The Heyday of the Navigator

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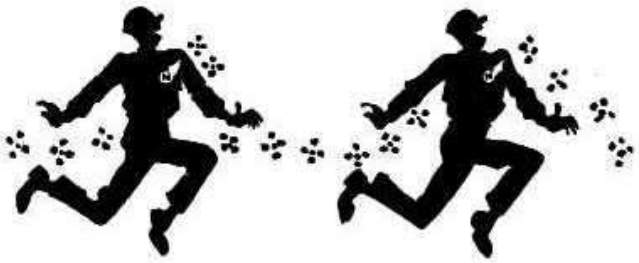
THE HEYDAY OF THE NAVIGATOR



BEFORE the recent war navigation was primarily the pilot's business—or, in large aircraft such as flying boats, one of the pilot's. When over land, pilot-navigation, consisting of pre-flight planning, application of rough-and-ready mental D.R. and intensive map reading, was generally employed, and routes were chosen for their prominent landmarks and ground features. These methods were used on most flights by R.A.F. aircraft, and sufficed for the needs of the day, since navigational facilities were limited, cockpit space was often cramped and air speeds were low compared to those of the present time. Further, it was normally possible to adjust flights, not only to the best route, but also to the best weather conditions.

There were, of course, various long distance flights made, some of them over sea areas. Indeed, this had been foreseen when the first school of air navigation was opened at Calshot early in the 1920's. Long distance sea flights were made in flying boats and in such aircraft as Ansons. Full use was made of D.R. navigation based on accurate plotting and measurement of drift, and later on astronomical observations. On these occasions it was normal to carry more than one pilot, and the navigation was carried out by whichever pilot was not flying the aircraft.

Then came the Munich crisis and it was realised that if this country were involved in a war in Central Europe over-land navigation would have to undergo far-reaching changes; and that the R.A.F. would have to master navigation by night under unfavourable conditions, if it was to achieve any sort of flexibility. Accordingly a new class of air crew known as the "air observer" was introduced. This type was to operate in heavy bombers, and he was to be capable of carrying out many of those air crew duties which would prove important in war. In 1938 a considerable number of these air observers—who were, in fact, combined navigators, bomb-aimers, air gunners, photographers and general odd job men—emerged from the training system.

It was not surprising that the newcomers, somewhat raw at their trade because of the skimpiness of experience on which their training was based, were regarded with considerable disfavour by those who had proved that they were able to get from point to point without difficulty in conditions of peace. This was especially so shortly after the outbreak of war, when air observers were upgraded to sergeant while possessing perhaps only a fraction of the service time of pilots with the same rank. In many cases, therefore, they were left in

D.R. = Dead Reckoning, the method of calculating a position by knowing the starting point and applying known or estimated speed and direction.

Left in the crew room.

the crew room whilst the pilot flew the aircraft around on his own, and even when allowed up on authorised flights were barely trusted to navigate the aircraft to the appropriate destination. They were not helped, either, by the scarcity of navigational aids, or by the lack of co-operation from those whose duties they had partially usurped.

Possibly it was Bomber Command which had, by the very nature of its work, the greatest call upon the new air observers in the early days of the war. Yet we find that late in 1941 it was still not uncommon for two pilots to fly in a Hampden aircraft to the exclusion of an air observer. Ostensibly this was done on the plea that in the event of the " driver " being incapacitated the pilot-navigator could take over the controls, although in actual fact it was very difficult to get from the navigator's station to the pilot's seat. Indeed, it is believed that there is only one case on record where the second pilot successfully brought a Hampden aircraft home after its captain had been wounded.

Once established as a necessary evil, the air observer had a great many battles to wage, many of them of far wider application than the bare problem of navigating the aircraft. Squadron Navigation Officers did not hold rank consistent with their duties as section leaders, and it was not uncommon to see a flight-sergeant pleading with a squadron leader flight commander on behalf of his fellow air observers for equal training facilities with the wireless operators, who were fortunate enough to have a flight lieutenant looking after their interests. It was not, in fact, until early in 1942 that Bomber Command Squadron Navigation Officers were upgraded to flight lieutenant rank, although normally the post of bombing leader, with its smaller responsibilities, was filled by a flight lieutenant air observer.

Further, positions of real responsibility such as Group Navigation Officer continued for a long time to be held by pilots who were from force of circumstances becoming increasingly out of touch with navigational problems. Air observers of the other commands were even more unfortunate ; it was not until early 1944 that Coastal Command obtained a Station Navigation Officer establishment of squadron leader.

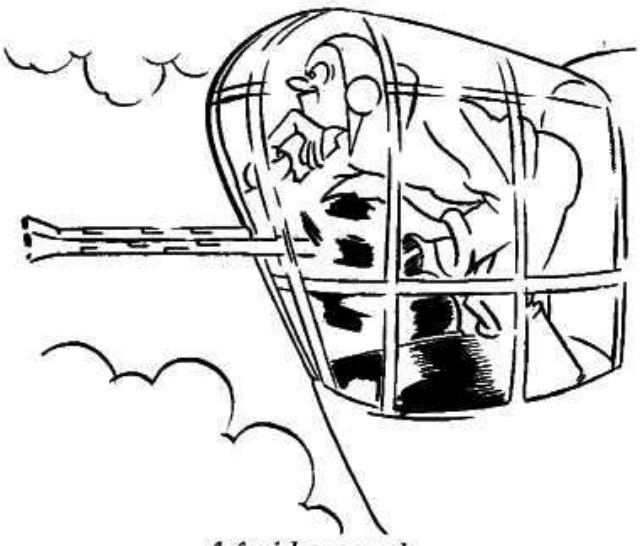
Inevitably in the earlier part of the war navigation was based on the G.R. concepts of the pre-war navigator pilot. Full use was made of D.R. navigation when drift-taking proved practicable, and this was supplemented by map reading and such wireless assistance as was available under wireless silence conditions. But as the enemy defences increased, and it was obvious that desultory bombing by isolated aircraft on dark nights deep in enemy territory

could not have a material effect on the winning of the war, alternative navigational aids were sought.

The immense change which subsequently took place may be said to have started with the general introduction of Gee early in 1942, and the consequent great improvement in navigational accuracy. Gee was the forerunner of an age of radar aids to navigation. In Bomber Command it was followed in rapid succession by various marks of H2S, together with Lucero, and in the later stages by Loran. At the same time great developments were made in Coastal Command's activities as a result of the development of ASV equipment, and the introduction of Loran.

All these complicated equipments became the responsibility of the air observer who was by this time generally known amongst air crews as " navigator." For a considerable while the navigator had had no time for gunnery ; and the use of Gee over targets and the introduction of H2S as a blind bombing aid made it clear that some other member of the crew would have to take over the duties of bomb aiming. In consequence the category of air bomber was introduced. Shorn thus of his ancillary duties, the air observer was by degrees replaced by a new category, officially known as " navigator." This new type of crew member was trained solely for navigational duties, and they certainly demanded his full time and attention. Straight navigators were almost universally employed in Bomber Command. It was still necessary, however, for the navigator on Coastal Command sorties to do the bombing, and for Beaufighter and Mosquito navigators to possess wireless qualifications. Additional categories introduced for these activities were " Navigator B," to which the air observer reverted, and " Navigator W."

These rough distributions of duties remained fairly fixed in all commands except Bomber, where the trend of events was involving the navigator in yet further changes of responsibility. It was pretty soon clear that the air bomber who had been brought in to assist the navigator would have to be responsible for such map reading as was required, thereby enabling the navigator to remain at his table behind blackout curtains, plotting and operating his radar equipment. This naturally meant a certain amount of navigational training for the air bomber. Having given the air bomber that training, it was not long before the navigator, whose " union " was becoming a power in the land, tried to delegate further duties to the air bomber. He felt justified in doing this because the air bomber was spending the greater part of his time in the front turret making a fruitless search for enemy aircraft believed to be carrying out head-on interceptions. After much



A fruitless search.

debate, it was proved that the chances of a head-on attack being made were a mere one in about a thousand sorties, that is, one in about thirty-three tours of operations. Hardly worth it!

The navigator, therefore, won his point, and had the air bomber extracted from his turret (the turret was later removed altogether from the Halifax), but gave him the task of obtaining pinpoints from 20,000 feet on nights carefully selected for lack of moon. With this apparently small concession granted, the poor air bomber found he no longer had any means of avoiding the various duties which were now thrust upon him. Originally an expert in bombing and night photography, and now a map reader of recognised, if not infallible, ability, he soon found himself a combined sextant operator, launcher of flares, specialist in oxygen and chief ration consumer.

All this had given increasing kudos to the union to which the air bomber belonged. He next took it upon himself to approach the mystic radar sets, ostensibly to enable him to home the aircraft in the event of the navigator's indisposition, but in reality to complete a trio of parity which the navigator was magnanimously allowing the pilot to share with him.

The potential of the two unions—navigators' and air bombers'—was such that the pilot, unable to prepare a case of equal magnitude, suddenly remembered that as captain of aircraft he was, in fact, responsible for all the duties of the other air crew members. He realised that the perfect functioning of a crew depended upon team work, but that this was more and more beginning to centre round the navigator who now not only requested information from his air bomber, directed his air gunner to keep his turret still while drift-taking, and criticised the accuracy of his wireless operator's loop bearings, but even told the pilot what air speed to fly. The navigator could actually be heard at times threatening to pack up unless the pilot flew the way he was told.

The pilot, therefore, soon began to take a renewed interest in the aircraft's navigation, and the navigation team became a reality. At the same time the navigator had now developed such a sense of his own importance that he claimed a right to equality with the pilot as a candidate for captain of air crew, and both in Bomber and Coastal Commands a number of leading navigators were so classified.

In an administrative capacity the navigator had worked subtly, worming himself into many positions of far-reaching importance. No longer did a squadron leader pilot control the group's navigation destinies, but a one-winged wing commander. Squadron leader navigators were commonly seen as Station Navigation Officers, and even as flight commanders. It was not surprising that the man who owed his reputation to his skill with pencil and paper, combined with a good basic knowledge of mathematics, should insinuate himself into those positions which had normally been held by men whose chief ambition often was to do aerobatics over the aerodrome at about fifty feet.

By his own efforts the navigator had achieved many positions which even the pilot envied, and the close of the war saw the development of navigation approach-

ing full cycle with pilots vying for attractive navigational posts. There had never been any doubt that those members of air crew who had the dual qualification of pilot and navigator would be chosen for responsible navigational posts in the peace time air force, and such is evidently the case.

So while the navigator now reluctantly sees much of his past power slipping from him, he will remain proud of his contribution to the very many valuable achievements of the R.A.F. during the war.
