

NON-SKID BRAKING

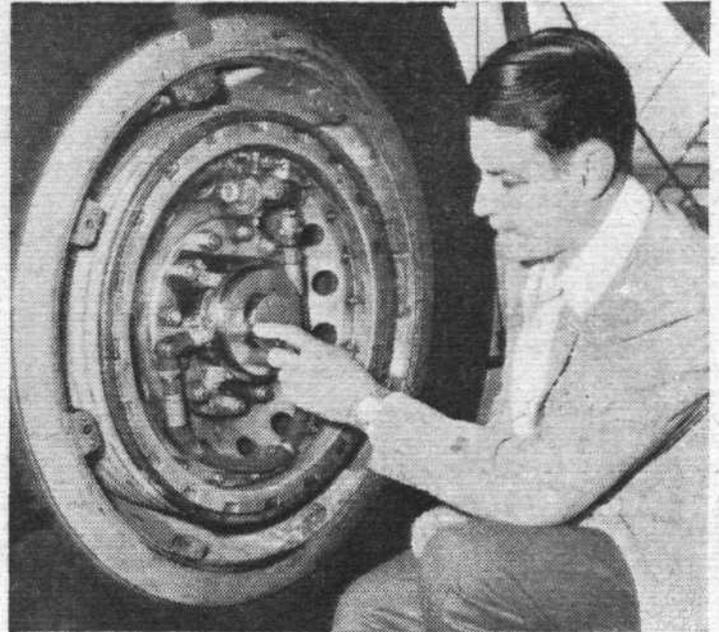
An Ingenious Automatic Control

THE Boeing Airplane Company recently announced successful use of a device which, it is claimed, automatically prevents skidding and is therefore capable of substantially reducing stopping distances after landing. A further advantage claimed for the development is its potential for lengthening the life of tyres. Following successful operation on an XB-47 Stratojet bomber and a YC-97A Stratofreighter, the system is now being installed on a Stratocruiser.

Further development of the system has been undertaken by Hydro-Aire, Inc., of Burbank, California, to whom have been accorded all manufacturing and sales rights.

Operation of the normal hydraulic wheel-brakes actuates an electrically controlled valve unit whereby the braking pressure is thereafter kept to a value just below that which would result in skidding. In that the control is automatic, the pilot is given the advantage of maximum friction between tyre and runway no matter what the nature of the surface. When the brakes are applied, the normal retarding action results until a fraction of a second before the point is reached where a skid would normally set in. At this point, the deceleration of the wheels causes a supplementary valve in the hydraulic system to open, and reduce braking pressure just enough to retain maximum braking action without skidding. Should wheel-speed decrease again to a point where a skid becomes imminent, the valve is again actuated and, in fact, will repeat the action as often as necessary.

The new device consists of a rotary inertia mechanism incor-



The Hydro-Aire device is small and compact.

porating a flywheel, electrical contacts and a slippage clutch, the whole being seated in a light-alloy housing, together with an integral "fail-safe" unit to permit normal braking should the non-skid system fail to operate.

In this country, Hydro-Aire are represented (as announced in *Flight* of July 7th) by Mr. James R. Coen, 2, Dartmouth Park Avenue, London, N.W.5.

Pioneer Designer Passes

WITH the passing last Thursday of Col. J. W. Dunne, at the age of 74, aviation loses another of its rapidly thinning sentient links with the earliest days.

John William Dunne, F.R.Ae.S., was that rare combination of man of action and pure scientist, and it is debatable whether his greatest fame was earned as a pioneer pilot and designer or as the author of *An Experiment With Time* and *The Serial Universe*, books which caused a sensation in the scientific world and gave rise to discussion that has continued ever since the first was written 22 years ago.

His aviation experiments—made first with paper models—began at the opening of the century, when he was serving with distinction in the Boer War, and it is a remarkable tribute to his foresight that the swept-back wing attracted him from the outset—though he had faith in its potentialities for automatic stability rather than in those other aerodynamic attributes which have suddenly brought it to the fore to-day. In 1906, with War Office assistance, he built a full-scale glider of the tailless type, later installing a 20 h.p. engine which, however, failed to provide sufficient power to make the venture a success.

He continued his experiments—made under a cloak of official

secrecy at Blair Atholl in Scotland—and, in collaboration with Professor A. K. Huntingdon, evolved a biplane version of his "arrowhead" design; powered with a 50 h.p. Green engine, it flew successfully at Eastchurch in 1909. Probably owing to the combined effect of the sharply swept-back wings and the inter-wing vertical "curtains" which were a feature of many biplanes at that time, it had over-strong directional stability. Nor did the biplane's lateral stability altogether fulfil its designer's expectations, and it is now clear that he was faced at the outset with many of those problems still peculiar to aircraft of this type.

He constructed and flew several other machines, and early in the First World War the French Nieuport company built biplanes to his design. Col. Dunne's love of action drew him back into the Army service during that war—and, incidentally, he was to serve in the Home Guard during the last war.

That his intensive study of tailless-aircraft design was regarded seriously by much later experimenters was proved by the fact that in the nineteen-twenties he was invited to serve in an advisory capacity in the design of Professor G. T. R. Hill's Pterodactyl monoplanes.

COWES THIRD DISPLAY

A CHEERFUL holiday crowd enjoyed the third and last of the season's air displays at Cowes Airport, Isle of Wight, held last Sunday. After the arrival competition Alderman R. Acheson Webb, O.B.E. (Chairman of the Isle of Wight County Council), introduced by Mr. R. H. Turlington, producer of the display, declared the programme open. He voiced his support of flying and said that he believed that "flying clubs are the spawning-ground for civil aviation."

Although there were no high-speed aircraft available to take part in the display, the various club types included set, in our opinion, an exceptionally high standard of flying. For example, the three Tiger Moths from No. 14 R.F.S., Hamble, led by W/C. Stratton, A.F.C., did some remarkably good formation flying, including changes of formation on the turn. Although the height was only 300 to 400 feet their efforts looked clean, precise and safe. Competitions included balloon bursting and sawdust bombing, and the climax of the meeting was a parachute descent by volunteers (twenty local lads) of the 14th Parachute Battalion (5th Royal Hampshire Regiment), Territorial Army, Isle of Wight Detachment. S/L. Neville Duke

did several minutes' low aerobatics on the Hawker Tomtit during which, in contrast to his usual very high-speed flying, he made some of the tightest and lowest and slowest loops and turns to be seen for a very long time. He provided an impromptu and breath-taking incident at the end of his exhibition when, on completion of the second of two very well judged low loops, he was caught in his own slipstream and a wing-tip and one wheel brushed the grass before recovery.

The instructor-pupil team, which received well-deserved praise at Gatwick, went through their antics, finishing up with the terrifying head-on landing, and "Doc" Morrell, Hawker test pilot, did some crazy flying on his Tiger Moth. It might have been wiser if some of his unconventional, low evolutions had been made parallel with the spectators' enclosure rather than straight towards it.

C. Nepean Bishop, of the Redhill Flying Club, certainly merits a mention for his very finished display of aerobatics—particularly slow rolls—on a Magister. The afternoon's entertainment was completed by a height-judging competition and almost continuous joy-riding.