Impington
Model Aeroplane Club
Founded in 1946 by Ray Malmström

April 2016 – *special edition*

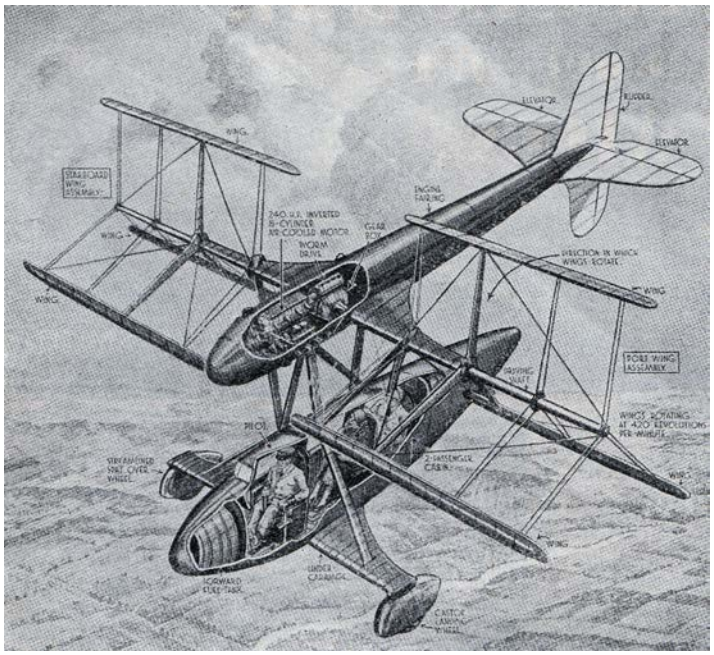
www.impmac.co.uk

Edited by Bryan Gostlow
Distributed by Tony Harper

the Cyclogyro *Ray's greatest challenge resurfaces after 30 years*

We can show you what Ray had in mind . . *but what was he thinking of !*

what's that Meccano doing there?



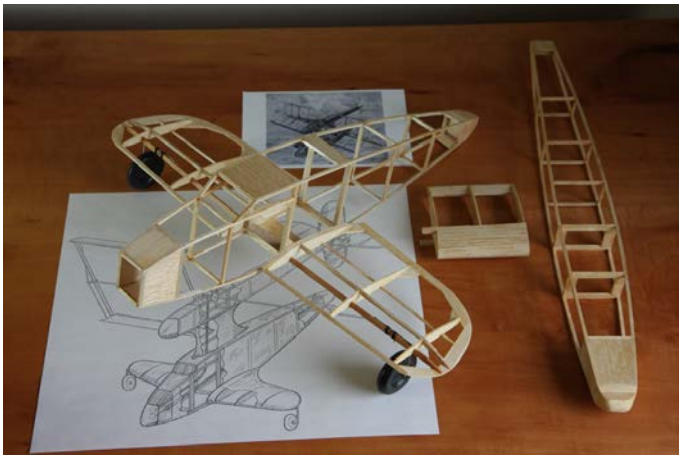
from the "Illustrated London News"

Ray's Cyclogyro

John Valiant writes

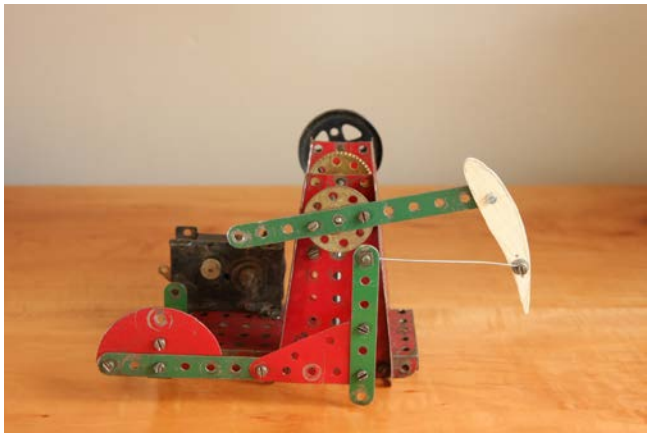
When I got Mrs Trellis's postcard I thought it would be a box of old rubbish, but she'd mentioned Ray and I thought it might just be worth calling on her.
We've no plan for this in the archive, but Tony Harper remembers Ray talking about a commission which was proving difficult. I guess in the end he gave up and put it to one side.

First impressions on opening the box were, "what's that Meccano doing there – it'll never fly with that!". There was no plan, just a decent sketch and a photograph [from the Illustrated London News] of a Cyclogyro – one of those ideas that surfaces from time to time. The balsa structure looked reasonably complete and surprisingly little damaged but no hint of a mechanism to drive it except for the hole up through the pylon [for the flexible drive] and provision for nose/tail blocks to give access to the gearing [nose] and winding [tail].

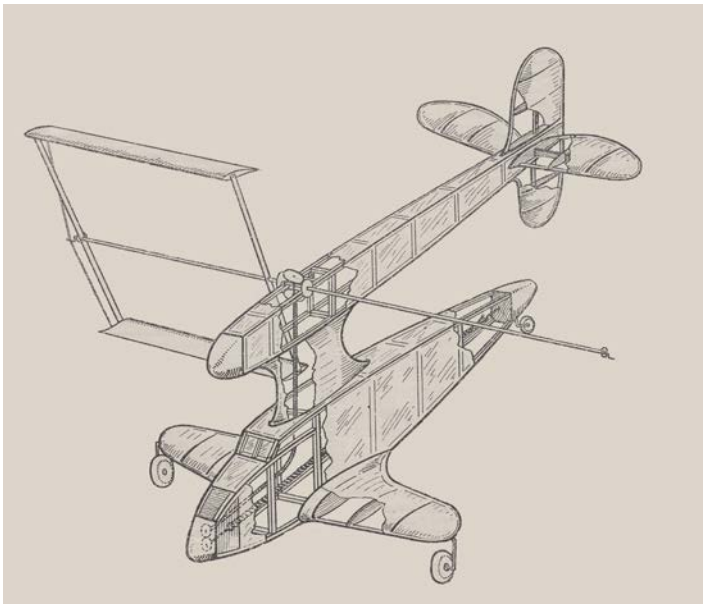


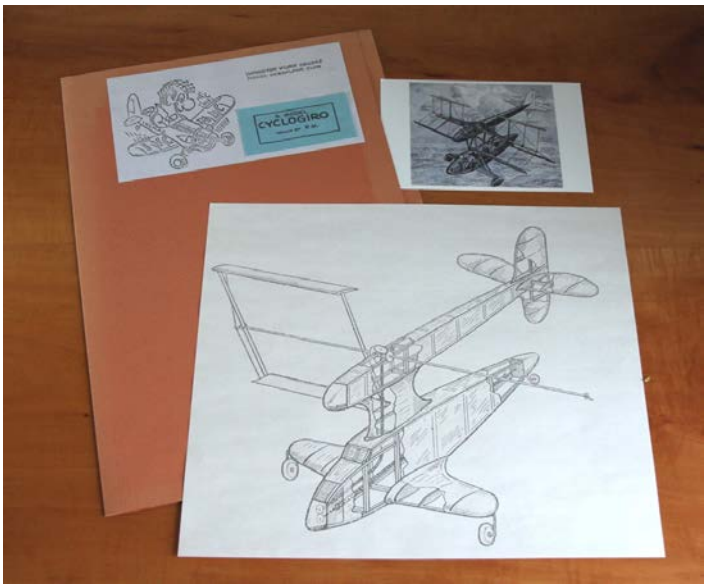
The stub wings plug into the lower fuselage, fairly standard construction, but the attachment of the pylon and upper fuselage is very sketchy.

Talking to Tony Harper and Chris Strachan we guess he got as far as thinking in detail about the mechanism to support and rotate the rotors and decided a to make a model in meccano to get a better idea of just what was involved. Google ‘cyclogyro’ and it’s clear that the horizontal rotors need to be powered but the tricky bit is adjusting the incidence as they go round.

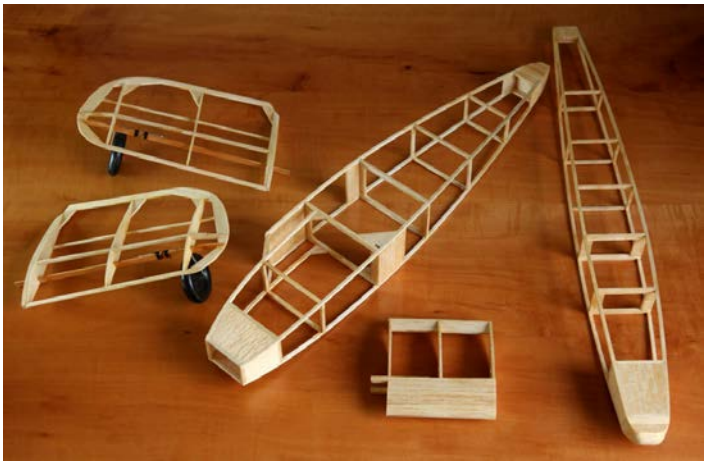


The idea is that, in theory at least, the Cyclogyro can take off vertically and transition to horizontal flight!
Our best guess is that Ray decided that any mechanism he could devise would be too heavy and, in any case, with all the losses [flexible drive and gearing] there wasn’t going to be enough rubber in Ren-models to get it off the ground.





If anyone remembers Ray working on this, unlikely as his models tended to just appear fully formed ready for trimming, then please have a word with one or other of us. I’ll bring the box along next Friday and so that you can all have a look for yourselves.



Mrs Trellis

a chance discovery

Mrs Trellis

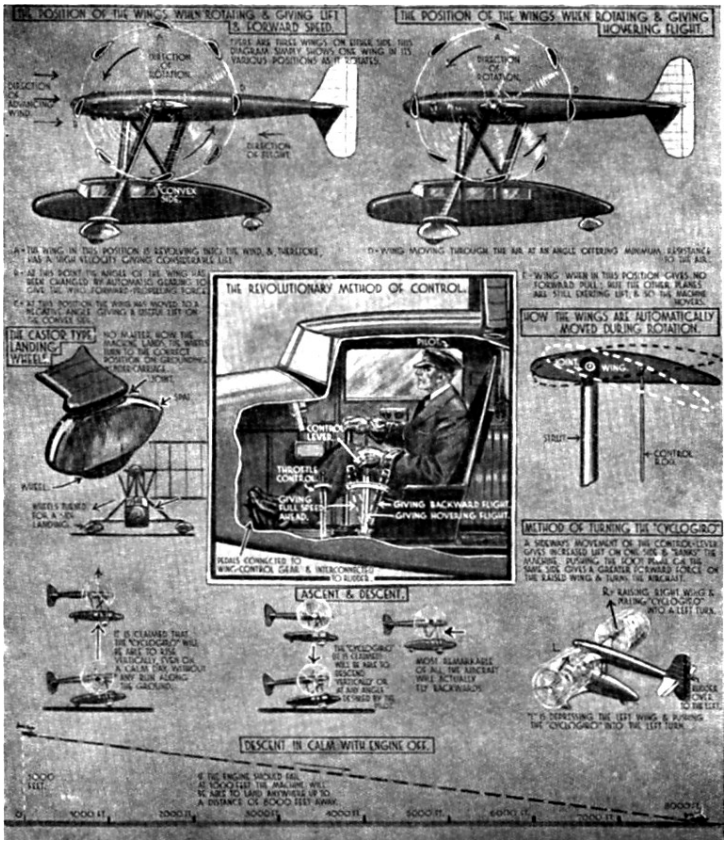
Mrs Trellis lives in Haslingfield but is shortly to move to North Wales to be closer to her daughter. As part of house clearing and getting ready to move she came across a large cardboard box.

She remembered getting the box of model plane bits it in a local jumble, when her son was small, and thinking it would be just the thing to occupy him during the holiday. She says, “It coincided with him being given a Sinclair Spectrum and the box with it’s bits didn’t really get a look in and just got put to one side and forgotten about”.

As she was about to ‘recycle’ the box and contents Mrs Trellis read the label and googled ‘Impington Village College Model Aeroplane Club’. She goes on, “It was then I remembered Mr Malmstrom, he used to live just across at Harlton, and had a lot to do with model planes. I saw Mr Upton’s address on the website, in Hardwick, and I thought I’d drop him a postcard in case it was anything important. He came round a couple of days later and seemed ever so pleased to take the bits of plane away.”

The Cyclogyro

a history in pictures

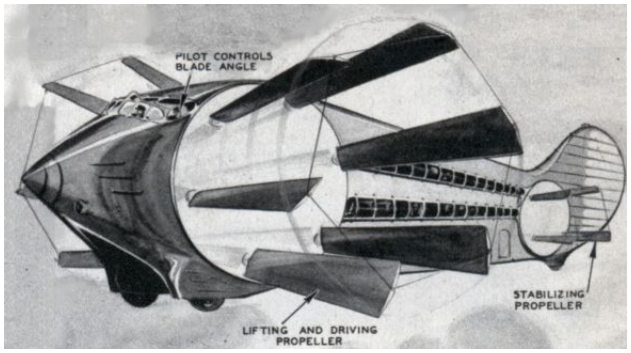


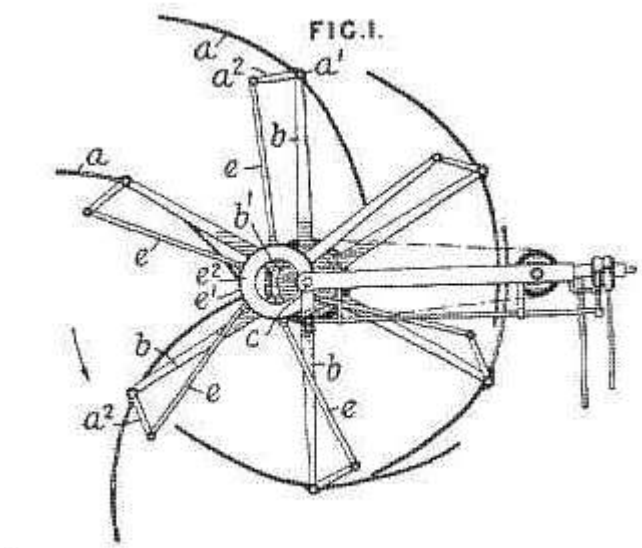
Egg-Beater Wing Plane Imitates Hovering Flight of Eagle

REVOLVING blades resembling somewhat the working parts of an egg beater replace wings and tail stabilizers on the "cycloidal flying machine," an airplane designed to reproduce the best features of an eagle's flight.

A seven foot model of the unusual craft has already been built in the aeronautical laboratories of the University of Washington by its inventor, Dr. Frederick K. Kirsten. The novel wing mechanism is expected to give higher speeds, hovering flight, and slower landings.

Seven-foot scale model of Dr. F. K. Kirsten's "cycloidal flying machine" was inspiration for this artist's sketch of plane in flight. Note resemblance of wings to egg-beater.





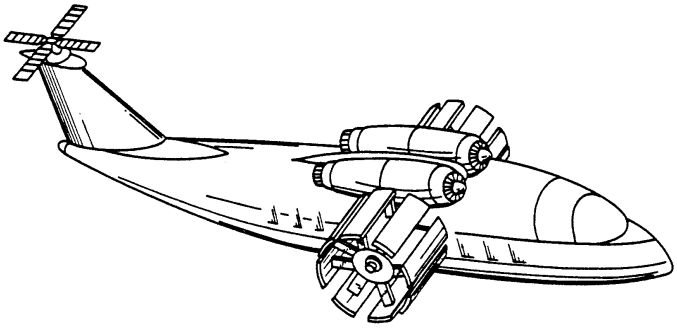


Рис. 14.5. Американский самолет «Сайклоджайро» (~1930 г.) с напоминающей гребное колесо конструкцией, получившей название «циклоидный пропеллер».

Recently, with brushless motors, computer control and modern materials, cyclogyros have been made to fly.

Cycloidal-rotor or Cyclocopter is a radical alternate concept to conventional helicopters that can revolutionize vertical flight. Cyclocopter research conducted in the University of Maryland by Dr. Moble Benedict and Prof. Inderjit Chopra included the most comprehensive experimental/computational study ever performed on this concept since its inception in the early 20th century. The experimental study included both performance and flow-field (Particle Image Velocimetry) studies. This study uncovered the key aerodynamic/aeroelastic phenomena involved and hence dramatically improved the understanding of this concept. This helped in formulating a set of design principles for an efficient cyclorotor which eventually led to the development of the first flying cyclocopter in the history.

https://www.youtube.com/watch?v=sF8TV2PVWlI

https://www.youtube.com/watch?v=rTllnoVugmc