

Peter Medawar

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Sir Peter Brian Medawar OM CBE FRS (28 February 1915 – 2 October 1987) was a British zoologist. Medawar's work on graft rejection and the discovery of acquired immune tolerance was fundamental to the practice of tissue and organ transplants. He was awarded the 1960 Nobel Prize in Physiology or Medicine with Sir Frank Macfarlane Burnet. Until partially disabled by a cerebral infarction, he was Director of the National Institute for Medical Research at Mill Hill.

Contents

- 1 Life
 - 1.1 Early years
 - 1.2 Achievements
 - 1.3 Later years
 - 1.4 Views on religion
- 2 Research
 - 2.1 Early research
 - 2.2 Outcome of research
 - 2.3 Theory of ageing
- 3 Books
- 4 Notes
- 5 References
- 6 External links

Sir Peter Medawar



Born	28 February 1915 Petrópolis, Brazil
Died	2 October 1987 (aged 72) London, United Kingdom
Residence	London
Nationality	British
Fields	Zoology; Immunology
Institutions	Birmingham University University College London National Institute for Medical Research
Alma mater	Oxford University
Influences	Howard Florey; J.Z. Young
Notable awards	Nobel Prize in Physiology or Medicine 1960; Order of Merit 1981

Life

Early years

Medawar was born on 28 February 1915, in Petrópolis, Brazil (a town 40 miles north of Rio de Janeiro) of a British mother and a Lebanese father. His status as a British citizen was acquired at birth: "My birth was registered at the British Consulate in good time to acquire the status of 'natural-born British subject'.^[1] Medawar left Brazil for England in 1918, and lived there for the rest of his life.

Medawar was educated at Marlborough College and Magdalen College, Oxford, where he eventually became a Fellow.

Achievements

Medawar was professor of zoology at the University of Birmingham (1947–51) and University College London (1951–62). In 1962 he was appointed director of the National Institute for Medical Research, and became professor of experimental medicine at the Royal Institution (1977–83), and president of the Royal Postgraduate Medical School (1981–87). Medawar was a scientist of great inventiveness who was interested in many other subjects including opera, philosophy and cricket.

He was knighted in 1965^[2] and appointed to the Order of Merit in 1981.

Later years

Whilst attending the annual British Association meeting in 1969, Medawar suffered a stroke when reading the lesson at Exeter Cathedral, a duty which falls on every new President of the British Association. It was, as he said, "monstrous bad luck because Jim Whyte Black had not yet devised beta-blockers, which slow the heart-beat and could have preserved my health and my career".^[3] Medawar's failing health may have had repercussions for medical science and the relations between the scientific community and government. Before the stroke, Medawar was one of Britain's most influential scientists, especially in the medico-biological field.

After the impairment of his speech and movement Medawar, with his wife's help, reorganised his life and continued to write and do research though on a greatly restricted scale. However, more haemorrhages followed and in 1987 Medawar died. He is buried — as is his wife Jean (1913–2005) — at Alfriston in East Sussex.^[4]

Views on religion

Medawar declared:

... I believe that a reasonable case can be made for saying, not that we believe in God because He exists but rather that He exists because we believe in Him... Considered as an element of the world, God has the same degree and kind of objective reality as do other products of mind... I regret my disbelief in God and religious answers generally, for I believe it would give satisfaction and comfort to many in need of it if it were possible to discover and propound good scientific and philosophic reasons to believe in God... To abdicate from the rule of reason and substitute for it an authentication of belief by the intencness and degree of conviction with which we hold it can be perilous and destructive... I am a rationalist—something of a period piece nowadays, I admit...^[5]

Research

Early research

His involvement with what became transplant research began during WWII, when he investigated possible improvements in skin grafts. It became focused in 1949, when Burnet advanced the hypothesis that during embryonic life and immediately after birth, cells gradually acquire the ability to distinguish between their own tissue substances on the one hand and unwanted cells and foreign material on the other.

With Rupert Billingham, he published a seminal paper in 1951.^[6] Santa J. Ono, the American immunologist, has described the enduring impact of this paper to modern science.^[7]

Outcome of research

Medawar was awarded his Nobel Prize in 1960 with Burnet for their work in tissue grafting which is the basis of organ transplants, and their discovery of acquired immunological tolerance. This work was used in dealing with skin grafts required after burns. Medawar's work resulted in a shift of emphasis in the science of immunology from one that attempts to deal with the fully developed immunity mechanism to one that attempts to alter the immunity mechanism itself, as in the attempt to suppress the body's rejection of organ transplants.

Theory of ageing

Medawar's 1951 lecture *An unsolved problem of biology* (published 1952) addressed the question of why evolution has permitted us to deteriorate with age, although (1) ageing lowers our individual fitness, and (2) there is no obvious necessity for ageing.^[8] His insight was that the force of natural selection is weaker late in life (because the fecundity of younger age-groups is overwhelmingly more significant in producing the next generation). What happens to an organism after reproduction is only weakly reflected in natural selection by the effect on its younger relatives. He pointed out that likelihood of death at various times of life, as judged by life tables, was an indirect measure of fitness, that is, the capacity of an organism to propagate its genes. Life tables for humans show, for example that the lowest likelihood of death in human females comes at about age 14, which in primitive societies would likely be an age of peak reproduction. This has served as the basis for all three modern theories for the evolution of ageing.

Books

His books include *The Uniqueness of Man*, which includes essays on immunology, graft rejection and acquired immune tolerance; *Induction and Intuition in Scientific Thought*; *The Art of the Soluble*, a book of essays, later reprinted in *Pluto's Republic*; *Advice to a Young Scientist*; *Aristotle to Zoos* (with his wife Jean Shinglewood Taylor); *The Life Science*, *The Limits of Science* and his last, in 1986, *Memoirs of a Thinking Radish*, an autobiography. One of his best-known essays is his 1961 demolition of Pierre Teilhard de Chardin's *The Phenomenon of Man*, of which he said: "Its author can be excused of dishonesty only on the grounds that before deceiving others he has taken great pains to deceive himself".^[9]

Notes

1. ^ Medawar P.B. 1986. *Memoirs of a thinking radish: an autobiography*. Oxford. p5
2. ^ "Honours and Awards, Home Office" ([http://www.gazettes-online.co.uk/ViewPDF.aspx?pdf=43819&geotype=London&gpn=10841&type=ArchivedIssuePage&all=&exact=Medawar&atleast=&\(\)](http://www.gazettes-online.co.uk/ViewPDF.aspx?pdf=43819&geotype=London&gpn=10841&type=ArchivedIssuePage&all=&exact=Medawar&atleast=&().)). *The London Gazette* (43819): 10841. 1965. [http://www.gazettes-online.co.uk/ViewPDF.aspx?pdf=43819&geotype=London&gpn=10841&type=ArchivedIssuePage&all=&exact=Medawar&atleast=&\(\)](http://www.gazettes-online.co.uk/ViewPDF.aspx?pdf=43819&geotype=London&gpn=10841&type=ArchivedIssuePage&all=&exact=Medawar&atleast=&().)
3. ^ Medawar P.B. 1986. *Memoirs of a thinking radish: an autobiography*. Oxford. p153
4. ^ Leslie Baruch Brent. "Jean Medawar's obituary (http://www.findarticles.com/p/articles/mi_qn4158/is_20050512/ai_n14623720)" Independent, The (London). May 12, 2005.
5. ^ Peter Medawar 1984. 'The question of the existence of God' in *The limits of science* Harper and Row.
6. ^ Billingham, R.E.; Medawar, P.B. (1951). "The Technique of Free Skin Grafting in Mammals" (<http://jeb.biologists.org/cgi/reprint/28/3/385.pdf>) . *Journal of Experimental Biology* **28** (3): 385–402. <http://jeb.biologists.org/cgi/reprint/28/3/385.pdf>
7. ^ Ono, Santa Jeremy (2004). "The Birth of Transplantation Immunology: the Billingham--Medawar Experiments at Birmingham University and University College London" (<http://jeb.biologists.org/cgi/reprint/207/23/4013.pdf>) . *Journal of Experimental Biology* **207** (23): 4013–4014. doi:10.1242/jeb.01293 (<http://dx.doi.org/10.1242%2Fjeb.01293>) . PMID 15498946 (<http://www.ncbi.nlm.nih.gov/pubmed/15498946>) . <http://jeb.biologists.org/cgi/reprint/207/23/4013.pdf>

8. ^ This second premise is weak, because it assumes (i.e. begs the question) that cellular repair mechanisms always operate perfectly. If they do not, there is a clear implication that ageing will occur.
9. ^ Medawar, P.B. (1961). "Critical Notice" (<http://mind.oxfordjournals.org/cgi/reprint/LXX/277/99>) . *Mind* **LXX** (277): 99–106. doi:10.1093/mind/LXX.277.99 (<http://dx.doi.org/10.1093%2Fmind%2FLXX.277.99>) . <http://mind.oxfordjournals.org/cgi/reprint/LXX/277/99>

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External links

- Biography from Sci-Quest Journal (<http://www.geocities.com/CapeCanaveral/2612/life.htm>)
- Magdalen College Oxford, biography of Peter Medawar (http://www.magd.ox.ac.uk/history/nobel_medawar.shtml)
- Biography on Nobel Prize website (<http://nobelprize.org/medicine/laureates/1960/medawar-bio.html>)
- Works by or about Peter Medawar (<http://worldcat.org/identities/lccn-n79-59609>) in libraries (WorldCat catalog)

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