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THE PROSPECT BEFORE US

A. Cdre. Banks, in a Presidential Address, Reviews Aviation Trends

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HE presidential address to the Junior Institution of Engineers
was delivered by A. Cdre. F. R. Banks, C.B., O.B.E.,
M.I.Mech.E., F.R.Ae.S., F.Inst.Pet., on Friday, December 12th,
A. Cdre. Banks was accepting the office of president for the second year, and he remarked that he would not have agreed to a second term of such office for any other body, since his new post — Principal Director of Engine Research and Development, M.o.S.—would require much of his time in addition to that which he would have to devote to furthering certain developments of his firm. (A. Cdre. Banks is technical manager and chief engineer of the Associated Ethyl Co., Ltd.)
For his address, he chose a survey of trends in aviation and their effect on future developments, his title being The Air and the Future. After reviewing the progress made in high-speed flight since the advent of the gas turbine, A. Cdre. Banks turned to guided weapons. Although, he said, the present guided weapons had relatively short range and were mainly used for defensive purposes, it was only a step to apply guiding and homing principles to a long-range vehicle. A crewless bomber, which would be self-destroying at the target, could be built for about one-third of the all-up weight and cost of an equivalent conventional aircraft. Such developments would eventually eliminate the piloted fighter, and also, over a somewhat longer period, crewed bombers. From this A. Cdre. Banks went on to discuss the difficulties
at present facing the Air Staff in striking a balance between manned and remotely controlled weapons. He gave it as his opinion that the piloted fighter would disappear within ten years, and the orthodox bomber in 15 to 20 years. It was possible to conceive guided weapons so accurate that air warfare would degenerate into a stalemate, leaving ground-to-ground missiles as the primary weapons. It appeared, in fact, that the role of an air force in about 20 years' time would be that of a highly developed transport organization to carry men and equipment.
The president then dwelt upon the crippling cost of current

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HE formation of the Aircraft Research Association, Ltd., by representatives of 14 major firms in the British aircraft industry, was announced in January last. The association's purpose was to design, build and operate a large transonic-supersonic wind tunnel, for the co-operative use of the firms con-cerned. The design phase of the project is now completed, and some further details of the tunnel have been given by Mr. H. Burroughes, F.R.Ae.S., President of the S.B.A.C., in an article in the December issue of the Hawker Siddeley Review.
The initial installation will be a transonic tunnel in which speeds up to M = 1.4 can be achieved, with a small supersonic tunnel, to be added later, capable of speeds up to M = 3.o. The transonic tunnel, which is expected to cost about one and a half million pounds, is of the closed circuit type, with a 10ft by 8ft working section and a maximum section of 30ft by 40ft. Work on the site should begin early in 1953, but the tunnel will not be completed for a further 2-| years.
It is the intention that the industry tunnel should be used by the firms for routine tests and ad hoc investigations as required, thus freeing the N.P.L. and R.A.E. tunnels for a greater amount of basic research. The cost of building and running the tunnel is

TW O trophies are to be awarded to the winners of the Sixth ••- All-England Aircraft Recognition Competition, which is to be held at the Royal Institution, London, at 2.15 p.m. on January 17th. The Silver Hurricane Trophy (presented by the Aircraft Recognition Society) will go to the team with the highest aggregate marks, and the Silver Heracles Trophy (presented by Sir Frederick Handley Page) to the team of A.T.C. cadets obtaining the highest marks. Winning teams are to retain the trophies for twelve months. In addition, silver medals of the Air League of the British Empire will be presented to members of both winning teams, and the Diploma of the Aircraft Recognition Society will be given to the individual competitor who scores the highest marks. There will also be a diploma for the best performance by a team from the NATO powers.
The contest, organized by the A.R.S., will consist of the identifi-cation of 35 flying views of aircraft, projected on to a screen. Types

military aircraft. Since these costs were largely due to man-hours of effort, it was difficult to see how any country other than the U.S.A. and Russia could embark upon a production programme involving more than a few hundred aircraft per month of all types. In the case of axial turbojets, only about one-third of these units could be produced today compared with the number of piston engines produced in the late war for the same effort.
Turning to civil aviation, A. Cdre. Banks quoted the remarkable figure of two million scheduled airline miles flown each day. In the lecturer's opinion, certain types of turboprop transport would have very useful and extended lives, although he felt that the inherent simplicity of the turbojet would attract a greater proportion of the effort available for development.
The importance of timing the appearance of a new design could not be overstressed. A successful constructor would be considering his next machine while he was selling his present product to the world's airlines. And timing was of even greater importance in the case of engines, since their development absorbed a very lengthy period and had to be completed by the time the airframe was ready. On the subject of axial versus centrifugal compressors, the speaker concluded that, despite the greater production effort needed for the axial, its better performance fully justified the extra cost, and nothing but the best could be tolerated for highly competitive military and civil aircraft.
A. Cdre. Banks closed his address with a plea for the provision of more advanced research-tools for British industry. An idea of the expenditure required was given by the example of an altitude chamber for turbojets of 15,000 lb thrust; it was likely to cost at least three million pounds. The Americans already had such facilities, and we had kept our leading position in gas turbine development only by our native ingenuity and ability to im-provise. This might not always hold when a large and rich nation like America could put so much effort and money into the provision of research facilities.

being met by the member-firms of the A.R.A., and the amount of working time in the tunnel allowed to individual firms will be proportional to that firm's financial contribution.
The possible circulation of Freon gas instead of air in the tunnel was considered, as this would have reduced the power required and the time spent in model manufacture, but was rejected on the grounds of undue complication. An operating pressure range from 0.8 to 1.2 atmospheres enables some variation in Reynolds number to be obtained, and allowances for future improvements in general tunnel performance have been made in the present designs.
A high utilization is intended, made possible by mounting the working section and the balance carrying a model under test on a bogie which can be moved sideways on a rail system. By using several such carts, models can be installed on the balance and the initial adjustments and calibrations made outside the tunnel while it is running.
The exact site for the tunnel has not yet been finally decided, but will probably be near the National Aeronautical Establishment at Bedford. A.R.A. chief executive in charge of the project is Mr. Ronald Hills, formerly in charge of subsonic aerodynamic research at R.A.E., Farnborough.

chosen will be limited to present-day aircraft known to have flown over this country within the past twelve months. The competition is open to teams of three members representing any recognized club, society or body interested in aircraft, or any unit of H.M. Services (including A.T.C. and R.O.C.) or other NATO Services. It is understood that an excellent entry has been received. In addition to the usual Air Training Corps squadron entries, each of the Reserve Command groups is to be represented by a team of A.T.C. cadets. There are entries, too, from the Combined Cadet Force.

Competitors' papsrs will be marked by a panel of adjudicators, under the supervision of Sir Frederick Handley Page, as an independent umpire. There will be room for a limited number of spectators. Inquiries concerning the contest should be made to the Hon. Secretary of the Aircraft Recognition Society at 39/40 Bedford Street, Strand, London, W.C.2.

A.R.A. WIND-TUNNE L PROGRESS

ALL-ENGLAND RECOGNITION CONTEST