POLYMORPH: The only accurate and detailed model of one of the Vickers-Armstrongs "Swallow" projects to be released to public view (see first news-item). It is seen with its wings in the low-speed position

FROM ALL QUARTERS

A Swallow Unveiled

ON December 30 Dr Barnes N. Wallis, chief of aeronautical research and development for Vickers-Armstrongs (Aircraft), was due to read before the Institution of Civil Engineers a paper entitled "High Speed Communications Link the Commonwealth." In it he gave the first details of one of the actual designs which his team have prepared, utilizing the variable-sweep polymorphic formula which has been generally dubbed with the appellation of "Swallow."

The renowned scientist has been working on this formula for at least a decade, and throughout this time he has been able to draw upon a research and drawing-office staff which by any standards must be regarded as substantial. When so competent a team apply themselves to one problem over a long period they are bound to get somewhere, and an index to the current position of the Swallow project is that it was recently moved from its inventor's "back room" to the main Weybridge works. Moreover, although Vickers themselves have for long periods supported the programme from their own funds, it is today in receipt of money both from the Ministry of Aviation and the US Government. It is therefore fair to assume that it has fairly immediate military applications.

The photograph above reveals one of the actual projects studied by the company. Each of the wings has a high aspect ratio, and is mounted at the root on a large knuckle-joint, reminiscent of those in the human skeleton, which permits it to pivot both in incidence and sweep. As illustrated, the wing is in the spread position for take off and landing. The four turbojets are mounted on universal joints near the flexural centre of each wing in order to provide any desired force vector for thrust and control. There are no movable control surfaces. Very extensive aerodynamic and structural testing has been carried out on such projects.

HRH in SR-N1

ANOTHER type of aircraft was added to the Duke of Edinburgh's flying experience on December 18, when he piloted the Saunders-Roe SR-N1 Hovercraft in company with the chief test pilot, Peter Lamb.

The Duke's flight, which started from the Saunders-Roe slipway on the River Medina at Cowes, lasted 20 minutes. It was preceded by an explanation of the controls by Mr. Lamb, then the Hovercraft rose and went out to a point about 30yd from the "hard," remaining above the water then returning to the slipway. Going out again, it rounded the point with a tailwind to the shelter of Osborne Bay, where it climbed up over the sandy beach and touched down on the grass.

After the return to the slipway Mr. Lamb said: "The Duke took over the controls and drove the craft downwind at about 40kt (45 m.p.h.). I think he was tickled pink with it."

Saro Wasp, RN

A NUMBER of Saunders-Roe Wasps (formerly known as P.531) were lately delivered to the Royal Navy and have now completed the first stage of their evaluation trials with the frigate HMS *Undaunted* (Cdr G. de la Pasture). In five weeks, over 300 deck landings were successfully made on a quarterdeck platform approximately 21 × 26ft. Flying was shared by the CO of 700 Sqn, Lt Cdr R. Shilcock, and two of his pilots, Lts Fournel and Barstow. Many of the landings were made in moderately rough conditions with considerable deck movement, but no undue difficulty was experienced. About 30 night landings were made (see p.24) believed to be the first by any helicopter on a frigate. The trials were under the general control of Cdr Nigel Ball and the entire programme was carried through without any delays caused by unserviceability.

The helicopters used (see *Flight*, December 18, page 745) were similar to the original prototype, powered by a Blackburn Turmo 603. The production Wasp is a larger aircraft, powered by a Blackburn A.129 rated at 970 s.h.p. and with a gross weight of 5,000lb. It will be fitted with comprehensive equipment, including autostabilization, for deck-operation in all weathers.

Dutch Buy the F-104

LOCKHEED Aircraft have achieved a clean sweep in Europe with the announcement by the Dutch Government—made at The Hague on December 27—to procure F-104G Starfighters as a standard multi-mission aircraft for the RNAF. By integrating production and deployment with other NATO air forces—and particularly those of Western Germany and Canada—considerable economies should be realised. Total requirements may amount to 200 aircraft, costing about £120m, and the Dutch aircraft industry will play a major part. First deliveries should be made at the end of 1961.

Data for the CJ-805

PREVIOUSLY shrouded in security (owing to its close resemblance to the military J79) the General Electric CJ-805-3 turbojet has now been declassified.

CJ-805-3. Single-shaft turbojet with 17-stage compressor (variable-incidence guide vanes and first six stators), can-annular combustion chamber with ten flame tubes, three-stage turbine, and nozzle incorporating reverser and sound suppressor. Front-frame diameter, 31.6in; length, 109.56in (188.94in with reverser/suppressor); dry weight, 2,800lb (3,190lb with reverser/suppressor); maximum rating, 11,200lb with s.f.c. of 0.806 at 7,684 r.p.m. with mass flow of 167.9lb/sec, pressure ratio 13:1 and jet-pipe temperature of 1,155°F; max continuous power, 9,500lb with s.f.c. of 0.738; max cruise power, 8,850lb with s.f.c. of 0.728.

On December 28 GE announced in New York that they are purchasing a Caravelle in order to demonstrate the improvement in performance which CJ-805s will confer on this aircraft. The French airliner will be delivered on July 14 and will be based at the GE facility at Edwards AFB.

Another Record Year?

WITH the November figure of £12,735,241 bringing total aviation exports for the first eleven months of 1959 to £146,626,901, it looks as though a record total will be achieved for the fifth consecutive year. The November figure was made up as follows: aircraft and parts, £6,171,883; engines, £5,956,680; electrical equipment, £282,613; instruments, £241,395; and tyres, £82,670. Canada and India were the leading customers.

Beavers for the Army

IN a written Parliamentary answer the Minister of Defence, Mr. Harold Watkinson, announced that the needs of the Army could best be met by providing it with DHC Beavers. From Ottawa it was announced that 36 aircraft are involved.

In an addition to his reply, however, the Minister threw out a grain of comfort for Scottish Aviation when he said that the Ministry of Aviation had been authorized to negotiate with the company for a "small additional order" for Twin Pioneers. He added too that the RCAF had confirmed their intention of continuing to use the firm's repair and maintenance facilities.