



MODEL helicopters are fascinating, unusual flying machines and it is strange that so few designs, particularly rubber-powered ones, are available to aeromodellers. Therefore, this month, Meccano Magazine presents especially for you, a new helicopter design, the Ascenda. Watching Ascenda fly vertically upwards, hover at a good height and then descend slowly as the power runs out, is a new kind of model flying that no other model aircraft can provide.

Although not a beginner's model, if you have a little aeromodelling experience, you should not find Ascenda difficult to

construct and fly. Start construction with the rotor unit. Cut out the rotor head from $\frac{1}{16}$ inch plywood and drill the centre hole to take a 20 s.w.g. wire shaft. Bend three wire rotor supports. Check and see they are all the same size. Next, bend the part that cements to the root of the rotor blades to the angle shown on the plan. Again check to see you have bent the same angle into all three supports.

Cement one rotor blade support wire to each arm of the rotor head. Using $\frac{1}{8}$ inch wide thin tape or silk, fasten the wire supports to the three rotor head arms. Cement well and lay aside to dry thoroughly.

Cut three rotor blades from $\frac{1}{16}$ inch medium grade sheet balsa. Sandpaper to section and attach the blades to the wire supports using tape or silk to fasten the wire securely to the blades. Check with the easi-build sketches, then lay aside to dry. Make the motor stick (pylon) as shown in the sketches. Bind the bearing block and the lower hook securely to the motor stick with thread and cement well.

Now, before proceeding, you must balance the rotor blades. Hang the rotor up and if one of the blades hangs down, add a very small amount of Plasticine

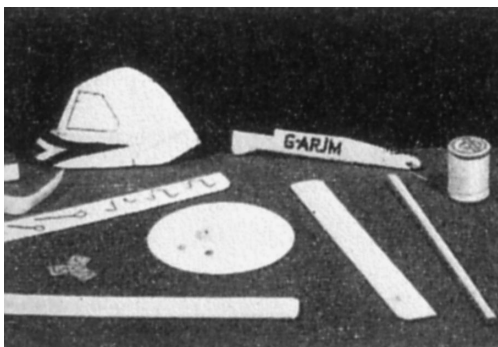
to one or both of the other blade tips. Continue to balance the blades until all three hang perfectly level. This careful balancing is most important.

Assemble the balanced rotor unit to the top of the motor stick. The drive shaft is 20 s.w.g. wire. Note the two cup washers between the rotor head and the bearing block. Bend the end of the drive shaft over and lock the rotor head with a piece of tape or silk, cement well and allow to dry thoroughly.

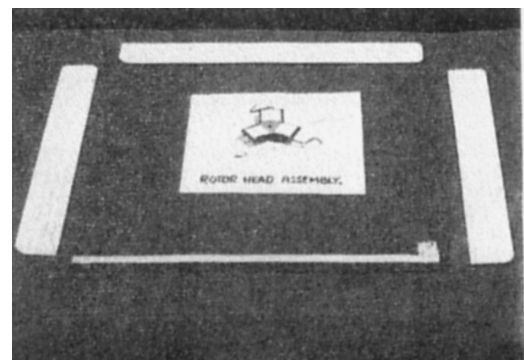
Cut fuselage and tail boom from $\frac{1}{16}$ inch medium grade sheet and join together. Add the 4 inch diameter anti-spin disc, made from thin cartridge paper, to the end of the tail boom and then cement the fuselage unit to the motor pylon.

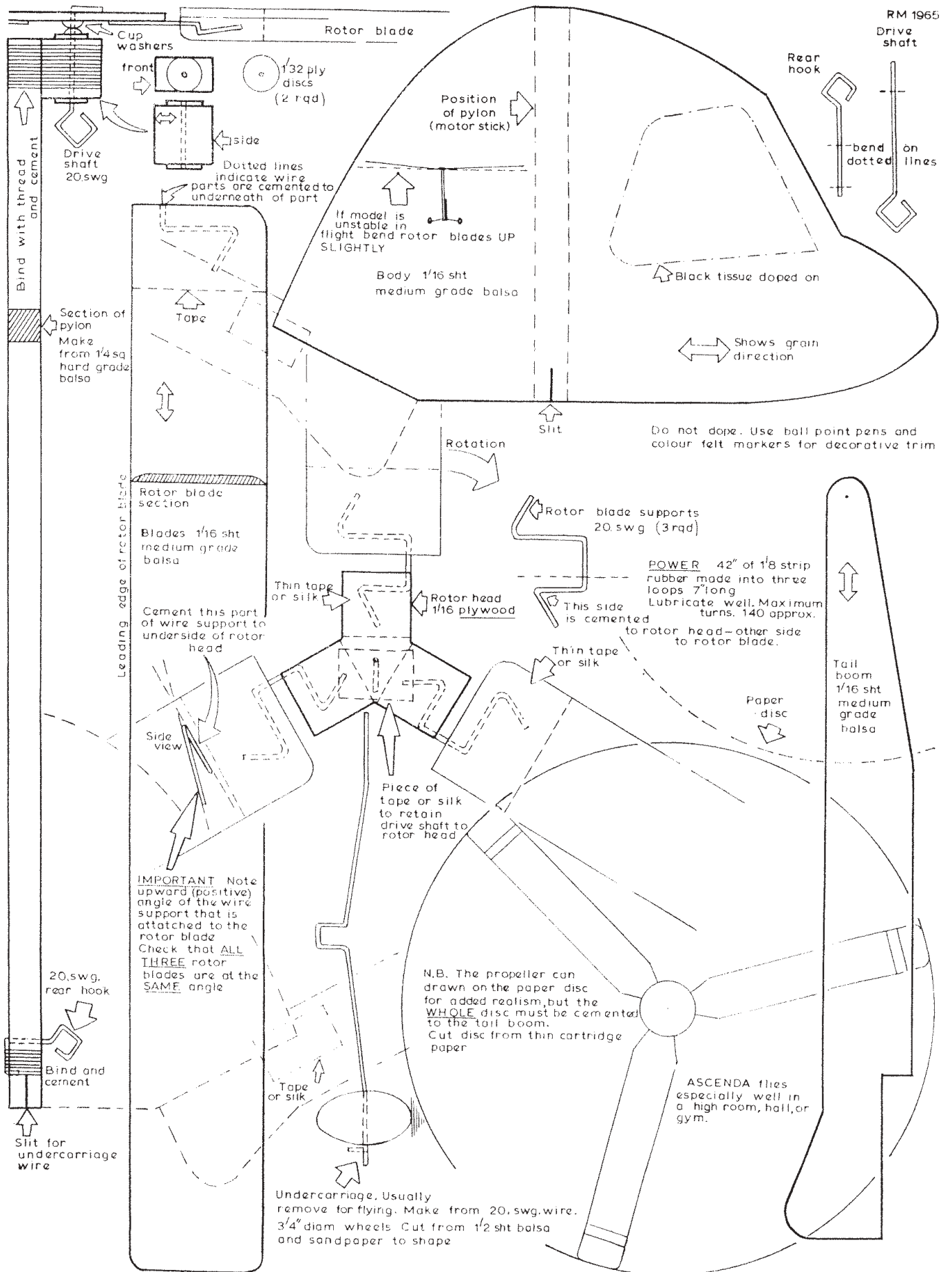
The simple undercarriage is for display only. It fits in a slit cut in the base of

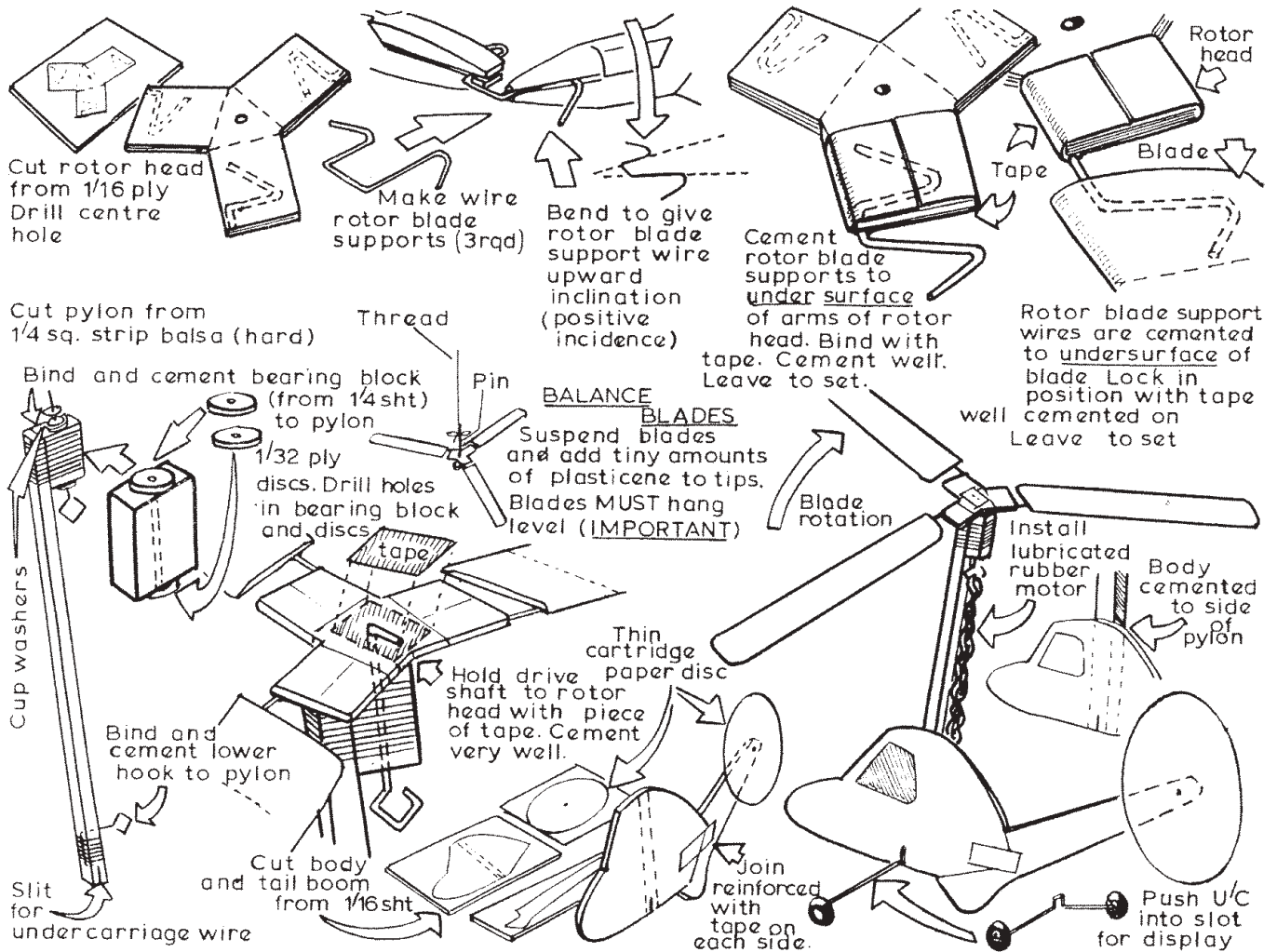
The simple parts required for the model



Accuracy is vital with the rotor head







the motor stick and is removed for flying.

Make up the rubber motor from a 42 inch length of $\frac{1}{4}$ inch wide strip rubber. Make this into three loops, approximately 7 inches long. Rub on rubber lubricant and install the motor between the hooks on the motor stick. Your Ascenda is now ready for flying, except for any decoration in ball-point pen or coloured felt markers, you may wish to apply. Do *not* dope your model!

Flying

Your Ascenda will fly either outdoors or indoors. For outdoor testing, choose some soft grass and a calm day. There are no glide tests with a helicopter, so holding the model in one hand by the motor stick, wind the rotor blades in an

anti-clockwise direction about 70 to 80 turns. Then, holding the rotor with one hand, steady the model by holding the bottom of the motor stick and fuselage with the other. Now release the rotor and gently move the model vertically upwards and letting go, try and avoid tilting it one way or the other.

If your Ascenda topples over and falls to the ground, check the balance of the blades. This is important. If it fails to climb, but hovers at launch height, hold the rotor arms between the fingers and gently bend the root end of the blades to give a *little* more upward angle. Then try another flight.

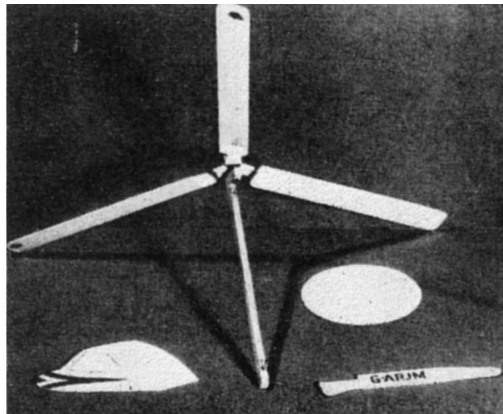
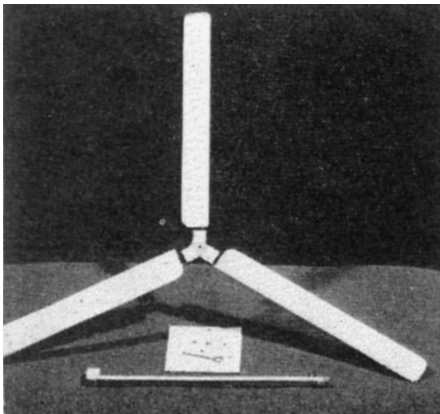
The whole secret of successful flight, assuming the rotor blades are in balance, is getting the correct upward angle of

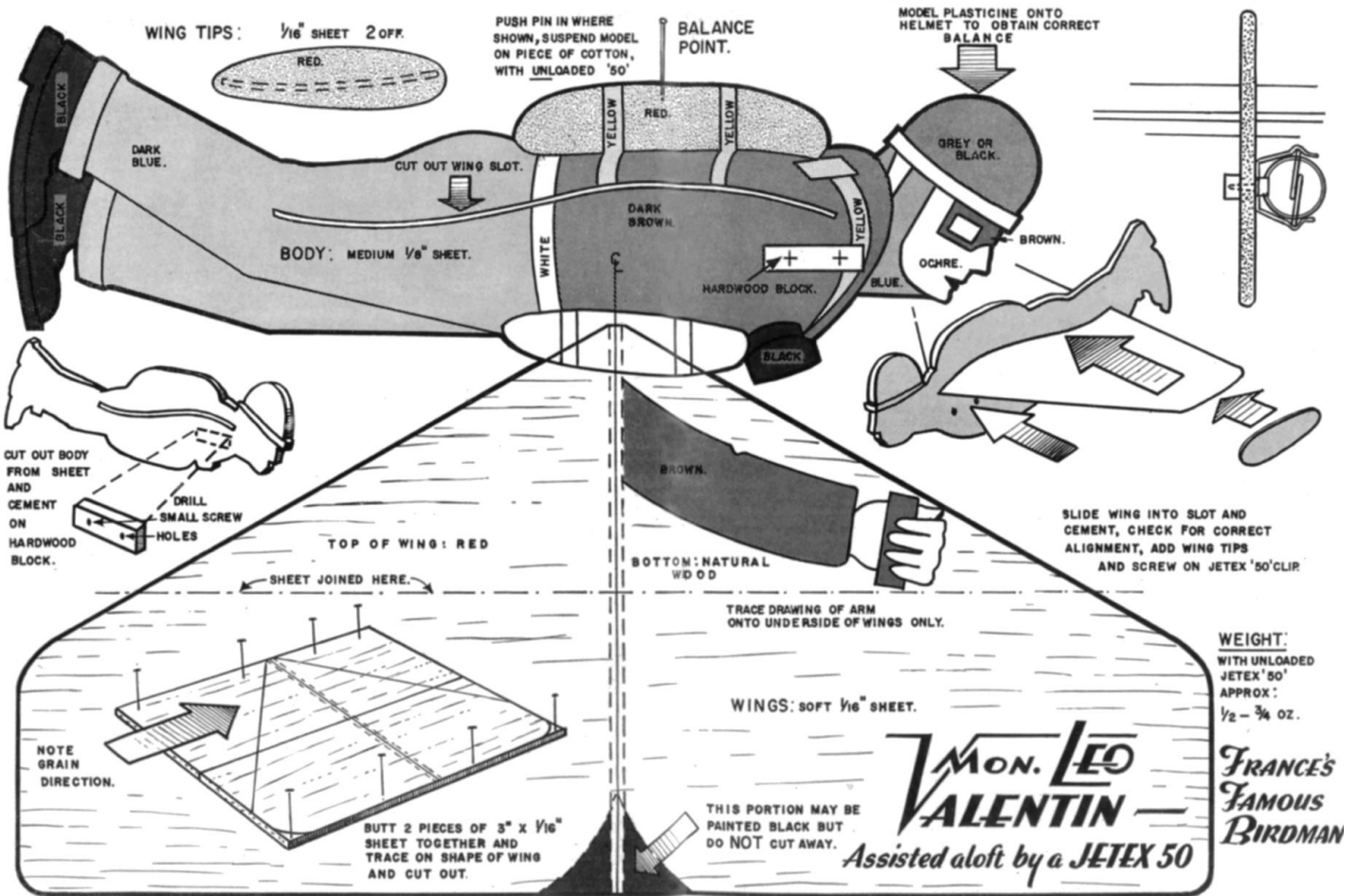
the rotor blades. You can only find the best possible angle for a really good climb by trial and error, so do not be disappointed if your Ascenda does not shoot vertically upwards on its very first flight. Finally, you can increase the turns on your rubber motor to 140.

Components list

- 2 in. square piece of $\frac{1}{8}$ in. plywood.
- 1 small piece of $\frac{1}{8}$ in. plywood.
- 1 sheet 24 by 3 by $\frac{1}{16}$ in. balsawood (medium grade).
- 1 strip $\frac{1}{4}$ by $\frac{1}{4}$ by $8\frac{1}{2}$ in. balsawood (hard grade).
- 1 small piece $\frac{1}{4}$ in. sheet balsawood (medium grade).
- 12 by $\frac{1}{2}$ in. wide thin tape or silk.
- 18 in. length, 20 s.w.g. wire.
- 2 20 s.w.g. cup washers.
- 24 in. linen thread.
- 4 by 4 in. piece of thin cartridge paper.
- 42 in. $\frac{1}{4}$ in. strip rubber.
- 1 small tube of cement.
- 1 small tube of rubber lubricant.

Left: Rotor ready for assembly. Centre: Rotor balanced and fitted to motor stick. Right: Completed model with hand decorations





Enlarge 182% to appear full size.

Ray taught his pupils well – so well, in fact, that former student and life time aero modeller, Chris Hinson produced these cartoons of Ray for the club newsletter.

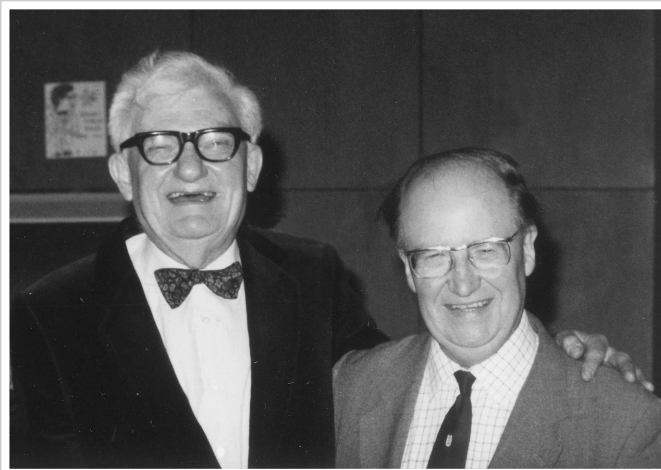


Ray actually owned a Sinclair C5. One of only around 12,000 built.

A tribute to the master of aero-arts

Most usual books have a foreword. This book is a bit unusual – so it has an epilogue. It is written by Ron Moulton, known throughout the hobby as “Mr Aero-modelling”. Ron was one of Ray’s oldest and greatest friends – and an admirer of the Master, as he shows here.

Who could ever have foreseen the vast range of imaginative designs that were to follow the little Pee-Wee as Ray Malmström’s first published creation in the pages of *Aeromodeller* for November 1940? Neither were any of us to realise how Ray’s inspirational flow of ideas were to find a perfect breeding ground when he joined the staff of Impington Village



College 60 years ago and launched an aeromodelling club that has achieved worldwide fame.

Ray was larger than life in every way, as any of his pupils would readily confirm, but much more than that, the widespread publication of his inspirational shapes introduced a refreshing challenge to the stereotypical duration models and bonded a large following of fans for his theme of *Friendship, Flying and FUN*. As the outlets expanded beyond the Eagle books and even outside a breakfast cereal box, it seemed that Ray’s constant production of shapes that stretched imagination yet always flew so well was unlimited. There were so many that only after long and diligent research first by Dennis Sharman, and then by John Valiant was it possible to build an

index and collect examples for the IVC Plans Service to be established.

Ray’s artistic talents and exuberant nature were typified in his cartoon character *Fliar Phil*, first used when he took over the selection of reader’s model pictures for the Model News feature in January 1946 *Aeromodeller*. It was an instant success. With his “Punch” chin, broad grin and tousled hair *Phil* became a *nom de plume* that signified warm hearted comment, so typical of the man himself. FP’s fantasies were delightfully sketched, often expressing long felt wants of the Mr. Average Reader he represented. Ray will be fondly remembered as much as the seemingly infinite range of flying models that were specially selected for this tribute to the wonderful life of a true Master.

Ron Moulton

Plan index

Aeronca 300 Ely (<i>Unpublished</i>)	18	Leo Valentin (<i>Aeromodeller, December 1965</i>)	93
Arrowair (<i>Model Maker, June 1980</i>)	76–77	Martian (<i>Model Aircraft, February 1954</i>)	22–23
Ascenda (<i>Meccano Magazine, June 1965</i>)	90–92	Mimi (<i>Aeromodeller, September 1953</i>)	19–21
Avenger (<i>Aeromodeller, June 1943</i>)	16–17	Mini Master (<i>Model Aircraft, November 1964</i>)	43
Avro F (<i>Meccano Magazine, July 1965</i>)	48–49	Miss Starstruck Fliar Phil Bendix Racer (<i>Unpublished</i>)	60
Avro 504 K (<i>Model Engineer, December 1967, fold out plan</i>)	57–59	Ole Tiger (<i>Aeromodeller, January 1970</i>)	68–71
Bambina (<i>Unpublished</i>)	56	Pee Wee (<i>Aeromodeller, November 1940</i>)	14–15
Bambinetta (<i>Model Aircraft, December 1955</i>)	25–27	Primary Glider (<i>Unpublished</i>)	64
Brewster Buffalo (<i>Model Aircraft, May 1961</i>)	33	Push-Up (<i>Model Aircraft, December 1956</i>)	28–29
Canard-Air (<i>Unpublished</i>)	72	SAAB A37 Viggen (<i>Meccano Magazine, May 1967</i>)	53–55
Cosmic Wind (<i>Model Aircraft, March 1964</i>)	38	SAAB J29 (<i>Aeromodeller, October 1954</i>)	24
Cosmos (<i>Model Aircraft, March 1963</i>)	39	Space-Ace (<i>Unpublished</i>)	88–89
Dualair (<i>Aeromodelling – ARCO Publications 1961</i>)	30–31	Supermarine Spitfire VB (<i>Meccano Magazine, December 1968</i>)	65–67
Eastbourne Aircraft Co. 1913 Monoplane (<i>Aeromodeller, February 1966</i>)	50–51	Stardust (<i>Meccano Magazine, April 1965</i>)	44–46
Fliar Phil’s Flier (<i>Unpublished</i>)	78–79	Starduster (<i>Meccano Magazine, month unknown 1966</i>)	52
Hanriot (<i>Aeromodeller, May 1986</i>)	81	Starfli (<i>Unpublished</i>)	86–87
Herald (<i>Model Aircraft, February 1964</i>)	36–37	Sweetheap (<i>Aeromodeller, September 1968</i>)	61–63
Invicta (<i>Unpublished</i>)	34–35	Tail Up (<i>American Aircraft Modeller, May 1971</i>)	73–75
Invicta Mk II (<i>Unpublished</i>)	40–41	Viking (<i>Unpublished</i>)	82–83
Jetstream (<i>Model Aircraft, May 1965</i>)	47	Wren (<i>Unpublished</i>)	84–85