for domestic bliss. Within this secular theology of separate spheres, the activities of cultured men might be denigrated as ornamental, leisurely, or effeminate precisely because these men performed the social role consigned

[15] Diary entry for 24 December 1847, in J. Huxley ed. 1936: 70.

[16] L. Huxley ed. 1900, 1: 34. See also J. Huxley ed. 1936: 28–30. For a discussion of *Paul and Virginia* in relation to enduring associations of women with nature and men with culture, see Jordanova 1989a: 33–34.

[17] On shifting attitudes toward sentiments and sentimentality, see Outram 1989, Vincent-Buffault 1991, and Barker-Benfield 1992.

[18] Smiles 1871: 44–57.

to the home rather than engage in the muscular exploits of commercial and military men who profited by toil and stoic endurance.[19] Because of their own dependence on industry and the military for professional opportunities, men of science could not easily abjure these models. To gain a livelihood and position of moral authority as a man of science, Huxley would have to move between the spheres of work and home and between the host of gender opposites they implied. Dwelling as he did with novels, immersed in microscopic order and beauty, and seeking the learned community of his sister and Forbes, Huxley tried while on ship to construct a place of work that could be simultaneously a place of domesticity, albeit one constantly under siege by rude forces from without.

Though risky, such mingling of cultural tropes and activities widely considered to be distinct was precisely what would confer eminence upon men of science; for it was how other figures of high culture and moral gravity – men of letters, clergymen, captains of industry, even monarchs – were represented in a period when the home and the women within it were the bastions of everything pure. Much has been written about debates between these groups – almost exclusively groups of men – for cultural authority.[20] But the meaning of cultural practices like science, literature, and religion was of course not settled by men alone, nor were the women who participated in these settlements only those who had gained a public voice. Much negotiation over scientific identity took place between men and women in intimate conversations and correspondence. While Huxley was brooding over the significance of his science at sea, women were his chief respondents. Shortly after the *Rattlesnake* reached Australia in 1847, he met the woman he would eventually marry; she would replace his sister and mother as his principal confidante.

A Woman's Writing

While Huxley was sailing around the South Seas sketching the natural world, trying to make a name for himself as a man of science, Henrietta Heathorn lived in the home of her brother-in-law and half-sister outside Sydney, where she managed their household and helped raise their two children. She had lived in Australia since her middle teens, having emigrated from England by way of Germany, where she studied literature for several years. The details are sketchy, but it is clear that her father,

[19] The status of middle-class values of work and utility among early Victorian gentlemen of science are examined in Alborn 1996. On the masculine cult of industry more generally, see Collini 1989 and N. Clarke 1991.

[20] See especially Turner 1993.

Plate 1. Thomas Huxley in 1846 (from L. Huxley ed. 1900).

who owned a brewing business, was often insolvent. Most likely, it was to ease her father's financial burden that Heathorn, at the age of sixteen or seventeen, went to live with her half-sister. Her brother-in-law, William Fanning, was a successful merchant, and Heathorn assumed considerable responsibility in running the Fanning home. She also accompanied the Fannings to parties and balls where she mingled with the upper ranks of Sydney society. At one of these, she met Huxley and shortly thereafter, at twenty years of age, became engaged to him.

A portrait of Heathorn as a devoted wife and as hostess to the great has been consistently drawn by Huxley biographers and follows readily from her surviving documents, almost all of which were written for Huxley's eyes. In a fragment composed near the end of her life, she described first meeting "the young officer" at a dance, the interest they found in their talk, and his calling on her later, astride a swift horse, whereupon he paralyzed her with a fixed gaze and offered to remove all hindrances from her path in life.[21] The poetry she wrote during their

[21] HP: 62.37.

Plate 2. Henrietta Heathorn (Courtesy of Virginia H. Huxley).

engagement and the letters and journal entries from the period recreate such chivalric bliss again and again: "I always knew some day the Prince would come for me. He blew the horn and stormed the gates and slew the giants in his way."[22] Like Huxley's airy zoological theories, however, these fairy stories were not conceived in complacency, but were often constructed as places of order and beauty where there seemed to be none. Expecting to marry after Huxley's return to London and promotion to full surgeon, Heathorn found her engagement prolonged for four additional years while her would-be husband shunned his medical duties to pursue a scientific career. Her own ideals of home and womanhood were repeatedly called into question by the aspirations of her fiancé toward forms of manhood and work that were in many respects opposed to prevailing models of masculinity and professionalism. Their physical separation, together with the considerable distance between their ideals, created serious conflicts. For Heathorn, writing was a process through which these conflicts could be reenacted

[22] H. Huxley 1913: 14.

and resolved on her own terms. It was perhaps her best means of overcoming the discrepancy between their goals: "I have promised to keep a journal and this promise made to one inexpressibly dear shall be faithfully kept – a journal not only of daily occurrences but thoughts which bad or good shall be registered, even tho' intended for his perusal, for should he not see me as I am? I will hide nothing from him."[23] Far from being simple depictions of their relationship or of her own life and feelings, Heathorn's reverential and self-deprecating writings to Huxley could serve her as a means of negotiating their differences and of circumscribing spheres of gender and public and private space of her own.

In the journal that Heathorn began the day Huxley departed for his last survey expedition in 1848, she frequently described for him the everyday activities that gave her greatest satisfaction. As manager of her brother-in-law's household, she made the bulk of the purchases for the home and commanded its servant staff, which included a cook, butler, maid, nurse, and gardener. Her activities were typical of those portrayed by historians of women as essential to the Victorian economy – activities that Victorian women themselves, despite much middle-class moralizing to the contrary, regarded as "work."[24] Heathorn defended this position at the very outset of her relationship with Huxley. Not only did she frequently refer to her household responsibilities as labour, she did so against "gentlemen's assertions" that women were creatures of leisure who lived to shop and against Huxley's own urging that she spend more time "improving" herself: "The day passed as Mondays generally do, very busy all the morning in household matters and all the afternoon at work . . . It is absurd of Hal to bid me read and practise regularly – what with making my own things in the house I have full employment."[25] An aspiring poet and devotee of German literature, Heathorn too had visions of the house as a home for polite culture. But she had a very different notion from Huxley of culture's place in the home and of its role within her own economy of improvement.

Heathorn's domestic activity held much of its significance for her as a form of religious devotion. Representations of the home as sanctuary and heaven, and of the wife as innocent angel and nurturing madonna, were among the most important evangelical contributions to

[23] Diary entry for May 1849, in J. Huxley ed. 1936: 211. On the importance of private acts of writing for Victorian gentlewomen, see especially Peterson 1989.

[24] On the central role of women in the Victorian middle-class economy, see Davidoff and Hall 1987. For an account of the strenuous occupation of household management in Britain, see Branca 1974.

[25] Diary entries for 26 May and 28 June 1849, in J. Huxley ed. 1936: 214, 218.

separate-spheres mythology.[26] Feminist writers have shown convincingly how these symbols reflected the social and political anxieties of ruling classes of men. Endowing women with religiosity because their yielding nature made them superior spiritual vessels was continuous with other constructions of passive, frail femininity.[27] But many women found in religious beliefs a moral meaning for their work in the home, as well as a moral foundation for their authority over others in it. If, as social historians have argued, religious institutions were places where Victorian women could exercise power and a range of expression that were not available to them in other spheres of public life, certainly one of the most important religious institutions was the household. Heathorn's own religious life, while including regular attendance at church, radiated from the place where she led the family in hymns at the piano, prayed for strength for her daily tasks, and cared for her half-sister's children with what she described as "holy love." Like her practical role of household manager, this devotional role received frequent articulation.

The discussion of religious matters between Heathorn and Huxley was in some ways typical of that between men of science and their often more orthodox wives or fiancées. Like Emma Wedgwood in her correspondence with Charles Darwin before their marriage, Heathorn gathered evidence for scriptural accounts of creation to parry her fiancé's skepticism and pointed out the uncertain foundations of all knowledge, including that of science.[28] More often, however, she proudly displayed the importance of Christian virtues for her command of the household. In a long passage from her journal she told how, returning home one evening to find the staff all "tipsy," the horse escaped, the kitchen on fire, and the nurse hurling abuse, she astonished a friend by her forceful manner of reproving the servants. In a measured tone, she quelled the inferno, restored order to chaos, and admonished the insolent creatures for intemperance: "I sent for the gardener to sleep in the house and shut up immediately that I might get them off to bed and after very quiet and firm measures restored the house to peace . . . they being penitent . . . I forgave them after very serious lectures."[29]

If the moral authority conferred upon middle-class women by religion was exercised most frequently over servants, it also legitimated

[26] On the centrality of religion in the home of the evangelical middle class and its practical effects for women, see Prochaska 1980, A. Owen 1987, and F. M. L. Thompson 1988: 250–3.

[27] For numerous examples, see Shuttleworth 1990.

[28] Burkhardt and Smith eds. 1985–2001, 2: 122–3, 126, 169.

[29] Diary entry for 23 October 1849, in J. Huxley ed. 1936: 276–8.

reproofs of men of the house whose conduct did not measure up to the standards of such women. It is uncertain if Heathorn expected Huxley to conform to a prevailing model of pious Victorian manhood – a husband and father who led the family in prayer, Bible reading, or religious instruction by the fireside and who took his place as head of the household in the parish church. But the religious doubts that he shared with her clearly rendered him a hindrance to her in her spiritual pursuits: "I fondly hoped," she wrote in her journal, "he would have been the guide and instructor unto more perfect ways – but here my hopes have borne bitter fruit. Something has come over me of late; I cannot pray as fervently as I did."[30] Such a confession may, however, testify less to Heathorn's dependence on Huxley for religious provision than to her own doubts about one who would make suspect the sacred center of her home. In extending her domestic and religious role through writing, she could intervene in matters where she felt Huxley was wanting or where she felt she had been wronged:

> The afternoon brought you, my own dear one . . . but you were in such a strange mood that I felt you did not make me glad. You were capricious; if I talked you would have me silent and if I laughed it grated on your ear and only at length, when I looked as sad as I felt and suggested I would try crying, did you utter any kind words or fold me lovingly to you . . . Before dinner time your fitfulness had returned and a little nasty spirit possessed me to tease you – till you warmly told me I had better not. I then of course felt more wishful than ever to do so and returned again and again . . . half in sport and half in earnest – till I went up to dress for dinner and told Alice part of my imaginary grievance. She had guessed something from your altered manner . . . [and] remarked you were dull and not joyous as usual. I reasoned myself into no very amiable mood much to Alice's amusement and so went down to dinner with a white dress but a naughty dark heart, punishing myself for your supposed harshness instead of you . . . Alice to whom I told all would not have me wretched all the evening and whispered [to] you I was unhappy – and then dearest you talked and kissed away all my evil fancies . . . How happily the rest of the evening passed, peace stole into my heart and abode there and when he had gone and I laid my head on my pillow I resolved that I would never more torment myself and him again. Love will tarnish if 'tis always petted.[31]

In the published version of Heathorn's journal, edited by her grandson Julian Huxley, it is suggested that this passage be read as evidence of her emotional volubility: under the strain of her ardent love for Huxley and his imminent departure, she retreats to a woman's world of taunting

[30] J. Huxley ed. 1936: 228–9.
[31] J. Huxley ed. 1936: 240–2.

and tears, where facts are indistinguishable from flights of fancy. But Heathorn's story was of course a retrospective one written for a man whom she considered capricious. Her tears, teasing, and woman friend were resources in what she staged as a contest of wills. In the tale, her friend's intervention resolved the conflict. But the process of writing itself produced a deeper resolution. In this scene and many others, it was always she who succumbed, she who could not make her needs understood. But with the closing moral and a change of person – here from "you" to "he" when referring to Huxley – she moved into a highly fictional voice and wrote a happy ending to the distressing evening. By such narrative shifts, Heathorn located Huxley in her literary framework. Thus writing enabled Heathorn to shape the meaning of her fiancé's actions and, in so doing, to make the ethics and politics of their relationship explicit, both to herself and to him. Through journal writing, she developed the strategies she needed to cope with, and to act upon, their differences.

Such lively portraits of the young couple during their last few months together in Australia were drawn by Heathorn over and over again. In one incident, Huxley demanded that she give up her only photograph of him, which she had treasured for three years and had slept with under her pillow. He first promised to return it but then said that she could never have it back and that she was not even to ask for it.

> I felt he was asking almost more than I could perform . . . surely he had done it on purpose to vex me – he was tyrannizing – he knew I could refuse him nothing and he asked so much – slowly and with difficulty I quelled the agony that filled my heart and promised not to ask again . . . For a moment I felt he was unkind to try me – only for a moment – for I remembered how few ways I had to shew my love for him. I had yielded my will to his, even more a secondary affection; and I was, if not happy, at peace, for he would see that I would rather pluck the dearest object from my heart than offend him.[32]

In this passage, Heathorn mobilized the virtue that was typically demanded of men in public but was expected of women in private: sacrifice. By employing a traditional role, that of the self-effacing woman, Heathorn could transform the compromising of her will into an exercise of will. If Huxley, who later returned the photograph in a locket that she could wear around her neck, could not convey his love for her without displaying his power over her, Heathorn made his dominion an expression of her own self-command. In such narrated encounters, Heathorn described a relationship in which Huxley's

[32] Diary entry for 18 March 1850, in J. Huxley ed. 1936: 239.

affection was conveyed through assertion and hers through yielding, a relationship in which his gifts required that she give up something but hers were not received on her terms. She constructed her place in a world in which women had only very restricted means of expressing their worth, although the men they loved offered them fresh occasions for abnegation. Through her writing, she was making this virtue clear to a man who gave no indication that the terms of their relationship were troubling, who showed no signs of knowing the intricate ways in which her happiness depended on the movement of her will, and who, after denying her other ways of manifesting her devotion to him, might have failed to recognize even this – her self-denial. If an air of mystery and caprice, if self-command and a command of others, were the characteristics of genius, perhaps there was also something in Huxley's manner of the coarse masculinity that had troubled him about his shipmates and their abuse of military power.

> You draw out my thoughts and feelings – and appropriate them most tyrannically – and yet 'tis perhaps one of the things that has bound me with stronger love to you. You are a tyrant still conquering by strength where influence fails, indeed you have tonight acted very meanly . . . and I have half – only half a mind, remember – to give you up as Will was constantly advising.[33]

While private accounts of emotion, unlike published or fictional accounts, are often read as literal, in this case it appears that Heathorn constructed her most intimate feelings and relations with Huxley as a literary text and that she actively employed the cultural resources available to her to model her life as one of sacrifice. In several instances, she reinterpreted the same literary material that Huxley had used on board ship to reconcile his life as a sentimental genius with that of a conquering hero. She read Carlyle's essay on Heine, which Huxley had used to console himself in his scholarly discontent, as a narrative of self-conquest through the subordination of one's own feelings to a greater existence and activity. Choosing this route to personal happiness and fulfillment – a route frequently taken by Victorian women who entered the public sphere – enabled her to manage the difficulties of her household duties through moral example.

> I rose a better creature, more cheerful and happy. He [Heine] struggled thro' deepest poverty and pain. Mind conquered the infirmities of the body and the evils of life . . . And shall not I whose troubles are but faint and miniature shadows of his, strive against and subdue them? Henceforth I will . . . All sorrow is selfish. I will become better and God help me in my intentions that they be deeds not words.[34]

[33] Diary entry for 26 March 1850, in J. Huxley ed. 1936: 242.
[34] Diary entry for 27 November 1849, J. Huxley ed. 1936: 286.

In prescribing for herself sacrifice before a man of learning, Heathorn performed her own elaborate cultural fabrication. Conventions of domestic sanctity and authority did not compel her, as they did some Victorian women, to make an insurgent entry into the public world of letters and politics. But they did enable her to assume the integrity of her household work, to transform literary texts and the power relations implicit in them through private acts of reading, and to compose subversive narratives to be read by her own (fallen) culture hero-cum-saint.

Improvement by Domestication

If Huxley, despite his learning, vocation, and invention, was still an unrefined and imperfect man, perhaps Heathorn could complete him. But according to whose model of manhood? In one of his first letters to his fiancée after their engagement, Huxley wrote that her confiding, tender love had awakened him to a nobler life and a purer course of action:

> Man is and must be influenced by the woman he loves . . . She is that living ideal of goodness before his eyes . . . when one is sick of the world, of its petty intrigues, its lesser and greater selfishness and dirt eating, when one is disposed to think that earnestness and truth and firm kind goodness have utterly disappeared from the earth, how great a blessing it is to feel assured that there is yet one in whom all these qualities live and so verily form a part of everyday life – out of the storybooks . . . man is as clay in the hands of the father – woman.[35]

Here Huxley described his entry into a symbolic order of Victorian work and home – the former a place of trial and atonement undergone individually and without regard for the feelings of others, the latter a place of salvation ruled by sympathy and affection. This Victorian home and its values functioned to complement, facilitate, and redeem his (still imagined) public life. Engagement with Heathorn enabled him to mobilize the virtues of this domestic sphere to anchor his ambitious self. From her loving base he could enter a world of intrigue, pursue a livelihood, and yet maintain a sense that he was working for something pure. While Heathorn was martyring herself on his behalf, he was setting his own conditions through writing to her, requiring that she fulfill various supportive roles if he was to succeed as a man of science. At times, the process was reciprocal:

[35] Letters of 6 and 15 February 1848, T. H. Huxley–Henrietta Heathorn Correspondence, Imperial College of Science, Technology, and Medicine Archives, London (hereafter HH): 7–8.

> The thought that it is my duty to discipline myself for her sake . . . nerves my better feelings – and often her image is my good genius, banishing evil from my thoughts and actions . . . you have purified and sweetened the very springs of my being which were before but waters of Marah, dark and bitter were they. And strangely enough, too, not merely is your influence powerful over my heart, but my intellect is stronger, my thoughts more rapid, my energy less exhaustible, I never could acquire more rapidly or reason more clearly.[36]

In this instance, Huxley's image of Heathorn as a moral example corresponded with her own vision of herself as the spiritual center of the household. There was an asymmetry to the lovers' accounts, however; for while Huxley's pledge to work for Heathorn opened a space for her to act, her power, unlike his, was never "tyrannical." Nor was the genius that he claimed to draw from her one that she would ever be able to manifest as her own. Huxley could place himself in awe of feminine power when that power braced his own masculinity, when it enhanced his own ability to work. Through odes to Heathorn's influence he tried to order his affections in such a way that love was a consolation amid struggles in the world, a source of satisfaction for desires that, unsated, would fester and detract from his labor.

In resorting to such gender conventions, Huxley addressed the ambiguities of his own identity as a "man of science." The qualities of genius that elevated him above other men – its volatility and excess, its intuition, its power of passion superior to will – were also qualities associated with feminine weakness. Accompanying his manly posturing were journal entries and letters to Heathorn describing his "restlessness" and "instability of temper." His thoughts were like his "strides up and down this quaking deck." His intellect was "acute and quick rather than grasping and deep."[37] He was less the man who fought vigorously in the world, than the one who longed for the tender comforts of home: "I have a woman's element in me," he wrote his sister. "I hate the incessant struggle and toil to cut one another's throat among us men, and I long to be able to meet with some one in whom I can place implicit confidence, whose judgment I can respect, and yet who will not laugh at my most foolish weaknesses, and in whose love I can forget all care."[38] Though his own identity as a man of science would rest on a conflation of separate spheres, and of masculine and feminine agencies, this was not an identity that he could as yet sustain. Still a ship's surgeon at sea, he could not rely on the established boundaries of home and

[36] Diary entry for 25 November 1847, in J. Huxley ed. 1936: 65–6.

[37] Letter of 17–18 January 1847, HH: 2–3, letter of 23 and 27 July 1848, HH: 36.

[38] Letter of 21 November 1850, in L. Huxley ed. 1900: 1: 61–2.

workplace should his genius appear effeminate. When he was unable to manage powers operating on him that were womanly, he had to evoke Heathorn's "strong natural intelligence" and her "firmness of a man" to explain her influence.[39]

This courtship dynamic was reenacted elsewhere. The cultural resources that enabled Huxley to exoticize Heathorn were increasingly brought to bear in his representations of the native peoples and terrain encountered by the *Rattlesnake*. While on the coast of New Guinea during the second year of his engagement, he sketched a landscape "lovely in the extreme" and fertile in natural resources unused by its idle inhabitants. The natives were "very civil" in character if not in accomplishment, "diminutive," "perfectly modest," and of "primitive simplicity and kind-heartedness."[40] By thus manufacturing objects of discovery to complement his conquering self, Huxley could graft his budding scientific identity onto the more proven manly stock of his shipmates. Adopting a discourse in which colonial others – their land, bodies, and culture – were made innocent, feminine, and ripe for tutelage, a ship's surgeon could establish an enlightened paternity of science over the domains of imagination, feeling, and tradition unschooled by reason.[41] By the time of his last survey expedition in 1849, he had outfitted himself (still privately) as a noble imperialist:

> There lies before us a vast continent – shut out from intercourse with the civilized world . . . and rich . . . in things rare and strange. The wild and noble rivers open wide their mouths inviting us to enter. All that is required is coolness, judgment, perseverance, to reap a rich harvest of knowledge and perhaps of more material profit . . . a little risk is also needful.[42]

But Huxley's role in the manly mission of empire was still more intricate than his. In journal entries he described the ship's economy as bound by routine, its men devoted only to pay, petty intrigues, and "the dreary business of charting." He privately reproached the crew members for cheating the natives in economic exchanges, and he rebuked his fellow officers for senseless violence. Most often, his conscience-raising took the form of mocking their gallantry. How intrepid was the

[39] L. Huxley ed. 1900, 1: 62.

[40] Diary entries for 19, 20, and 26 August 1849, in J. Huxley ed. 1936: 218–28.

[41] On European expeditions to the South Pacific, see Smith 1985. On conquest narratives, see especially Pratt 1992: 142–55. On medieval models of the virtuous conqueror and rescuer of women, see Girouard 1981. The role of gender, and of women's writing in particular, in the construction of colonial discourses are discussed in Blunt 1994 and S. Mills 1994.

[42] Diary entry for 31 August 1849, in J. Huxley ed. 1936: 166.

"brave Captain," "the little man" who would have all the natives bound on the beach to satisfy him of the security of "his little body" or who could be scared off by "old women, if at all shrewishly inclined"?[43] In thus exercising his critical capacity, Huxley could prescribe the virtues of the proper (English)man. By renouncing violence, he could be more manly than men of war who took the lives of others while failing to risk their own. But this was a peculiar form of manliness, one that abjured force, that had sympathy for intimate communities of the weak and for the simplicity, honesty, and peacefulness that made them so – a manliness that preferred studying natives to putting them to work. The conqueror of a feminine landscape, Huxley was also the critic of empire. By extending the virtues of domesticity beyond the household, his "man of science" could refine the savage manners of imperialists as well as those of primitives and could make the colonies a happy home.[44]

As an assistant surgeon, however, Huxley was not the ship's moral conscience-in-residence. If he had been the official naturalist, he could have written an authorized account of the voyage, and his disparaging remarks could have found a public place.[45] Made privately, his judgments served, instead, to defend his ambivalent manhood to himself, and to Heathorn. By offering to redeem the world, namely its men, from the crass worship of power and mammon, he was trying to command a role that was in important ways continuous with hers. But Heathorn's view of her home as an economy supported by worldly work was also a challenge to his view of his work as a home apart from the world. Her domestic role drew attention to the material foundations of his science. How could he ask her to leave her home for his when he had none of any substance to offer?

Pressing Points of Economy

After Huxley's last stay in Sydney in 1850, the couple did not see each other for four years. In London, Huxley's difficulties in finding a place for his science in the world of professions were more concrete than they

[43] Diary entries for 12 August, 5 September, and 12 December 1849, in J. Huxley ed. 1936: 212–13, 234–45, 260.

[44] On a closely related form of manliness being preached at the time by liberal Anglicans such as Thomas Arnold, Frederick Maurice, and Charles Kingsley, see Vance 1985, Hilton 1989, and Wee 1994. On the important role of domesticity in British colonial discourse, see Poovey 1988: ch. 6 and Pratt 1992: 155–71.

[45] The crew's treachery was gently reprimanded in MacGillivray 1852, 1: 270–1. Huxley would obtain a public forum by reviewing MacGillivray's work, see Huxley 1854a.

had been at sea. Shortly before reaching England, he wrote Heathorn that he no longer expected a promotion to full surgeon on the basis of his scientific work, but he did hope for a shore appointment and a grant to publish his research. He took up temporary lodgings with his brother in London but soon moved to a place where he could leave his books about, read and write in solitude, and greet the "great world only when necessary": "I have drawn the sword, but whether I am in truth to beat the giants and deliver my princess from the enchanted castle is yet to be seen." After just three months, he wrote that any attempt to live by a scientific pursuit was a farce, that he could earn distinction but not bread, and that he would sacrifice it all to be with her, away from the "buzz of the world" in a "quiet cottage" with only the prattle of children "about our knee."[46]

These dire sketches of his life in London were interspersed, however, with accounts of his new attachments with "immensely civil" men of the metropolitan elite, men who supported his work and whom he had come to call his "scientific friends."[47] Richard Owen, he wrote, would do anything in his power for him. Edward Forbes would move heaven and earth. In recommendations that he gathered in applying for a professorship at the University of Toronto, some of the most distinguished men in Britain's natural history world – Thomas Bell, William Sharpey, John Gray, Charles Darwin – testified to Huxley's industry and his powers of intellect and expression.[48] Though Huxley failed to obtain steady employment, his election to the fellowship of the Royal Society of London had been quick, and the society's gold medal soon followed. On receiving the medal in 1852, Huxley praised a community of fellows who were so open, honest, and free from the motives of personal interest that they could receive into their midst men whose efforts were truly original:

> The memoir for which you have done me the honor to award the Royal Medal today was printed by this Society during my absence in a remote corner of the world . . . far away from all sources of knowledge as to what was going on here . . . I sent my memoir away to you with a doubtful mind – I questioned whether the dove thus sent forth from my ark would find rest for the sole of its feet. But it has this day returned, and with . . . an olive branch and with a twig of the bay and a fruit from the garden . . . I trust I shall never forget the kindness and the aid I have received upon all hands from the men of science of our country.[49]

[46] 31 January 1851, HH: 135; 14 March 1851, HH: 140.

[47] 31 December 1851, HH: 177; letter to Lizzie, 21 November 1850, in L. Huxley ed. 1900, 1: 62–3.

[48] All of these testimonials are collected in HP: 31.68ff.

[49] HP: 31.139. Huxley refers to his paper "On the Anatomy and Affinities of the Family of the Medusae" (Huxley 1849).

On leave at half-pay from the Admiralty, Huxley supported himself by translating German zoology texts, working for museums, writing a quarterly science column and other miscellaneous pieces for the *Westminster Review*, and occasionally lecturing at the Royal Institution of Great Britain. He passed his evenings at boisterous dining clubs. Returning one night from the Red Lions Club, the fraternal supper order of the British Association for the Advancement of Science, he wrote to Heathorn, "I have at last tasted what it is to mingle with my fellows – to take my place in that society for which nature has fitted me . . . I can no longer rest where I once could have rested."[50]

Among the men whom he found to revere and trust implicitly was his "old hero," Sir John Richardson, a "man of men" to whom he was indebted for his *Rattlesnake* appointment.[51] He also admired Joseph Hooker, sure to succeed his father as director of the Royal Botanic Gardens at Kew, and seated at evening banquets beside his bride-to-be, the daughter of John Henslow, professor of botany at Cambridge.[52] Another of his "warmest friends" was John Tyndall, whose own career path in the physical sciences in many ways paralleled his. Later, when Huxley was appointed to lecture regularly at the Royal Institution, where Tyndall also taught, the latter would write, "we are now colleagues at home, and I can claim you as my scientific brother."[53] Chief among his new cohorts and paragons of purity was Edward Forbes, lecturer in natural history and paleontology at the School of Mines, and paleontologist to the Geological Survey prior to 1854. Forbes, Huxley confided to William Macleay, was "a man of letters and an artist, he has not merged the *man* in the man of science – he has sympathies for all, and an earnest, truth-seeking, thoroughly genial disposition which win for him your affection as well as your respect."[54] Though he had yet to obtain a permanent place among them, many of these men with whom Huxley associated were bachelors employed in the Geological Survey, an institution conceived by its director Henry De la Beche as a household with himself as father.[55]

Encouraged by his acceptance within this surrogate family of scientific peers, Huxley persisted in representing his vocation as lying outside the sphere of practical work where it could remain free of the self-interest, jealousy, and ambition that characterized his social climb – corruption that he could then blame for impeding him. A "hidden force"

[50] 7 November 1851, HH: 172.
[51] 7 November 1851, HH: 172.
[52] 7 December 1850, HH: 156.
[53] c. June 1855, in L. Huxley ed. 1900, 1: 126.
[54] 30 March 1851, in L. Huxley ed. 1900, 1: 94.
[55] See J. Secord 1986b: 239–41.

impelled him, a "sense of power and growing oneness with the great spirit of abstract truth."[56] Unvalued in the world of professions, with no position to afford him income for a house, Huxley still defended his dignity in the "house of experiment":

> Women often forget that men are essentially different from themselves, that a man's actions cannot and ought not to be exhausted within the circle of his affections as their own may rightly be . . . No woman who knows her true interests will ever begrudge the time her husband gives to . . . Science or Art. They are her best allies, for they all require earnestness and faith and fixity of purpose for their successful cultivation. In this pure sphere, the soul sickened and sceptical from intercourse with men meets truth face to face . . . It returns to the world purified and thence fitter to recognize the good in all shapes, fitter therefore to love, for that means to recognize purity and goodness.[57]

Huxley could assure Heathorn that his scientific affairs were not adulterous, because domestic values were identical with the values of science and other learned practices. He was like other men in needing the nourishment of the domestic sphere, while extending his aims and purposes beyond it. But his work was not like other men's – base and self-gratifying. When men of science left their loving wives, they entered a moral sanctum like that of their own home – a "pure sphere" where souls communed with truth. Domestic affection and its restorative virtues reproduced and reinforced these men's creative powers and moral endeavors: their role as discoverers and educators; their duty to civilize savage men and redeem civil society, to make the world a home by ordering the relations of classes, nations, and races as they ordered plants and animals, as their own households were ordered.

Remaining in Australia until her fiancé could obtain a living sufficient for them to marry, Heathorn now received Huxley's letters at the home of her parents, the Fannings having moved back to England shortly after Huxley's departure. There she again assumed responsibilities of management, offering occasional advice on matters of household economy to her father, whose money problems had worsened through speculating in the boom-and-bust business of gold. Because of her practical experience, vastly superior to Huxley's, in administering to the needs of a household, she was not consoled by his high-culture cottages in the air. The uncertainty of a home with Huxley and the pressures of her new circumstances combined to instill in her a fear of domestic ruin that he, a scientific knight-errant, in debt, with a moral aversion to

[56] 7 November 1851, HH: 172. The expression "house of experiment" derives from Shapin 1988.

[57] 9 July 1851, HH: 164.