



HOVERING ABOUT

ELMBRIDGE MODEL CLUB's Sandown Park Symposium was once again this year the splendid affair we have come to expect. The racecourse buildings make everything so comfortable, even the weather turned out to be better than expected and the anticipated increased interest in helicopters was soon apparent.

I didn't see any of the flying, but I gather the helicopters showed up to advantage in the somewhat restricted surrounds of the race track flying site. I did manage on the odd occasion, to put on my 'Hovering About' reporter's hat, the accompanying photographs are the result. Nobody could grumble about lack of choice with choppers these days.

I have developed a new symptom of what I call 'Sandown Park-itis.' The usual one, of not recognising people in a sea of faces, has now a new twist. I was inspecting an exotic new motor car in a showroom when I got a friendly grin from over the bonnet. I know him, I thought, was it Sandown Park, what helicopter has he got, who is he? It was Ernie, of Morecambe and Wise fame! As far as I know, he doesn't fly model helicopters but he does apparently drive a Saab.

Dates

The now well established Bretons Scale helicopter fly-in is once again to be held at the Bretons Sports and Social Club, Upper Rainham Road, Rainham, Essex. (Easy to find on the road between Hornchurch and Rain-

ham). The successful formula of previous years is to be extended, I can't put it better than the following letter.

"This year 'It' happens on the weekend of September 12 and 13th. The principal day will be Sunday 13th which will follow a similar format to previous years.

This year, however, we are adding a further attraction, and we are inviting helicopters and pilots over on the previous day, the Saturday, where we hope to have an informal gathering on the field, in the afternoon, and a social gathering in the clubhouse in the evening. We have arranged this to allow long distance travellers to camp, or bring caravans, set up near the flight line on the previous day, fly and trim their models at their leisure, before the Sunday Competition begins. Needless to say, any overseas entries would be most welcome.

As is the custom at the Bretons Model Flying Club, there will be no charge for the use of any of our facilities.

Full refreshments will be available on Saturday and Sunday. With the problems experienced with radio frequencies over the past year, we feel that any model frequencies are acceptable, providing that they are clearly identifiable, to avoid any possible clashes. We hope that this will enable more pilots to fly when they wish, without having to wait too long for transmitter clearance.

Landing facilities for full-size helicopters will be made available again, which, particularly for spectators, who are most welcome,

provides an added attraction.

Posters and details of the day will be sent out to all the usual model shops, and anybody requiring further information is welcome to contact me at the following address: Ron Rees, 50 Thompson Road, Dagenham, Essex. Tel: 01-593-0748."

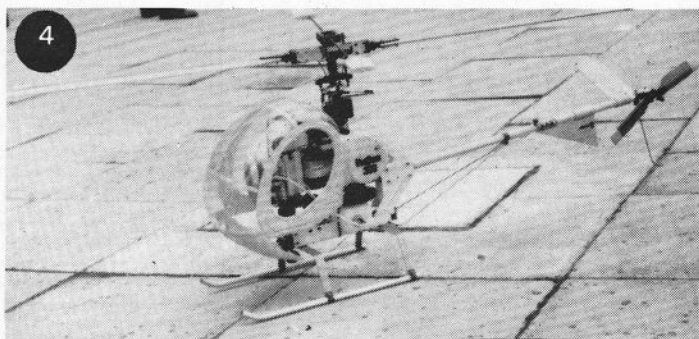
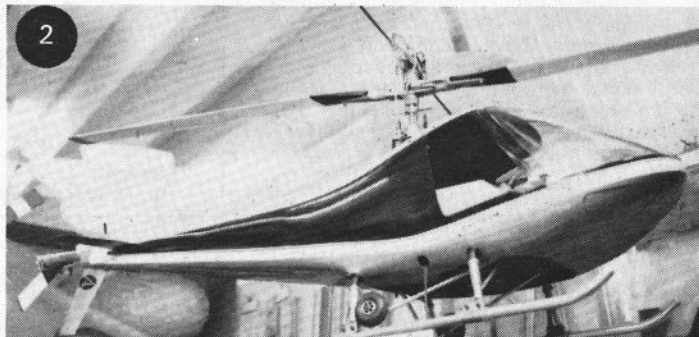
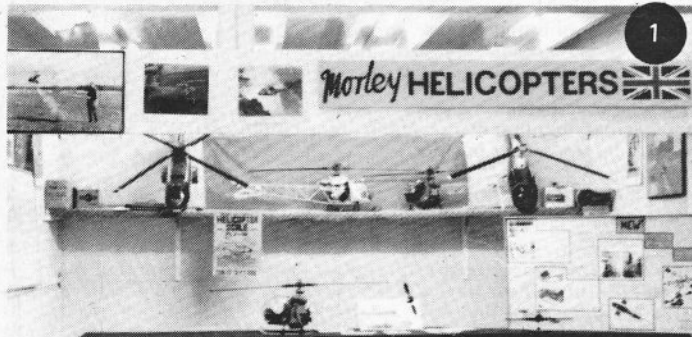
I believe the Torbay Helicopter Fly-In to be on August 2 and the Nationals on August 31. There is also a 'Hubschrauber Seminar' at Korbach by the Deutsche Aero Club on September 26-27th.

The BRM

No, not racing cars, but the British Rotocraft Museum. This organisation became officially recognised as a registered charity early this year. Before that it was a private collection but the exhibits were obviously worthy of a wider display.

At the moment, the collection cannot be seen, being temporarily housed behind the security of Westland Helicopters, but later this year it is hoped to be on show at Weston-Super-Mare.

Associate membership, for £2, from Mr. A. Norris, membership secretary, 27 Acer Road, Biggin Hill, Westerham TN16 3SP appears to bring some most interesting literature on the aircraft in the collection and the offer of a 'good quality sweatshirt' with the BRM 'Belvedere' on the front at £7.20 inclusive of p&p and VAT. "The members need no helicoptering background, only a desire to see British Helicopter History preserved, but



Choppers at Sandown. 1. *Morley Helicopters Stand displayed new AT (Advanced Technology) head.* 2. *Enstrom Shark by Hirobo displayed on Dave Nieman Models stand which is shown in 3.* 3. *Hughes 300, petrol engine power,* 4. *shown by Watford Model Centre, may be imported in quantity.* 5. *Collective pitch Garbo helicopter on show by Ripmax.*

physical assistance has often been asked for."

Well, I'm risking it, regardless of physical assistance and sweatshirts — they are welcome to ask, it could be interesting.

Tandem rotor devices

There is now a lot of interest in tandem rotors. The literature from the BRM reminded me of the 'Belvedere,' with all this talk of the 'Chinook' you tend to forget that it's been done before.

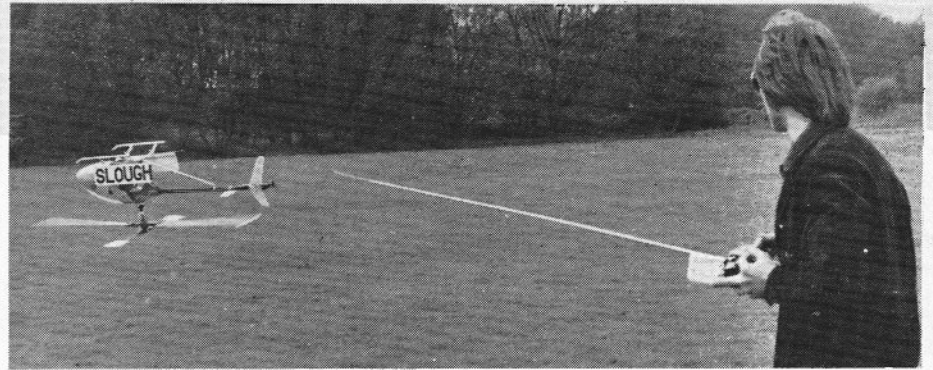
The BRM 'Belvedere' was built in 1960 by the Bristol Helicopter Company. It was one of 26 — compare that with the Boeing 'Vertol' order book — and is now the only one re-

WITH JIM MORLEY

maining outside the RAF Museum. XG452 was the fifth prototype and did several record breaking flights to the Middle East and appeared at the 1960 Farnborough Air Show. It was used as an experimental aircraft and for training until 1972 then moved to Ternhill for fire practice. In 1973 it was purchased by Mr. Elfan Rees, Managing Editor of *International Helicopter* magazine, for preservation.

It has to come of course, economics of the 'Chinook' dictate that they will be seen more in the full-size variety and models will follow. I very much regret that there just aren't enough hours in the day to pursue and develop the *Morley 'Chinook'* made by Warren Bayley and flown successfully in the right conditions, up to about this time last year. It was about as straightforward a model as you could have with tandem rotors, comprising a chassis with a set of *Morley 2C* mechanics at each end. The 0.60cu. in. motor was towards the back on its side, and driving a longitudinal shaft between the gearboxes. The clutch was doubled up and on this shaft.

Four servos were coupled to the swash plates, via glider mechanical mixers. A fifth servo drove the throttle, but only moving with collective. No electronic differences. Controls were connected as follows: (a) left stick on Tx to throttle and both collective pitch, up



and down together — collective collective. (b) Sideways on left stick to side-ways cyclic control on each swash plate, in opposite directions — yaw control. (c) Side-ways on right stick to sideways cyclic, though a mixer with (b) of course, in same direction, lateral control. (d) Fore and aft right stick, through a mixer again with (a) to both collective pitch but opposite direction — differential collective.

Without any wind the model was very easy to fly when something like the right control movements were used at the servos. Control of course being possible because of the soft teeter in the rotorheads. The diagrams show how the control worked. See Fig. 1.

1. The model at hover, rotors in opposite directions, it is obvious how much power the tail rotor takes on other models because this one goes up so easily.

2. Increase collective (and throttle) for the model to rise if, and only if, the CG is in the middle, there is no tendency to yaw.

3. Cyclic in opposite direction on each rotor for yaw movement. With rigid rotor no effect, you would simply be picking up your box at two corners on a diagonal instead of along the centre line as at hover.

4. Cyclic in the same direction for lateral. This would work without soft teeter.

5. Both control sticks one way. This is interesting. Lateral control removes the inclination from rear rotor put into it by yaw control. Result nose pivots round tail.

Above: John Griffiths of Slough Radio Control displayed this inverted flying Kalt Baron 50 at Sandown. Below left: Warren Bayley's Morley Chinook, control mixing is all mechanical. See text. Bottom: on a calm day the Chinook was very stable and manoeuvrable.

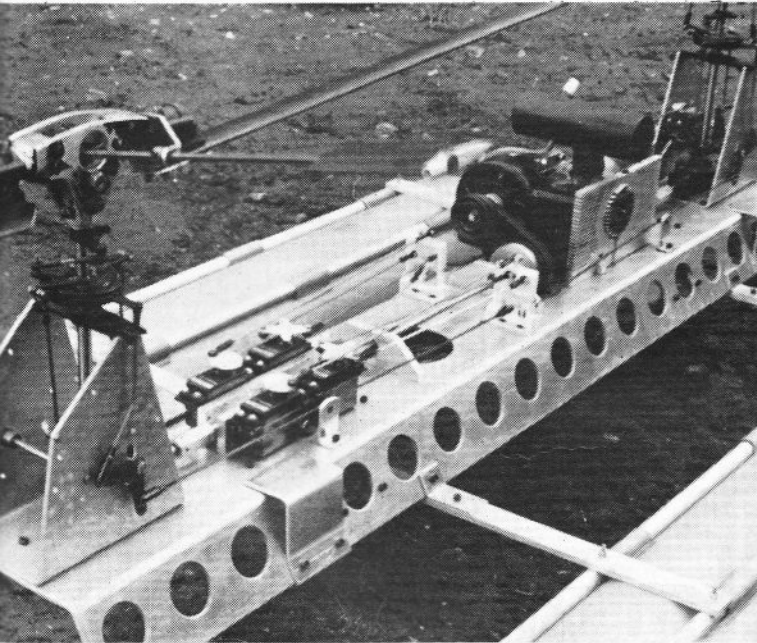
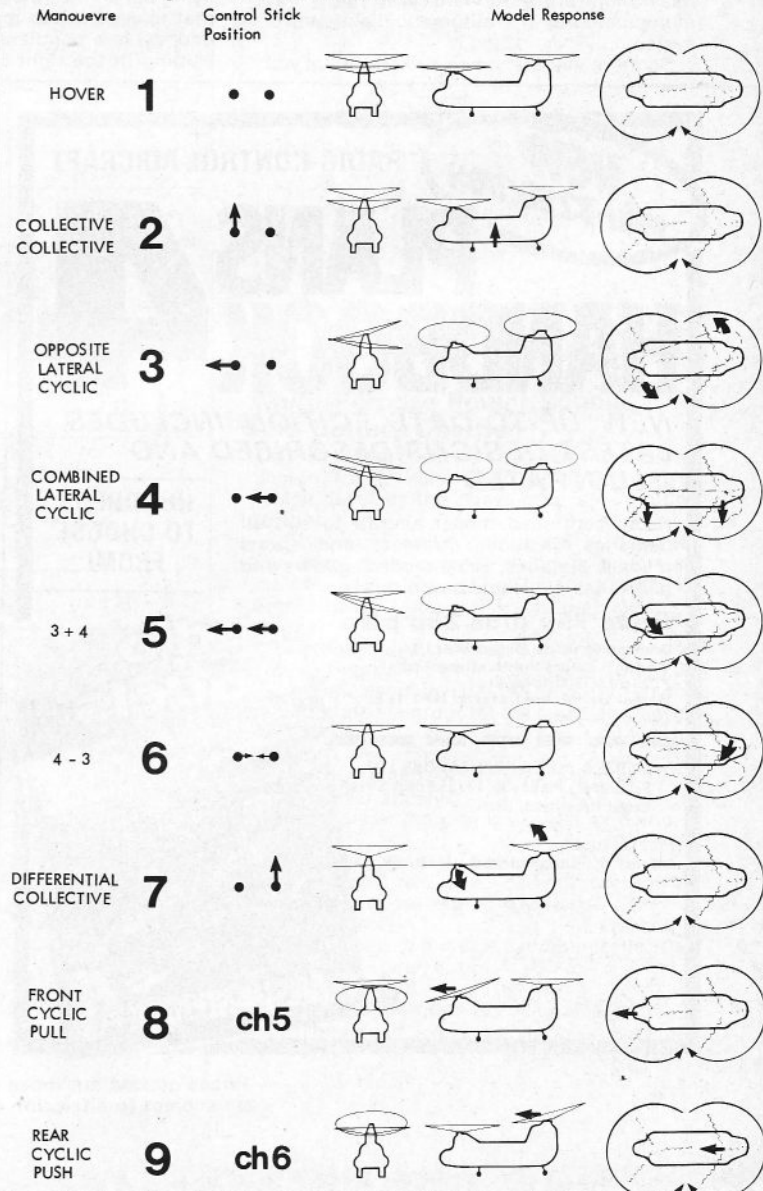
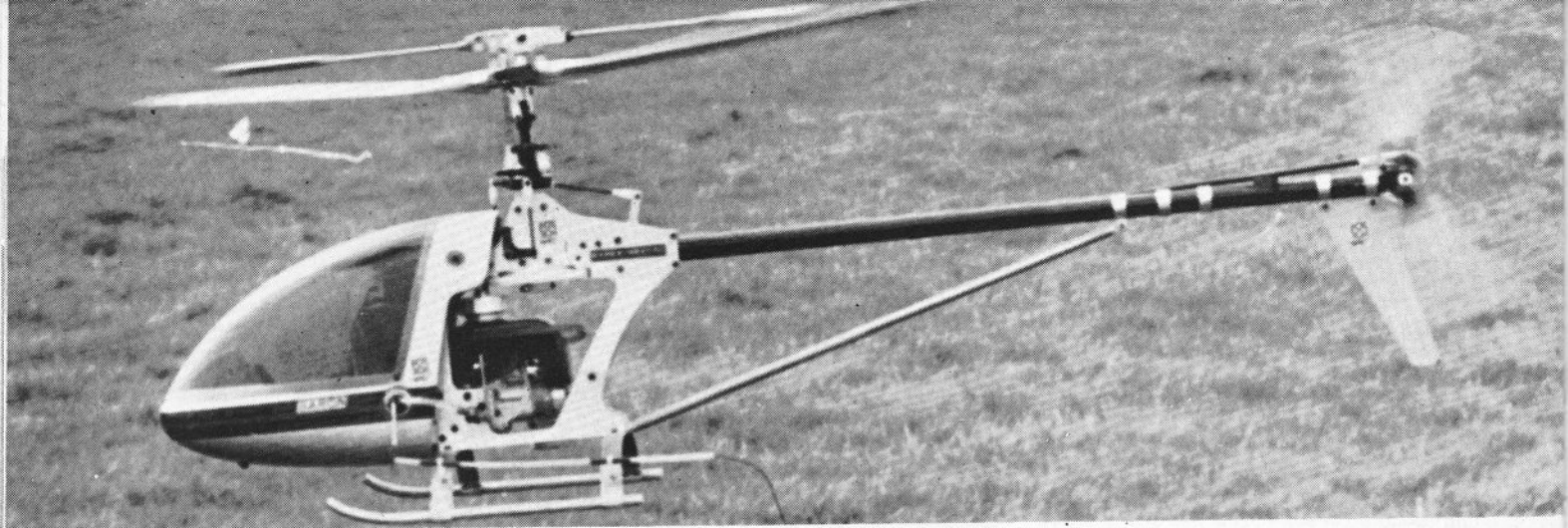


Fig. 1 Flying tandem rotor helicopters.





6. Both control sticks opposite way. Result tail pivots round nose.

7. Differential collective. This is where the trouble starts. In theory this should change the attitude of the model to nose down and give forward flight. Problem is, unlike a single top rotor device which reaches a stable forward flight attitude, the application of a rate control to a free body is very obvious and you have to pull back stick to slow it down. It then zooms up, the rear rotor meets a lot of turbulence from the front rotor and it gets rather frightening.

8. and 9. are a way round that problem where the model is pulled or pushed by one or other rotor. Warren and I had no in-flight control of fore and aft cyclic but adjustments could be made very easily on the model. We tried this, with varying CG positions (mole grips on the chassis!) but didn't reach any conclusions. Altering both forward cyclic together of course is merely changing the flight attitude. I gather that on the full size the pilot has no control over forward cyclic, this is only manipulated by the automatic flight control system.

So there you are, now you know what you

have got to beat. I think if I was to design one now, I would go bigger, with the rear rotor rigid and the front one a floppy teeter. I would also have more height difference between the rotors and lower disc loading, this because the combination of controls can add up to very large incidences with corresponding problems.

You need a very effective differential collective control, that's easy enough but it can be hairy — a good place for a gyro in fact. You wouldn't want a gyro in the yaw control unless you have a very floppy teeter on both rotors.

Joe Axis in Malta is getting round this one intending to build in a Fenestron tail rotor. It's a thought, isn't it?

Electronics and things

I find I have very mixed feelings at the moment on electronic assistance.

On the one hand we are all after easier (better, more accurate, more scale like etc) flying but on the other hand I have always felt that to feed in too much automatic control (money) is a pointless exercise. The idea of slotting in the right cassette to your trans-

New from Kalt via Slough Radio Control, the 0.25cu. in. power Kalt Baron-Ette. Very stable and controllable little model.

mitter then putting it on the ground, watching the model perform the schedule, then collecting the competition prize afterwards just doesn't appeal. I'm not being funny, that would be possible, roll buttons on the transmitter are just a start, and technology could easily achieve that given the money and incentive.

Of course it is tremendously interesting using the technological approach, and it would be a difficult job — almost deserving of a win — to set up the model, but is it what is wanted?

Last 'HA' I prompted a move towards governed rotor speed. I knew it had been tried, of course, and since then I have spoken to and heard from several others. It has its own problems, I have only heard of one who was pleased.

I have also heard of one model helicopter with so many gyros on board a seven year old could fly it. I'd rather they stuck to 'tiddy-winks.' As I say, I have mixed feelings. Any comments?