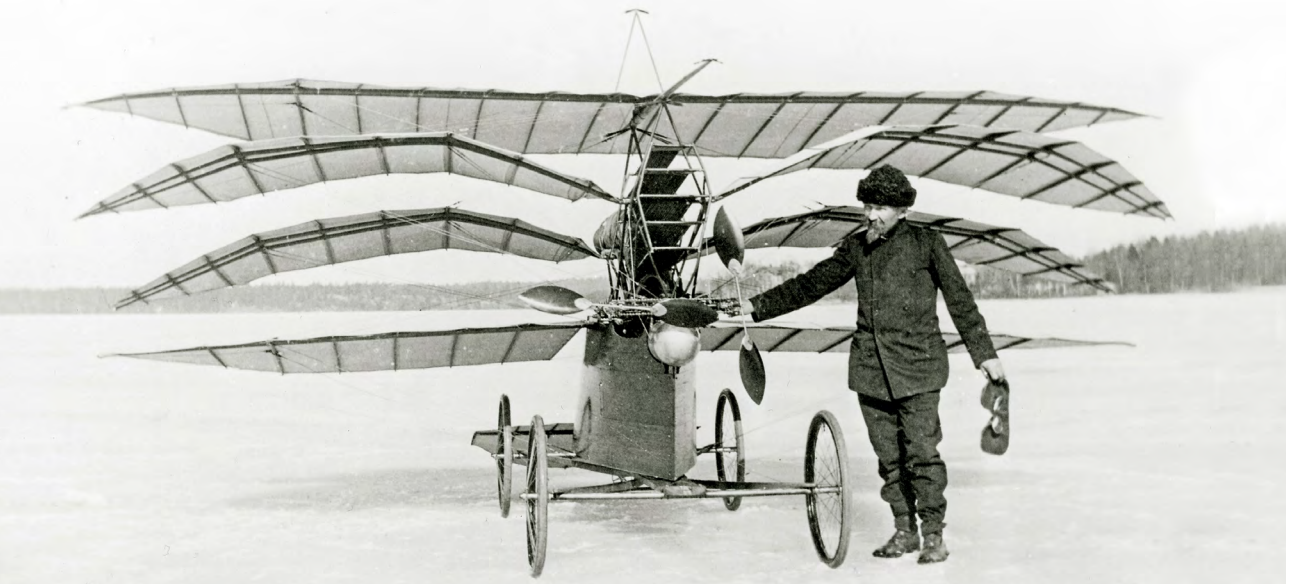
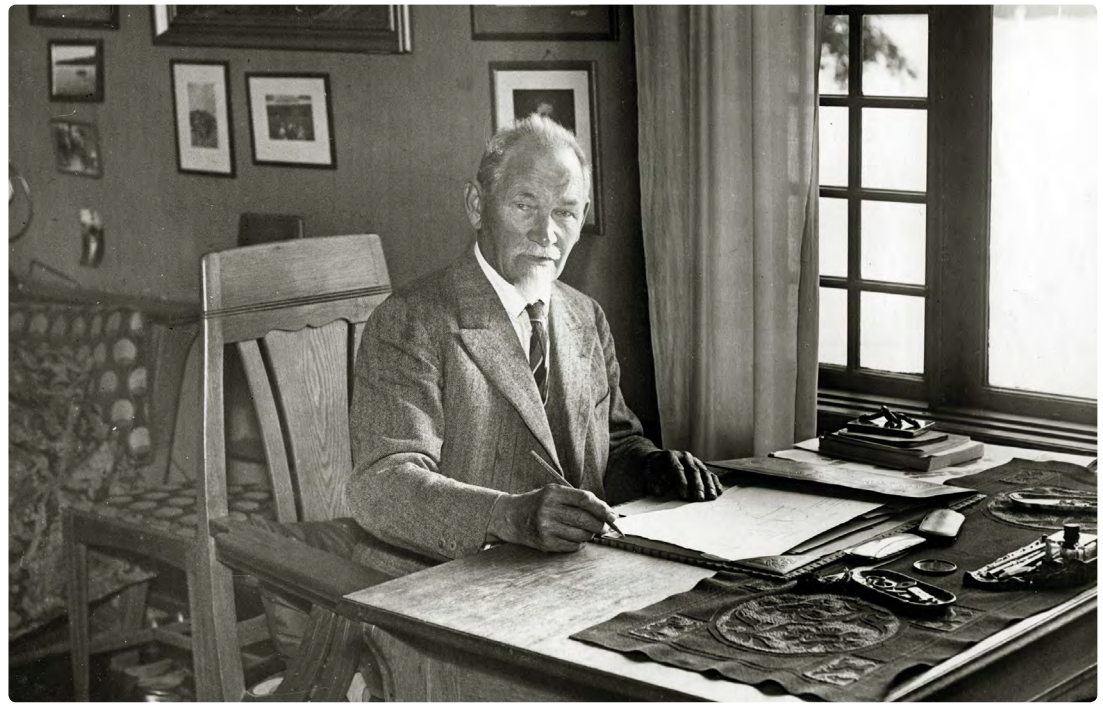
RAISING STEAM

Carl Richard Nyberg & his steam-powered flying-machines, 1898–1912

Having perfected the kerosene blowtorch by the early 1880s, Swedish inventor Carl Richard Nyberg turned his attention to the concept of a steam-powered multi-winged flying-machine. **JAN FORSGREN** chronicles Nyberg's adventures in aeronautics, no result of which ever got off the ground and which have been almost completely forgotten by history, even in his homeland





NATIONAL MUSEUM OF SCIENCE & TECHNOLOGY, SWEDEN x 2

THE SWEDISH INVENTOR and industrialist Carl Richard Nyberg (1858–1939) must count as one of the world's least-known early aviation explorers. Born at Arboga in central Sweden, Nyberg displayed an early flair for technology, despite lacking formal engineering training. His two most famous inventions, the kerosene stove and blowtorch, resulted in him venturing into manufacturing. Nyberg later wrote that his two main interests in life were to find out why some kerosene stoves caught fire (and design away that flaw), and designing propellers for boats and flying-machines.

In 1878, while working for a company in Stockholm, Nyberg built a model helicopter fitted with two rotors mounted on vertical axles. By means of a spring-loaded feather from a clock, the device managed to rise a few feet in the air. Nyberg subsequently sought funding from the Swedish Royal Academy of Science for the development of a steam-powered full-scale helicopter. No funds were forthcoming, however, and by the late 1890s Nyberg had abandoned the helicopter, his efforts being turned towards fixed-wing aircraft.

Nyberg's Test Apparatus

In co-operation with Professor Johan Erik Cederholm of the Royal Technical College and engineer Anders Rosborg, Nyberg went public with his plans for a steam-powered aeroplane in mid-1898, with a long article and illustration of the "Test Apparatus" appearing in the June 3, 1898, edition of the magazine *Norden*.

The Test Apparatus was a large biplane consisting of a gondola for the pilot and a pusher-configuration steam engine. The gondola consisted of a light metal-tube frame covered with walnut wood. For winter trials five skis, three beneath the gondola and one beneath each wingtip, were fitted. During the summer, it was intended for the skis to be replaced by floats.

According to Cederholm's calculations the Test Apparatus could reach a speed of 18m/sec , i.e. around 35kt. Interestingly, the wings were described as *aeroplan* (i.e. aeroplanes) and were to be built from ash and covered with silk. Drawings of this machine were completed by Rosborg. The specially designed steam engine weighed 38kg (84lb) and was rather optimistically estimated to deliver 30 h.p. with the pair of pusher propellers running at 1,000 r.p.m. The machine's estimated empty weight was 400kg (880lb).

Via newspapers, Nyberg closely monitored international aeronautical developments, although only Otto Lilienthal is explicitly mentioned by him. However, it appears fairly certain that Nyberg did not correspond with any of his contemporary aviation experimenters.

On February 10, 1899, Nyberg held a lecture at

OPPOSITE PAGE ***Carl Richard Nyberg in front of the half-scale steam-powered proof-of-concept machine he named*** **Flugan** ***(Fly), on which he began work in 1902.*** **ABOVE** ***Nyberg at his desk. Although forms of blowtorch have been used since ancient times, Nyberg developed a new vaporising technique that led to its modern form.***