

Life & Times

Alexis Carrel:

'father of transplant surgery' and supporter of eugenics

Alexis Carrel was once very famous. In 1912 he was the youngest Noble Prize winner (in Physiology or Medicine), the first surgeon, and the first whose Nobel Prize-winning research was carried out in the US. He is justly celebrated as a pioneer in vascular surgery, the father of transplant surgery, an early practitioner of cell culture, and much besides.¹ Yet, now he is largely forgotten. Why?

A PIONEER OF TRANSPLANT SURGERY

Carrel's story starts with the assassination of French President Carnot in 1894. Carrel was a medical student; 21 years old. Carnot was attacked by an anarchist with a dagger, tearing his portal vein. Carnot died; at that time no surgeon knew how to suture veins or arteries. Carrel was studying in Lyons, the home of the French silk industry. The story is that he learnt fine needlework from an expert embroiderer there, Mme Leroudier. In 1902 he published a paper describing a method of anastomosing arteries and veins, with which he had experimented successfully in dogs, and which is still in use today. He set his heart on solving the surgical problems of transplanting solid organs.

He moved to the US and was recruited by the Rockefeller Institute in New York, where he stayed in full-time research for the rest of his medical career. It was at the Rockefeller that he carried out his research proving that solid organ transplantation was possible — at least in dogs. Many of his techniques, in particular the Carrel patch, remain in use today. Because it is difficult to suture small arteries, when cutting out the renal artery it is removed with a small patch of aorta, thus making resuturing easier. Having obtained his Nobel Prize, Carrel in no way slackened his efforts. He was one of the first to develop cell culture techniques, proudly maintaining a cell line derived from chicken heart cells for 35 years — well beyond the life span of the original chicken.

He also, with the pioneer aviator/engineer Charles Lindbergh, in the 1930s developed a pump that could keep whole organs alive and oxygenated. The pump could keep a

cat's thyroid going for 30 days and a cat's heart for 12 hours.² After his death the pump was forgotten, but, recently, transplant surgeons have turned again to pumps that can keep donor organs viable. The alternative, cryopreservation of organs, was also pioneered by Carrel.

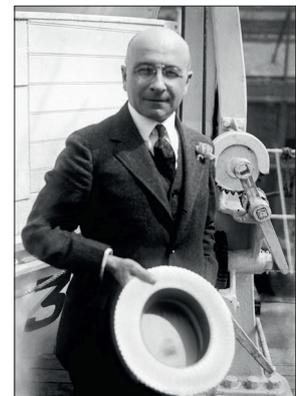
A LEADER IN EUGENICS

Eugenics, the sterilisation of the unfit so that the human gene pool could be improved, then a widely accepted practice, was another interest.³ In 1938, Carrel was forced to retire from the Rockefeller Institute because he was 65. In 1941 he accepted a grant from Vichy France to set up an institute in Paris, which was in the German-occupied zone, to examine the problems of man. At the liberation, Carrel was considered by many to have collaborated with the Nazis and would likely have been brought before a court had he not died at that point.

Why did such a brilliant man, with so many achievements to his name, end by following such a path and die in disgrace? The first thing to realise is that eugenics was not just a Nazi phenomenon. It was a movement throughout Europe and the US from the early 19th century (and before). The Rockefeller Foundation where he worked supported a eugenic centre in the US, the 'Eugenics Record Office', and eugenic research in the Third Reich, at the Kaiser Wilhelm Institute of Anthropology, Human Heredity, and Eugenics. His collaborator, Lindbergh, accepted in 1938 a Nazi medal from Goering and led the isolationist 'America First' movement in the US. Another friend, Henry Ford, the inventor of mass production, was the recipient in 1938 of an even more prestigious Nazi medal and was a leading anti-Semite, financing the anti-Semitic paper *The Dearborn Independent*.

Sterilisation of the mentally handicapped occurred in both the US and Sweden as well as Germany.³ In 1935, Carrel wrote a book, *Man, the Unknown*, which was widely read.⁴ It lulls the reader with inane, slightly poetic prose. Only in the closing chapters does he come clear:

'To maintain order. the conditionina of less



Alexis Carrel (1873-1944). This portrait is from the Bain News Service, one of America's oldest news picture agencies, which holds images dating from the 1890s to the 1930s. Credit: LIBRARY OF CONGRESS/SCIENCE PHOTO LIBRARY.

dangerous criminals by the whip, or by some other more scientific method, followed by a short stay in hospital, will probably suffice; as for the others, those who have killed, armed robbers, the kidnappers of children, those who have fleeced the poor, those who have seriously abused the trust of the public, for them an establishment designed for euthanasia, provided with suitable gases, would allow for their disposal in a humane and economical way.' [Chapter 8, section 12]

In France, too, he had been largely forgotten until the 'Front National' rediscovered him and championed him. As a reaction, his name, which had been attached to streets and institutions, was removed. The story, then, of a great man brought low.

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REFERENCES

1. Reggiani AH. *God's eugenicist: Alexis Carrel and the sociobiology of decline*. New York: Berghahn Books, 2006.
2. Dutkowsk P, de Rougemont O, Clavien PA. Alexis Carrel: genius, innovator and ideologist. *Am J Transplant* 2008; **8(10)**: 1998-2003.
3. Brignell V. When America believed in eugenics. *New Statesman* 2010; **10 Dec**: <https://www.newstatesman.com/society/2010/12/disabled-america-immigration> (accessed 13 May 2019).
4. Carrel A. *Man, the unknown*. New York and London: Harper & Brothers, 1939.

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