

REPRINTS AND REFLECTIONS

Elie Metschnikoff and his theory of an 'instinct de la mort'*

AL Cochrane

It cannot, I think, be without importance for the history of science or without interest for psycho-analysts that a distinguished contemporary of Professor Freud's, Professor E Metschnikoff, should have produced independently somewhat similar ideas in certain directions. The most interesting and most important similarity lies in Metschnikoff's formulation of the idea of a 'Todestrieb'. Before dealing with this I may remind the reader of the more important facts concerning Metschnikoff's life and works, drawing attention at the same time to other points of similarity and dissimilarity. I shall take the liberty of assuming that references to Freud's works are unnecessary.

Elie Metschnikoff was born in 1845 of Russian Jewish parents. He died in Paris in 1916. He studied natural sciences in Cracow (1862–1864) and then started a life of research, which took him to Italy, Switzerland and Germany. Influenced by Darwin's *Origin of Species*, his early work was mainly directed towards finding additional proof for the general theory of evolution in the invertebrate kingdom. The rather lucky discovery of phagocytosis in 1882 brought him first notoriety and, later, fame, as the discovery proved to be of first-class importance for the future development of pathology. The years from 1888 until his death were spent in Paris at the Pasteur institution, where he did very valuable work on phagocytosis, immunity, cholera, syphilis, and the pathology of old age, work which received only its due recognition when he shared the Nobel Prize with P Ehrlich in 1908. He was made an honorary doctor of science of Cambridge University in 1891 and an honorary doctor of medicine of the military academy of St Petersburg in 1909, besides being an honorary member of seven scientific academies.

In the latter part of his life (in Paris) he began to apply to the general problems of life the scientific method that had served him so well in the limited field of detailed scientific research. Then at last he could give his love for speculation a freer rein. Darwin's theory was again the starting point for his line of thought in this wider field. He considered man 'a type of intelligent anthropoid abortion, capable of going very far indeed'.¹ As witness to this origin man carried with him a collection of physical and psychical 'disharmonies',² which were the chief cause of human unhappiness. He believed that there was no 'inevitable tendency towards progress'³ in nature and that man himself must free himself from his 'disharmonies'.

He had been an atheist from an early age and talked so much about it that he earned at college the nickname, 'God is not'.

Later, in his book *Etudes sur la nature humaine* (1903), he attacked religion with true biological vigour, especially those ideas concerned with the immortality of the soul and the life after death.⁴ He considered that religion represented a primitive attempt on the part of man to resolve these 'disharmonies',⁵ which had been a complete failure.⁶ Metaphysics, in his opinion, represented another such attempt with which he dealt in a similar cavalier manner.⁷ He believed that neither of them had been in the least effective in dealing with the three chief human disharmonies: the fear of death, disturbances in sex life, and disease, more especially pathological old age. He believed 'that neither religion nor the systems of the metaphysicians could solve the problems of human happiness and human death, and that science alone could carry out this task'.⁸ 'If it is true that one cannot live without faith, then that faith must be faith in the power of science.'⁹

Metschnikoff at first considered sexual difficulties of great but nevertheless of secondary importance in the causation of human unhappiness. The fear of death was, in his opinion, the greatest disharmony; but as he grew older the sexual achieved, perhaps paradoxically, an ever increasing importance in his eyes.

In an early article, 'The Time of Marriage' (1872), he discussed the effect of the increasing lateness of marriage on man's adolescence. He came to the conclusion that it produced a dangerous period of disharmony which was reflected in the suicide statistics. In the *Etudes sur la nature humaine* he discussed the 'disharmonies' which can appear in the sexual function during the period of development; he mentioned the frequency of 'perversions' and 'substitute satisfactions' and the disproportion between mental desire and physical capability. He believed that the Church, frightened by the frequency of the deviations from the normal, had decided to suppress it as far as possible, and to announce the doctrine of original sin.¹⁰ He contrasted the results of this type of remedy with those which he believed would be made possible by a scientific study of the subject.

In his later book *Essais optimistes* (1907) he called attention to the connection between sex and both intellectual and artistic talents. 'The truth is that artistic genius and genius in general are intimately connected with sex.'¹¹ And 'The indisputable connections that exist between intellectual activity and sex'.¹² When he died he was at work on another book, dealing exclusively with sex in its various manifestations. Only the first chapter, unfortunately, was sufficiently finished for it to be published.¹³ In this chapter he expounded the theory that ideas about sex had been falsified through fear of venereal disease, at a time when no one knew how to avoid or cure such diseases. He attempted to shew (*sic*) that the religious condemnation of sex was based on this fear. The rest of the book (he had spoken of it in great detail to his wife) was to have consisted of ideas for

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the rationalization of sex life in general, especially as regards education and marriage. Another section was to have been devoted to the detailed study of the role of sex in the life of genius. To this end he had studied many biographies, including Rousseau's *Confessions* and the *Nouvelle Heloise*.

The fear of death was in his opinion the greatest source of human unhappiness—the most important 'disharmony'. He found this fear so universal that he considered that it deserved the name instinctive.¹⁴ He assumed it to be one aspect of the '*instinct de la vie*'.¹⁵ He noted that this instinct, as regards the effect of satisfaction, differed from all others, e.g. in contrast to satiety from eating, the more one lived the more one wanted to live.¹⁶ He set to work to solve this disharmony by a scientific study of old age and death. He reached the following conclusions:

- That natural (endogenous) death was very rare, if it existed at all in *Homo sapiens*. He believed that the average length of life could be very much extended by a more rational diet.
- That unicellular organisms were potentially immortal; that natural death though rare was not non-existent.¹⁷ He examined the case of the mayflies very carefully and proved that death was certainly endogenous in their case. He further observed that these insects, in contrast to their elusiveness as larvæ, made no effort to escape being caught during their brief adult existence. He concluded that the '*instinct de la vie*' had disappeared.¹⁸
- That in the case of one of the many centenarians that he examined there was a definite desire for death, 'to feel the need for death with the same might as one feels the need for sleep.'¹⁹
- That from the physiological point of view sleep and death had much in common—both being a type of auto-intoxication.²⁰

On this evidence he brought forward the theory that if one attained to the normal span of life (he estimated it at about 100 years) the desire to live would slowly disappear and be replaced by a desire for death—a desire to return whence one had come. If this longer healthier life should really produce this '*instinct de la mort*' at its end, and thus rob death of its horrors, then he considered the greatest disharmony would be resolved. He remained more optimistic than sceptical about the possibility of bringing this 'latent' instinct to the light of day. 'This instinct lies latent in the depths of human nature. Shall we find a means to bring it forth?'²¹ He answered that only science could decide. He considered it also possible that the '*instinct de la vie*' might change from one extreme to another, as in the case of love and hate, and in the changes in the sense of taste which go on during a child's development,²² and so produce the effects of the '*instinct de la mort*'.

At the end of *Essais optimistes* he leaves the realm of science and adopts a definite *Weltanschauung*. He made the important point that scientific knowledge could be utilized to produce any required end. He considered it therefore necessary to chose a particular 'ideal'. 'This ideal ... is the orthobiosis, that is to say, man's development, with its object a long, active and vigorous old age, leading to the final period of satiety with life and desire for death.'²³

Several similarities between Professor Metschnikoff and Professor Freud are at once apparent. Both were scientists, beginning with detailed biological research in a limited field.

Later, with increasing belief in the value of the method, they both began to apply it to the greater problems of life, shewing at the same time an increasing love of speculation. (Though in the former's case the speculation did not begin with the same abruptness as with Professor Freud.)

The results of this application are also in the two cases not dissimilar. Both dismissed religion as worthless and philosophy as of secondary importance. Both emphasized, though to a varying extent, the importance of sex in all fields of life. Both denied the existence of tendency towards progress in nature. Both agreed in believing in the sole importance of science as a means of obtaining knowledge for the purpose of intellectual understanding and for discovering methods to resolve the 'disharmonies' or, in Professor Freud's language, 'in the primate of the intellect'.

One sees, on the other hand, a general difference in Professor Metschnikoff's use of physiological standards as opposed to Professor Freud's psychological ones, e.g. his standard of normality for the sexual function: that desire should run parallel with the physiological ripeness of the sperm. Another general, and perhaps paradoxical, difference lies in their attitude towards their theories—more especially in the case of the death instincts. Professor Metschnikoff, a pure scientist, no doctor, was interested in his because of the hope it brought to others—and to himself—while Professor Freud, the doctor, is interested in his as representing a simplification of the 'Trieblehre'. It is in keeping with this that Professor Metschnikoff should adopt a definite *Weltanschauung*—a liberty which Professor Freud refuses. The similarity, too, between the '*instinct de la mort*' and the '*Todestrieb*' might at first glance be considered as lying only in the name. In the book the '*instinct de la mort*' does rather appear as an offspring of Theology out of Wish-fulfilment, scarcely redeemed by its biological godparents, and hardly deserving of comparison with the scientifically controlled speculation in *Jenseits des Lustprinzips*. This difference however is less important than it seems, since the written origin of the theory bears very little relation to the more interesting psychological origin, and has no bearing on the value of the speculative idea—as idea.

Metschnikoff was also too obsessed with the conscious psychology of the time to conceive of an instinct being effective without being conscious. Although he attributed an '*instinct de la mort*' to the mayfly on the ground of its behaviour, he refused to take the same attitude about man; but there were glimmerings of the idea of an unconscious effective instinct, and one finds it, as one would expect, in his analogies, e.g. 'They die in horror of death without knowing that it is the death instinct. One can compare them with those young frigid wives, who die in childbirth, without knowing what real love is.'²⁴

But there are, I think, some striking similarities between the two:

- (I) In the idea of a 'latent' instinct controlling the length of human life.
- (II) In the conclusion drawn from natural death to a death instinct.
- (III) In the emphasis laid on the contrast between the two chief instincts '*les instincts de la vie*' and '*de la mort*' on the one hand, and Eros and Thanatos on the other.
- (IV) In the use of biological evidence to elucidate psychological problems.

(V) In the idea of a latent instinct which could be brought to the surface and of psychical disharmony in general which could be solved by the application of the results of scientific study.

I took the liberty of asking Professor Freud if he knew of any contacts direct or indirect that might have existed between them. He answered in the negative.

References

- ¹ *Etudes sur la nature humaine*, p. 378.
- ² *Etudes sur la nature humaine*, p. 376.
- ³ *Etudes sur la nature humaine*, p. 23.
- ⁴ *Etudes sur la nature humaine*, p. 377.
- ⁵ *Etudes sur la nature humaine*, p. 378.
- ⁶ *Etudes sur la nature humaine*, p. 377.
- ⁷ *Etudes sur la nature humaine*, p. 378.
- ⁸ *Etudes sur la nature humaine*, p. 383.
- ⁹ *Etudes sur la nature humaine*, p. 399.
- ¹⁰ *Etudes sur la nature humaine*, p. 132.
- ¹¹ *Essais optimistes*, p. 359.
- ¹² *Essais optimistes*, p. 359.
- ¹³ *Etudes sur la fonction sexuelle*, *Mercur de France*, p. 120, 1917.
- ¹⁴ *Etudes sur la nature humaine*, p. 168.
- ¹⁵ *Etudes sur la nature humaine*, p. 137.
- ¹⁶ *Etudes sur la nature humaine*, p. 171.
- ¹⁷ *Etudes sur la nature humaine*, p. 358.
- ¹⁸ *Etudes sur la nature humaine*, p. 365.
- ¹⁹ *Etudes sur la nature humaine*, p. 369.
- ²⁰ *Essais optimistes*, p. 166.
- ²¹ *Etudes sur la nature humaine*, p. 393.
- ²² *Etudes sur la nature humaine*, p. 373.
- ²³ *Essais optimistes*, p. 166.
- ²⁴ *Etudes sur la nature humaine*, p. 375.

Commentary on Cochrane AL (1934). Elie Metschnikoff and his theory of an '*instinct de la vie*'

Mark Aveline

When we comment on past events or ideas, our view is informed by our own time and place. Not only is it difficult, if not impossible, for us to stand outside our context and take an unprejudiced view but it is equally hard to have true sympathy with past ideas and understand from the thinker's perspective what they believed and why. Particularly in psychology, which is more than the dispassionate weighing of evidence and the formal formation of conclusions; it is shaped by the life history of the person and the intellectual and professional preoccupations of the era. This relativistic position was certainly true of Sigmund Freud and may have been true for Metschnikoff. My contention is not made in order to detract from the former's genius in discerning important, ubiquitous mental processes that complicate and enrich our human relationships and which operate for the most part outside full consciousness but, rather, to set a context for this commentary.

I am looking back nearly 70 years to a text written by a psychoanalyst which gave an account of the late writings of a biological scientist, Metschnikoff, who himself had died 18 years before in 1916.¹ My knowledge of what Metschnikoff

wrote is third-hand, filtered by Cochrane and coloured by his commentary; Metschnikoff is not a familiar name in the world of psychotherapy. I bring to the task a late 20th century view and 27 years of experience as a consultant in psychotherapy and psychiatry in the British National Health Service and the daily necessity in that work to find helpful ways of understanding human experience and ameliorating maladaptive patterns of interaction.

Shortly before the time of Metschnikoff's death, the founding figures in psychotherapy—Freud, Jung, and Adler—were beginning to follow their differing visions of what was important in human psychology and how engagement with life could give rise to psychopathology. Jung valued the spiritual; he saw a rich, historical connection between the individual and the collective spiritual past; he promoted the finding of personal spiritual meaning in life and, within the person, the integration of complementary, not fully known selves. Adler contributed two main ideas: the existence of a fundamental, threatening sense of inferiority in the individual which has to be guarded against and the concept of social interest, transcending the individual and bringing out the best in communities.

Freud had been a neurologist and was influenced by Darwin's Theory of Evolution. Both influences stressed hierarchy in

development and function and informed his then current formulation of human nature in terms of drives or instincts. He posited a competition between Eros and Thanatos, a push towards, on the one hand, life and, on the other, death through the discharge of aggressive and destructive wishes.² Elaboration of this dual-instinct theory was stimulated in part by the phenomenon of negative therapeutic reactions during psychoanalysis.³ Paradoxically, the patient reacts against well-founded interpretations and the analyst's praise of progress; her clinical condition may deteriorate. This was seen as resistance, based on unconscious guilt and a consequent reluctance to give up suffering or aggressive envy.

Freud's final theory was structural and gave greater prominence to the functioning of the Ego, the mental structure at the centre of the Self and which has to live by the Reality Principle. The Ego attempts to reconcile the conflicting pushes ('Trieb') of the Id and the Super-Ego and the imperatives of external life; its failure is signalled by the emergence of symptoms. His daughter, Anna, and Melanie Klein continued to use the death instinct in their theories. Klein, especially, saw envy and aggression as being innate and primary. Here developed one of the major lines of cleavage in theory amongst psychoanalysts: hate, envy, and fear as primary inevitable processes or secondary reactions to frustration. Heinz Kohut, the Chicago psychoanalyst,⁴ and John Bowlby, the British developmental researcher and psychoanalyst, strongly assert the latter.⁵ Their position makes sense to me. Contemporary analysis stresses the relationship-seeking nature of human beings, their capacity to trust and be sufficiently independent, the recreation of problematic patterns of relationship in the here-and now of the analysis, and the significance of the intersubjective reality created between patient and therapist.⁶ Interactional theories have replaced those based on instinct and drive discharge.

As reported by Cochrane, Metschnikoff's theory of an *instinct de la mort* appears insubstantial in evidence (I have no problem with there being a drive for life, *instinct de la vie*, in biological organisms). Anthropomorphism of a lack of escape behaviour in mayflies is a slight foundation to suppose that there is an instinctual desire for death. Certainly, an individual's life may be so horrible that they want to end it (and may properly choose to die) but why complicate the explanation by supposing an instinct? Surely, Metschnikoff's theory reflects the dominant metaphor of his time i.e. opposing hydraulic forces?

I am much more drawn to Erik Erikson's formulation. In his epigenesis, humans face a progression of phase-specific psychosocial tasks during their lives. The eighth and ultimate task comes in old age: being able to look back on a well-lived, generative life facilitates task resolution through 'integrity' rather than 'despair'.⁷ Integrity as a concept is not far from Metschnikoff's 'orthobiosis', the pinnacle of human development, which is signified by 'a long and vigorous old age, leading to the final period of satiety with life and desire for death'. Satiety based on having had the well-lived, generative life can help people cope with physical decline and illness in old age. Resignation (decathecting life in analytical language) is common in the process of coming to terms with dying while relief at not having to continue the struggle with terminal illness is ubiquitous. Integrity, despair, resignation, and relief are descriptive sufficient explanations; they do not amount to an instinct. However, should Metschnikoff's idea of long-delayed, endogenous death be realised in the future through presumably genetic manipulation of the ageing process, humans would face a new psychosocial task. Death, then, would be a more elective step, needing a particular attitude of mind to overcome the final disharmony.

I warmed to Metschnikoff's optimism that the human condition could be improved though I doubt that science is the full answer. I am left with two thoughts. Freud wanted to be a scientist but was a storyteller. Metschnikoff was a distinguished scientist who, perhaps, wanted to tell stories that would comfort him in old age and his own extinction.

References

- ¹ Cochrane AL. Elie Metschnikoff and his theory of an 'Instinct de la Vie'. *Int J Psychoanal* 1934;**15**:265-70.
- ² Bateman A, Holmes J. *Introduction to Psychoanalysis*. London: Routledge; 1995.
- ³ Freud S. *From the History of an Infantile Neurosis*. In: Standard Edition. London: Hogarth, 1918, pp. 1-122.
- ⁴ Kohut H. *The Analysis of the Self*. New York: International Universities Press, 1971.
- ⁵ Bowlby J. *A Secure Base: Clinical Applications of Attachment Theory*. London: Routledge, 1988.
- ⁶ Stolorow RD, Atwood GE, Brandchaft B (eds). *The Intersubjective Perspective*. Northvale, NJ: Jason Aronson Inc., 1994.
- ⁷ Erikson EE. *Childhood and Society*. Harmondsworth: Penguin, 1965.

Commentary: Early thoughts on death, disease and sex

Hugh Thomas

This article¹ was written in a period of his life (1931–1934) that Archie Cochrane, in his autobiography, called ‘the years of mistakes’.² He had gained a Cambridge double first in the Natural Sciences and undertaken a year’s research on the newly developing area of tissue culture. But he was not a good laboratory scientist and a personal sexual problem was affecting his life. He could not consummate his relationships with women because, as he wrote 50 years later, he could not ejaculate. Whether the problem was that he could not experience an orgasm or maintain an erection is not clear. After seeking conventional medical help, which was of no benefit, he turned to psychoanalysis and sought expert help in Germany. For almost 3 years he received treatment and psychoanalytic training from Dr Theodore Reik, accompanying him as he moved from Berlin, to Vienna and then to The Hague to escape the anti-semitism of Nazi Germany. Unfortunately, Cochrane’s problem was not cured and he parted amicably from Reik, returning to London to commence his clinical training. In later years he attributed his sexual problems to an inherited metabolic condition, porphyria, which he later found affected many of his male relatives. During his 3 years abroad he became fluent in German and competent in French and Dutch. His political awareness was developed and his abhorrence of fascism meant that after only a year back in London, and while still a medical student, he went to Spain to give medical help to the Republican forces fighting Franco and his German allies.

I knew Archie Cochrane in his later years, first meeting him in 1972 and later sharing an office with him for 3 years at the Medical Research Council Epidemiology Unit in Cardiff. After his death in 1988 it was apparent that many of his professional and private papers were in the Unit basement and with financial support from the Nuffield Provincial Hospitals Trust, an archive was established at Llandough Hospital in Penarth, South Wales, housed in the library which had been named after him. His certificate of study in Vienna in 1932 is in the collection. My knowledge of the septuagenarian Cochrane, both personally and through his papers, inevitably influences my assessment of an article that he wrote relating to death, sex and disease when only 23 years old.

The article discusses the ‘greater problems of life’ but notes that both Metschnikoff and Freud, while being self-confessed atheistic scientists and dismissing religion as worthless and philosophy as of secondary importance, show an ‘increasing

love of speculation’. I have not read the two works of Metschnikoff which provide all but one of the 24 references, but doubt whether they contain good survey or experimental data to support the suggestion that fear of death, disturbances in sex life and disease, more especially pathological old age, are the three chief human disharmonies. My own unscientific observations as a family doctor in a retirement seaside town with a high proportion of over 85s is that few of any age discuss fear of death and many very elderly do have ‘a definite desire for death’—perhaps an ‘instinct de la mort’—related to their frailty, dependence on others and often the fact that their contemporaries have all gone. For the many with dementia and memory loss no reliable assessment can be made, but developing such conditions appears to be an increasing fear among those in middle age. Preventing or postponing physical and mental disease, by utilizing scientific knowledge, appears to be Metschnikoff’s ‘ideal’ with ‘the object of a long, active and vigorous old age, leading to the final period of satiety with life and desire for death’. This has a modern resonance with such expressions as ‘adding years to life and life to years’. Metschnikoff’s views that the average length of life could be very much extended by a more rational diet would receive much support in 2003, but his estimate of about 100 years appears exaggerated, although it would, as he suggests, be more likely to produce the ‘instinct de la mort’!

While Archie Cochrane found the psychoanalytic field fascinating as regards new hypotheses, he found it lacking in experimental proof and judged that analysis could treat hysteria, a disappearing disease, but little else.

The final two sentences of the article have two Cochrane hallmarks—the call for the application of scientific study and also the tendency to namedrop—‘I took the liberty of asking Professor Freud’, an indication that with the confidence of a good Cambridge degree, a keen intellect and a private income he was comfortable moving in such circles.

References

- ¹ Cochrane AL. Elie Metschnikoff and his theory of an ‘instinct de la mort’. *Int J Psychoanalysis* 1934;15:1–14.
- ² Cochrane AL, Blythe M. *One Man’s Medicine—An Autobiography of Professor Archie Cochrane*. London: BMJ, 1989, pp. 13–18.