

Book of the month

Homage to Gaia

'The joy of science lies, for me, in the sense of adventure and the retention of a child's sense of wonder, even to my dotage' (James Lovelock, 2000)

James Lovelock has, by his own admission, been variously described as 'the mad scientist' (by his schoolmates); 'not a scientist, merely an inventor who makes amateur equipment in his garage' (by a scientist); and anti-Darwinian (by another scientist). As a child he almost poisoned a fellow six-year-old with deadly nightshade berries; at grammar school he refused to do homework or Saturday sports; he may have devised the microwave oven (primarily for reviving frozen animals but handy for cooking his lunch); and he was invited by NASA to join the first lunar mission.

Yet the numerous inventions and other scientific achievements to which Lovelock can rightly lay claim are dwarfed by his all-encompassing Gaia hypothesis. Lovelock and Gaia are virtually synonymous, and he thereby finds himself linked with the Green movement—not the cosiest of bedfellows when he professes that he has never been wholly on the side of environmentalism. Now in his eighties, this very singular man still enthuses about science and Gaia in the same breath; his wisdom is unconventional and he's peacock proud of it.

Having written extensively about Gaia, he now sets out to write about himself, to explain why the 'solitary practice of science... is both pleasant and productive'. But Lovelock and Gaia are so tightly conjoined he quickly admits that *Homage to Gaia*¹ is 'as much about Gaia as it is about me'. The temptation to take another excursion with the Earth goddess is clearly irresistible—which is a shame, because he misses a trick. For one, Lovelock's targets for criticism—narrow-minded academics in general and some biologists in particular—are overly familiar. For another, his story even without Gaia is a remarkable one by any standards; here he is at his literary best, humming and buzzing with an undiminished passion for life and science.

Setting Gaia aside for a while, Lovelock's description of his early years is a poignant commentary replete with wondrous characters. His initial upbringing in Hertfordshire was down to his maternal grandmother—'a small plump cockney woman endowed with a surfeit of love'—while his parents struggled to establish themselves in the business of selling and framing pictures. He was spoilt and mischievous, encouraged to give his curiosity free reign. The move to Brixton to live behind the family shop came as a profound shock to his six-year-old system. By the age of nine he had

built a short-wave radio receiver from instructions in a Christmas hobbies annual and beamed in Pittsburgh and Moscow, which made physics at grammar school distinctly dull by comparison. He nevertheless must have learned something there, all the while disliking it intensely; but he learned rather more from books borrowed from Brixton library. Whatever, he was determined to become a scientist—but on his terms and pursuing his vision.

He began that quest modestly in 1938, as a lab assistant to an independent consultancy covering all aspects of chemistry and photography. Among a memorable collage of experiences, he fondly recalls preparing a quantity of the dye pigment carmine from instructions that began 'take one hundred-weight of dried cochineal beetles'. At the insistence of the far-sighted proprietor (who also paid the fees), he attended Birkbeck College in the evenings until, in 1939, all London colleges were closed and students were evacuated to other universities. He took the opportunity to study full time in Manchester, where he succeeded in starting in the second year of the university course on the strength of his experience thus far. When he finished 18 months later—'it is good to have a short spell as a student... the thought of the seven-year stints to a medical degree or a PhD appals me'—he embarked on a career in medical research with the Medical Research Council, largely at the National Institute for Medical Research (NIMR) in North London but with spells at the Common Cold Research Unit near Salisbury and elsewhere. Lovelock's preindependence phase clearly brought sufficient variety and freedom to sustain him intellectually for twenty years—perhaps ever so slightly influenced by the need to support his wife and growing family?

He touched upon diseases such as scrub typhus, tuberculosis and the common cold; he invented the argon detector (for use with gas chromatography) and ionization and ultrasonic anemometers; and he pioneered the production of plastic surfaces that prevented blood from clotting (ten years before artery replacements became a clinical reality). And his thoroughly practical bent led him to invent special wax pencils for writing on wet glassware. During a year at Harvard on a Rockefeller travelling fellowship he immersed himself in lipoproteins, and hit upon selling his blood to boost the family finances. On one occasion his restless desire to move departments within NIMR, to try something different, provoked the rebuke 'if you keep on moving like this you will never be elected a Fellow of the Royal Society'; he was, of course, but almost twenty years later. His self-selected top achievement was the invention in 1957 of the electron capture detector (ECD), that exquisitely sensitive measurer of metabolic compounds and poisons. ECD led him to discover how chlorofluorocarbons were accumulating in the atmosphere, and ultimately to Gaia, thereby changing his world for ever.

By 1960 country living had become more appealing for the Lovelocks than that of the outer metropolis; already owning a cottage in Bowerchalke in Wiltshire, the family sold up in town and decamped. For a while Lovelock lived with his strong-willed mother in London during the week and spent long weekends in the country. It couldn't last; he recalls that in retrospect 'Gaia was beckoning me away from the security of the civil service'. He felt impelled to make a complete change in his way of life, but wondered whether he had the courage to leave what 'in many ways was a scientist's dream employment', where the money would come from, and how he was going to tell his incredulous colleagues that he wanted to work independently. He toyed with writing science fiction and acting as a consultant to various firms but ultimately made the break via a research professorship in Houston focusing on lipids, while commuting monthly to NASA's jet propulsion laboratory (JPL) in Los Angeles to find ways of analysing the surface of the moon and then Mars. He stayed for two years, returning to Britain in 1963 to form his own company and realize his dream of independent science.

If this sounds risky it probably was, but he secured lifelines via a contract with Shell (on ways to produce environmentally friendly forms of energy) and continued consultancy with JPL. And so it was that Gaia was born in California in September 1965, out of Lovelock's realization that 'the Earth controls its surface and atmosphere to keep the environment always benign to life'. Gaia's complexion has changed somewhat (a lot, say some critics) with the passing years yet overall remains true to the original premise. According to Lovelock himself, the hypothesis is that 'temperature, oxidation, state, acidity, and certain aspects of the rocks and waters are kept constant, and this homeostasis is maintained by active feedback processes operated automatically and unconsciously by the biota'². A more fanciful description would be 'the idea that we may have discovered a living being bigger, more ancient, and more complex than anything from our wildest dreams. That being called Gaia is the Earth'³; a more prosaic one 'the proposal that the whole earth is a self-regulating system that will preserve an environment suitable for life against all threats'⁴.

Gaia, after the Greek Earth goddess, was the name bestowed on Lovelock's hypothesis in the late 1960s by his then Wiltshire neighbour, the novelist William Golding. And the name itself has been the source of much of the biologists' criticism over the years—as if an appellation from Greek mythology cannot mean serious science—although Lovelock now believes that the objections stem from an 'instinctive dislike of holistic ideas'. Gaia has

unquestionably sustained and stimulated Lovelock, not least throughout a period of family and personal traumas, eloquently described. She has surely aroused scientific scepticism, but passion too—no bad thing, one would think.

In 1976 Lovelock forsook Wiltshire for Devon, where he has lived and worked ever since. The 1990s brought him the 'sustained joy' of his second marriage, 'recognition by the international scientific community through the award of three major environmental prizes', one literary prize, eight honorary degrees, and a CBE. No mean tally. The epilogue to *Homage* finds him in contemplative mood, so perhaps he might like to reflect on a tale from James Northcote, a Devonian from yesteryear. Northcote penned a series of fables in the 1800s, one entitled 'The Parrot and the Singing Birds', which goes as follows:

'A parrot flew from his cage into a neighbouring wood, where he criticised the song of the birds around him. At length they besought him to favour them in return: for no doubt his performance was equal to his criticism. The parrot, after due consideration of the request, gravely scratched his head, and made this reply: "Gentleman, I whistle but I never sing"'

Northcote's comments read thus:

'Does not this remind one of the elaborate criticisms upon the great works of original genius, which the dull of all times analyse and compare, and contrast and endeavour to subject to systems built absolutely upon the works themselves? Inquire for their own inventions, for what they have added to the stock of genius in the world – the answer is made for them by our parrot: "They whistle, but they never sing"'

Imogen Evans

Little Orchard, Scotsford Road, Broad Oak, Heathfield, East Sussex TN21 8UD, UK

REFERENCES

- 1 *Homage to Gaia: the Life of an Independent Scientist*. James Lovelock. Oxford: Oxford University Press, 2000 [396pp; ISBN 0-19-286213-8; £19.99]
- 2 Lovelock J. *The Ages of Gaia*. Oxford: Oxford University Press, 1988
- 3 Miller S. Gaia hypothesis. Accessed 2001 from [http://erg.ucd.ie/arupa/references/gaia.html], original review published 1989
- 4 Bowler PJ. *The Environmental Sciences*. London: Fontana, 1992
- 5 Northcote J. *Five Fables*. Reprinted at the University Printing Services, Cambridge, 1988

Drug-impaired Professionals

Robert Holman Coombs

351 pp Price £13.50 ISBN 0-674-00174 (p/b)
Cambridge, Mass: Harvard University Press, 2000

Between 1992 and 1995 Professor Coombs and his assistants interviewed 91 addicted professionals—doctors, medical students, dentists, pharmacists, nurses, lawyers and pilots. With numerous anonymized extracts from these his book makes clear the extreme price that professionals (and those who rely on them) have to pay for dependence on drugs and alcohol. One doctor was nearly killed before he realized he might be in trouble. Addicted to cocaine, he found that his social life was now taking place on the street, where one night he was stabbed. With a punctured abdomen but afraid to go to hospital and have his secret revealed to colleagues, he went to his own surgery, sutured the laceration and put himself on high doses of antibiotics. He had previously taken so much cocaine and heroin that he felt no pain throughout. A medical intern performed a successful tracheotomy on a child in casualty despite having drunk so much alcohol that he had no recollection of the procedure: 'I found myself thinking that because the procedure had turned out so well, maybe being in a black-out was a good way to do surgery and I should experiment with the effects of alcohol on surgical performance'.

Sometimes the interviewees had displayed impressive ingenuity. A doctor kept himself and his cocaine-dependent colleagues supplied for several years. They took it in turns to steal vials of sheep's blood used for hospital research. One of them would squirt blood up his nose and walk into casualty where he would obtain 10% cocaine solution, the standard treatment for nose-bleeds. It had to be signed out by two people but the other person was in the know. This was the cocaine source for weekend parties for nearly four years—at which point somebody noticed that the hospitals in the area were using excessive amounts of cocaine. A lawyer who was arrested for possessing large quantities of drugs was acquitted: the jury accepted his plea of temporary insanity and his argument that a 'proficient trial attorney would never participate in such a crime unless he was crazy'.

Coombs uses a five-point continuum to rate severity, type 5 being physically and psychologically dependent. Why do some professionals become type 5 addicts? Those interviewed mention several factors. A pharmacist said, 'I was at low risk because I was intelligent and knew about drugs'. This perception of low vulnerability is not helped by the fact that even medical professionals hear little during their training about the progressive stages of addiction and what can be done to help. One doctor said 'I never considered that I was an addict. I was a doctor . . . I saw it as my right to relax and release pressure because I was under such an incredible amount of pressure'. A dentist, after

being handcuffed and put in jail for the night, walked away the next morning telling himself, 'I'm a dentist, I'm above all this stuff'. Pilots, says Coombs, tend to see themselves as invincible. Professional training can actually reinforce denial by inculcating 'ideals' of superhuman performance. Independent professionals are accustomed to helping others but keeping personal problems to themselves. Many fear that if their secret becomes known they will lose professional reputation and with it their careers—though sometimes it turns out that everyone at work already knows the secret.

What can be done? Although he acknowledges the importance of insight, Coombs challenges the view that nothing can be done unless the addict asks for help. He suggests the possibility of 'planned confrontations', carefully prepared and documented. A rehabilitation place for the addict is prearranged and s/he is urged to start treatment at once. There is some evidence that, in general, individual psychotherapy works less well than group therapy. Behavioural contracts, drug screening, coping skills training, 'lifestyle planning and monitoring', family education, the use of prescribed drugs to assist withdrawal and maintain abstinence, acupuncture, meditation, dietary advice, psychological techniques to reduce the risk of relapse—all these can be helpful. When treatment works the results can be remarkable. Professionals often experience a radical shift of attitudes and come to regard inner peace more highly than possessions and achievements.

The force and authority of the book derive from its concentration on type 5 dependence, with a detailed description of the most severely affected professionals. This has the disadvantage that earlier stages in the progression receive less attention. Admittedly, much less research has been done on type 3 (social abusers) and type 4 (solitary abusers). The book will be of greatest value to researchers and to people often involved in the treatment of addicted professionals. Unfortunately, the people who might benefit from these insights are often blinkered by their own denial.

Paul Crichton

Department of Psychological Medicine, Royal Marsden Hospital,
London SW3 6JJ, UK

Letters from the Clinic: Letter Writing in Clinical Practice for Mental Health Professionals

Derek Steinberg

130 pp Price £15.99 ISBN 0-415-20504-2 (p/b)
London and Philadelphia: Routledge, 2000

Whatever their sphere of therapeutic practice, clinicians spend a substantial amount of time writing letters to and about patients. In mental health work, where physical tests

play a small part, proportionately more time goes in to exploring a patient's problems, their background, attempts to manage them so far and so on. A key task for the clinician is to distil this information into a formulation that will allow better understanding of how the problem has developed, and what to do now. So it is surprising how little training health professionals get in the art of writing letters to and about their patients. Derek Steinberg is a consultant in child and adolescent psychiatry, but his views go beyond the realms of his specialty. In *Letters from the Clinic* he takes us through a series of 42 situations—engaging in work, work in progress, and endings, with a fascinating collection of letters and accompanying notes to illustrate different points.

The beginning and end of the book include more theoretical discussion on the role of the letter. 'Why write?' Steinberg asks. He gives good reasons—'first, because finding the right words is a good exercise, and committing them to paper adds to the responsibility to get it right...' and also because of the importance of words in therapy, and as a reminder of the agreed treatment plan. Steinberg points to the magic in words too, telling us, for example, that Rx is shorthand for 'Under the good auspices of Jove, the patron of medicines, take the following drug in the prescription laid down'.

Steinberg advocates keeping letters short (but not brusque) and free of jargon. Almost all of his letters are to the patient and family members, with a copy to relevant professionals, and they are refreshing in their clarity. In some cases he reflects in the notes at the end on an alternative approach that he could have taken, as a reminder that there is not always just one correct way of communicating. Several letters appropriately imply, or declare, uncertainty; for example, 'I don't know whether you want another appointment' puts the decision into the recipient's court.

A recurring theme in the book is confidentiality. Working in child and adolescent psychiatry, doctors are likely to deal with a particularly wide range of other agencies—for example, social services, education, and possibly probation—as well as colleagues in the Health Service. Against the right of 'needing to know' Steinberg reminds us of the 'bald fact of confidentiality' that, until permission has been given to do otherwise, a doctor 'can only talk about a patient's history and clinical state to another doctor'.

Letters from the Clinic is not a collection of 'how to say it' letters but a helpful reminder to health professionals of the power of the written word.

Rosalind Ramsay

Department of Psychiatry, St Thomas' Hospital,
London SE1 7EH, UK

Eponymists in Medicine: Felix Semon 1849–1921: A Victorian Laryngologist

Donald Harrison

243 pp Price £20 ISBN 0-85315-413-X

London: RSM Press, 2000

The use of medical eponyms has faded during the past 50 years, but Felix Semon still has a law and a sign, both laryngological, to his name. The Editor of the *JRSM*, in asking for a review of this interesting and well organized biography, noted that 'it bristles with RSM connections'. The author Sir Donald Harrison, Professor at the Institute of Laryngology and Otology, medical historian, and Honorary Secretary of the RSM before becoming its President in 1994, certainly has an upstanding relationship with the RSM. But it was a surprise to find that the Semon Lecture was originally held at the RSM only for convenience after the first one, in 1914, was such a shambles when given at University College: when Semon retired from clinical practice at the early age of 59 in 1909, a fund had been raised in his honour to found the University of London Semon Lecture Trust.

It is true that his portrait by Sir Hubert von Herkomer is prominently displayed in the entrance hall of the RSM, but Sir Felix Semon deplored the fusion with the British Laryngological, Rhinological and Otological Association to form the Laryngological and Otological Sections of the RSM in 1907, and he only lasted on the council of the Laryngological Section for its first year. During the First World War, with activities at the RSM greatly curtailed, attitudes became painfully discriminative against Semon because of his German birth, and, two years before he died, he resigned from the Society, with any bristles distinctly flat, in 1919. There has been a change since then, and now, as Sir Donald writes, 'the Semon Lecture remains to this day the "blue ribbon" of world laryngology, and stands as a tangible memorial to a truly remarkable man'.

Felix Semon was born in 1849 in Berlin, the son of a moderately successful Jewish businessman, and while at the Gymnasium became friendly with the younger son of Bismarck, to whom he was later introduced. In 1868 he entered Heidelberg University to start his medical studies, but soon, after a riding accident, had to transfer to Berlin University, where he was lectured to by Rudolf Virchow and fought three duels (one leaving the mandatory scar). When his studies were interrupted by the Franco-Prussian war in 1870 he joined the Prussian Guards cavalry and took part in the siege of Paris, coming accidentally under fire on his 21st birthday. After 15 months he returned to the medical school, passing his final examination in 1874, though with little clinical experience. His father then encouraged him to spend a year as a postgraduate student in

Vienna, Paris and London where an uncle lived in Clapham. In Vienna he became friendly with Brahms, visited Billroth and first became interested in laryngology. After eight months, and missing out France, he arrived in London, greatly ignorant of the language, never to return to Berlin.

In London, Semon visited the teaching hospitals, but particularly favoured St Thomas' where later, in 1882, he became first head of the Throat Department. He had an introduction to Morell Mackenzie at Golden Square Hospital to become an unpaid clinical assistant there, and, deciding to take up private practice, took English lessons, learnt the *British Pharmacopoeia* and passed the MRCP from St Thomas' in 1876. His practice flourished, and he moved to Chandos Street where he gave courses in laryngoscopy as a diagnostic procedure and worked to make laryngology a separate specialty. He published papers in *The Lancet* and the *BMJ* and founded the *International Journal of Laryngology* in 1884, which he gave up in 1914 as it was based in Berlin. His fame spread with his researches into vocal cord movement and his attack on Morell Mackenzie's management of the Crown Prince of Prussia's laryngeal cancer. He

made royal connections through his consultation of Lillie Langtry, the companion of the Prince of Wales, and attended Queen Victoria in 1897, gaining his knighthood shortly afterwards. He achieved his ambition to be included in high society and to be given honours.

The English version of Felix Semon's autobiography, originally written in German but never published, and edited by his elder son Henry, came out in 1926, with a preface written by him in 1919. The autobiography shows 'a strong flavour of egotism . . . with its continual name dropping, emphasis on success with little reference to failure or setback, minimal mention of family or professional associates and detailed descriptions of honours . . . his social activities . . . the plethora of influential patients he had seen and (one assumes) cured . . . [and] his apparent need to be liked by everybody of importance he came in contact with'. This may not be endearing, but Sir Donald clearly remains fascinated by him and tells of his great achievement with energy and perception.

Milo Keynes

3 Brunswick Walk, Cambridge CB5 8DH, UK