Smoke Trials 4

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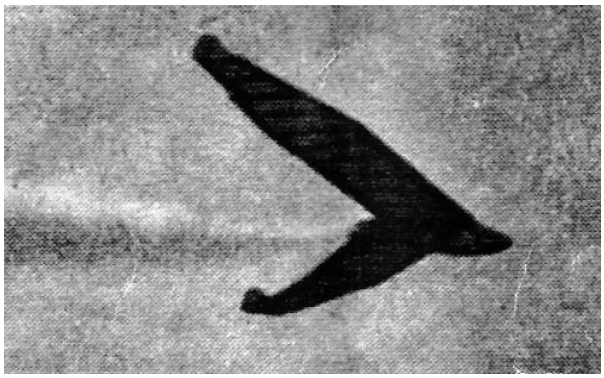


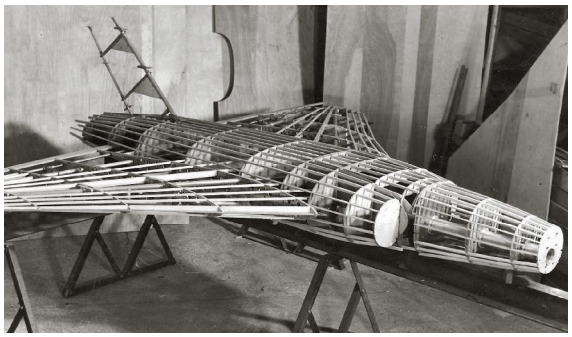
Though Jetex Jim is alive and well, the lack of news concerning Rapiers is rather depressing and, just at the moment, I don't want to talk about the current 'jet model flying scene'. Nor about the new Rapier models on my building board, which may well end up for ever virginal, never to enjoy the thrust of an L2 taking them to the heights. This gives me a chance to catch up on some of the more historical feedback I've been getting. Inevitably, this will result in a somewhat discursive 'pick 'n' mix' article, but this will suit my current attack of 'ARADD' (age related attention deficit disorder), which shows itself as a proneness to rambling and repetition, which shows itself as a proneness to rambling and repetition. In truth, these 'Senior Moments' may be due to an overdose of fumes: not, alas, from dope or balsa cement, but from floor sealant. I must again thank readers for all their good advice about converting our garage into a workshop/studio. It is now finished, and very nice it is too, with work tops, lots of shelves, storage areas, etc. Only trouble is, it is yet another place where I can mislay my glasses!

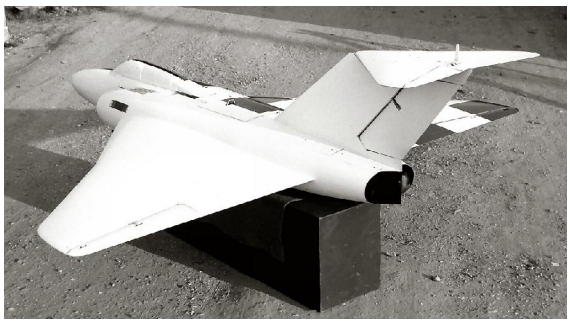
The tailless model (top left) featured in an *Aeromodeller* report of a rally in 1946. *AM* commented: "MM Gates' rocket-propelled tailless glider in flight with the efflux clearly displayed. The model, known as the 'Ghoul', is 32″ span and is still a subject of experiment". Little else is known about this design, which was contemporaneous with, and perhaps inspired by, Howard Boys' Pflaming Ptero and may well have been powered by one of his RP 2 motors.

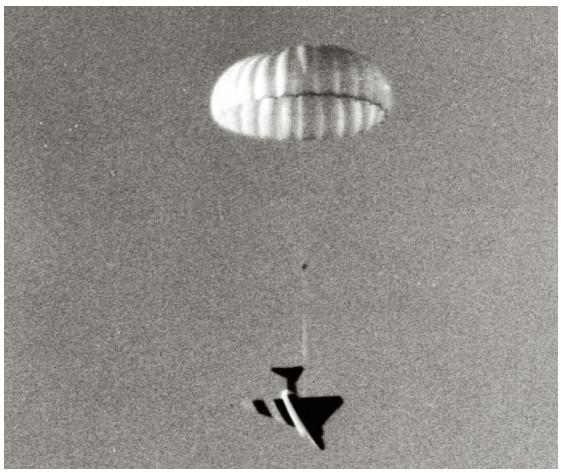
About the next two models Roger Cooper writes: "Although I had lots of fun With Jetex back in the mid 50s, I have nothing to show for it except these two photos. The Keil Kraft Skyjet 200 [middle] developed a few warps over time, and whilst it behaved impeccably on one pellet, things could get very nasty on two when the gas pressure really built up. The increase in speed caused it to fly in very tight circles, losing rather than gaining height [sounds familiar!]. If you were lucky the motor cut before the inevitable!"

It's not too unexpected, I suppose, that the Skyjet 200 bequeathed its flying characteristics to its later, and smaller, sibling. The Skyjet 50, or at least the ones I've seen on the flying field, appears far happier on low power – say a Rapier L2 LT (if you can get one).

Of the other model (which the young Roger is holding), Roger writes: "It is an own design if I recall aright. It must be; who else would have a main spar cranked like that at the dihedral joint? I wish I had had more opportunity to fly it – I was very taken with the 350 motor – but I never really sorted it out, because of a house move and National Service (RAF of course). Lots of guys in the RAF *were* able to carry on flying, but I was unfortunate enough to be based at RAF Hillingdon Air Traffic Control Centre. This was entirely without an airfield and my 80 hours a week on shift work at the meteorological office did not leave me with much free time or energy, although I managed to maintain my links with the Northwick Park MAC and attended their flying sessions whenever I had a free Sunday".







I hope, like me, many readers subscribe to James Parry's splendid 'Stick n Tissue', (*james.i-parry@tiscali.co.uk*). A reference to the origins of Jetex in this lovely vintage-flavoured digest of Real Aeromodelling led not only to the above correspondence with Roger but also to an email from Mike Walshall: "Am I correct in linking Adamcraft with Jetex? I spent a few weeks in the summer of 1954 as a model maker for Adamcraft at Totton, building a tailplane for a model Gloster Javelin, and I recall that Jetex motors were also made there". Hmm … an interesting conjecture: Jetex were at Totton at that time and did indeed make a large model Javelin (see photos left).

The MOD were having problems with the Javelin, and asked the LSARA (Low Speed Aerodynamic Research Association) to make a model that would be dropped from a dirigible and go through a pre-programmed series of manoeuvres to test spin recovery. Such a complex project was beyond the meagre resources of the LSARA, so they 'outsourced' it to Joe Mansour, with whom they had developed the Jetmaster and augmenter tube. The Javelin also stretched the facilities at Jetex, and both Bert Judge and Mike Ingram remember they did a lot of the work 'after hours'. So Joe Mansour (or the LSARA) may well have subcontracted tailplane construction to Adamcraft. This would explain why there are no photos of it 'in progress' in Mike's archive. Adamcraft, it will be remembered, were also responsible for the Jetex powered 'Jet-Ho' hydroplane.

Left: pictures from Mike Ingram's archive. **Top:** the large and complex Javelin in progress – but where is the tailplane? N**ext:** completed model; **next**, the team at Jetex, L to R: Dickie Durrent, Len, Bert, Mike, Tony and Alex; **Bottom**: Mike's caption reads, "Recovered from spin and landing safely!"

The above story deserves to be better known – I've not yet seen it in any 'full size' history of The Javelin. The Javelin, or *Dragmeister*, as it was known in the RAF, *was* an odd design: Jetex versions can, like the real thing, sometimes enter a deep stall – even when seemingly going well – and need a parachute to get them out of a spin and land safely!

I've also had a nice reminiscence from Christopher Heath in Canada that throws some light on a little known period of Jetex History, when Bill Wilmot and Joe Mansour had just left FROG/IMA and were developing their ideas in some seclusion. Chris writes: "My brother Robin and I were the first 'test pilots' for Wilmot-Mansour when we were kids back in 1946-47. At that time W & M rented a small building at RAF Beaulieu Experimental Station. Our father was C/O and consequently we had the run of the camp, 'helping' the mechanics in the aircraft maintenance hangers and laying out landing flares. At some stage, we were introduced to Bill and Joe and given examples of their new toys [!]. Several were just simple gliders, but we were eventually presented with Jetex motors and fuel. The motors were slung under a very simple fuselage. You lit the fuse, held the plane until the engine produced some power and then pitched the plane forward just like you launched a glider. The toy [!!] worked very well, and on occasions we spent much time and effort chasing these models across the heath. Apparently, W & M decided that if their invention survived handling and mishandling by the Heath children then Jetex was a good idea! Sadly, all good things come to an end: the family was transferred in 1947 and we emigrated to Vancouver eight years later".

Jetex was launched in the spring of 1948; Chris' dates tally with this and Joe Mansour could well have prototype motors for testing in 1946. The fuel pellets were of course manufactured by the Nobel Division of ICI, and the basic Guanidine nitrate formulation was used in other applications like rivet guns and Coffman type starters. They also made rocket motors larger than any that were suitable for Joe Mansour's creations. Here is an intriguing photo from Alex Hutchinson's Archive:

Left: first published in *Press & Journal*, August 1949, its caption read, "Tommy Price and Ken Le Breton attempt to lower the one lap flying start riding jet-rocket assisted machines. Among the ICI scientists behind the experiment is Dr Alex Hutchinson, a young Aberdeen 'backroom boy' who did secret work for the Admiralty". Le Breton is on the right, his machine fitted with two rockets.

Sadly, Alex could not tell us anything else about this experiment, or whether 'Ken Le Breton' (wonderful name, sounds like one of the heroes whose exploits we read about in the *Hotspur* or *Wizard*) lived to tell the tale! I do not think ICI's rockets were developed further – perhaps the guanidine nitrate formulations were not suitable in, for example, JATO applications. It is strange that the many other uses for ICI's 'Power Cartridges' vanished into the mists of time and it was the 'toy application' that was the unexpected success.

As Andy Blackwell and others have so admirably demonstrated, Jetex pellets, even after forty or more years, remain usable in that they ignite easily and burn completely. They may not, however, deliver their rated thrust: Andy's Skyray goes well with a PAA Loader, but not much above head height with the Jetex 100 it was designed for. This may not be due to any chemical deterioration of the ICI '100' pellets, as Jetex pellets have, apparently, always needed careful preparation to achieve optimum performance. Don Thompson, a noted US contest flyer of the late 50s, had this to say in 1961: "The difference between a good flight and a poor one is quite often the fuel. Jetex fuel is manufactured of material which, by nature, is highly absorbent, and tends to assimilate [sic] moisture through exposure to humid air. This can decrease thrust by as much as 50%".

According to Thompson, pre-treatment of pellets for contest purposes involves slow drying to remove the absorbed moisture. His favoured method was to “Hang a bag of pellets in a furnace duct (!) in the path of the warm air, but away from the flame, over winter”. Pellets were then carefully wrapped in foil in the Spring. Other experts used faster methods, and Mike Ingram, it will be remembered, once dried a large quantity of pellets over a hot plate, triggering the evacuation of the factory when the whole batch went up in smoke! Even with drying, Johnson says, “out of every three or four flights you will get a charge with greatly increased thrust for a short duration”.

Andy and I have amassed a fair amount of 40-60 year old Jetex fuel over the years from various sources, and, at least in my own case, I’ve used it ‘just as is’ with at least acceptable results. However, the stately performance of the Sharky with a 50B and ICI fuel may not be entirely due, as I thought, to the extra 7g of a metal-cased motor compared to a Rapier L2. The recent spectacular flight of my Sharky with a 50C and Sebel pellets should have told me that some of my pellets were perhaps compromised and in need of a little TLC. I’ll try putting them in a tin with silica gel and put this in the airing cupboard to see if this makes a difference. This will, I think, be slightly less dangerous than ‘Placing in a furnace duct over winter’, though it may lead to questions from the distaff side and disturb the hibernatorium of our aged cats.

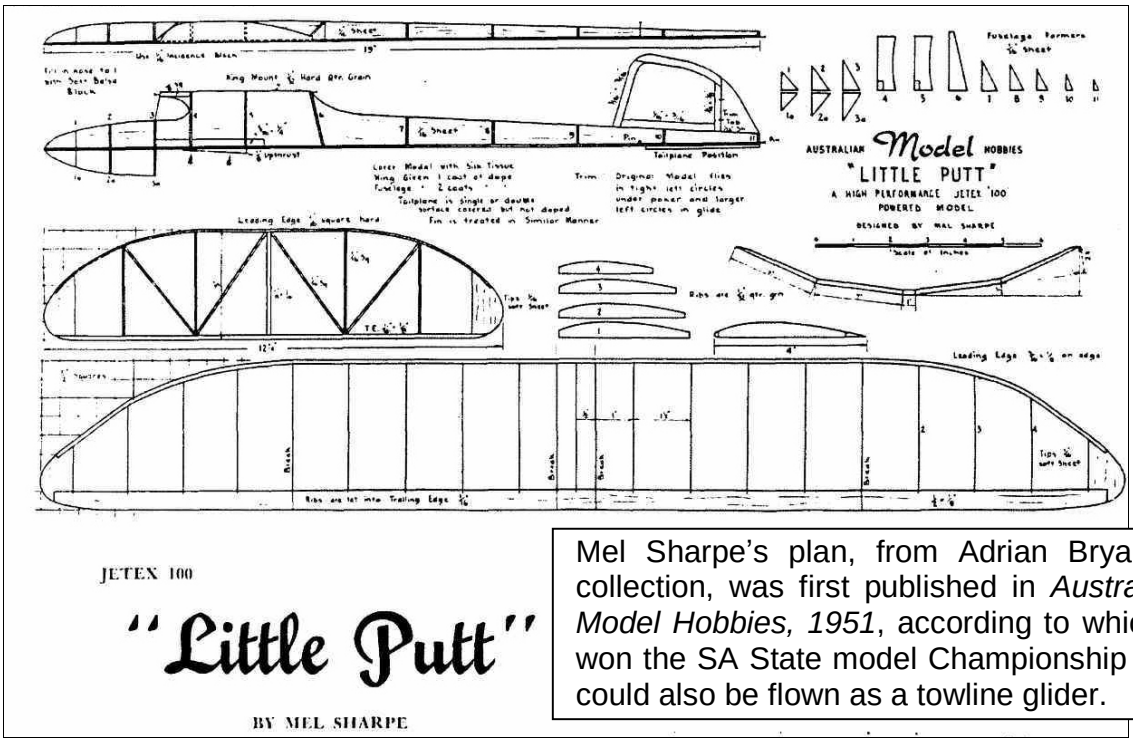
Powermax pellets, whether ‘normal’ or ‘contest’, are more unpredictable in the ease of ignition and in ‘power output’. I had put this down to variations in the manufacturing process, but the Powermax instructions warn (in upper case and with little regard to grammar), ‘Fuel must be free of all moisture. Dry on radiator covering. Important’. David Gibbs, one of the few people I’ve come across who are quite keen on, and had some success with, the Jet-X 50Z, comments, “I found the Powermax pellets were incredibly hygroscopic, so tended to store them in a warm place. I also used to place them in a warmish oven for about half an hour prior to setting off to fly”. David adds, “Though I enjoy the convenience of Rapiers I quite enjoy the rigmarole of Jetex”. A man after my own heart!

I do not know if the coating on V-max pellets, which, according to the instructions, had to be scraped off before ignition, made them more moisture resistant. Incidentally, V-Max, more popular in America than here, was also available for the 600 motor (as the Scorpion was called in the US) which was also more popular in the US. According to Andy, there was also a V-Max pellet sized for the Jetex 100 and 150 (aka Jetmaster). What this could have done to the alloy body and the complex innards of the Jetmaster’s nozzle I dread to think!

Whilst we are on the subject of vintage fuel, there are two points I would like to bring to the reader’s attention: 1. though pellets are not explosive, the dust thereof certainly is, so if you are cutting down pellets to fit a motor please do so in a well ventilated space and (as they say) dispose of the shavings thoughtfully. 2. Though fuel does not degrade to the point of being useless, fuse can. Some of my very old ‘Nobel’ wick will not carry on burning through a 50C orifice, and burn only feebly, if at all, when compressed against a pellet with a gauze. So if your wick appears granulated or to be covered with a white crystalline deposit, it is best used, as they also say, ‘for display purposes only’. Another point to watch is that some examples of fuse have a very thin copper core, and whilst they will burn through the nozzle, they break when you try to pull them out. This is a most frustrating source of misfires – and scorched models. The best fuse for nozzle duty is the late Sebel or Powermax stuff which is grey, smooth, and more ‘springy’ than some of the other examples. The core remains smooth after doing its stuff and ejects easily. Andy sensibly recommends doing tests with bits of fuse *before* arriving at the flying field!

Following up Bill Henderson's reminiscence in *Smoke Trials 3*, I found this photo of Bill's model of the Avro Canada CF-105 on the Imperial War Museum North website. And very nice it is too. Strangely, there is no explanation, indication of scale etc on the website; nor are there any links to other sites that could put the model in its context. This is an opportunity missed and the Arrow must be a puzzle to most visitors.

The Internet has made the discovery and sharing of plans much easier, at the expense, it has to be said, of our traditional providers. But the impulse to collate and publish vintage plans on the web is a generous one. David Bryant, an Australian modeller who has been reading *Sam (35) Speaks* for thirty years and collecting Antipodean plans for even longer, has made these available at the 'Aus free Flight Plans' site, *http://www.kurrawong.net:80/affp/index.php*, a veritable treasure trove worth a visiting by anyone interested in vintage models. Several of the designs for Jetex were new to me, including a MiG 15 with an internal Jetex 50 and this rather nice contest ship for Jetex 100:



Mel Sharpe's plan, from Adrian Bryant's, collection, was first published in *Australian Model Hobbies, 1951*, according to which it won the SA State model Championship and could also be flown as a towline glider.

And finally, here are two more irresistible (to me) US ARTFs from the mid 1950s. A 'supersonic' performance is promised – unlikely, even with optimum pellets!