WEIGHT and DESIGN

Similarly, on the 50,000 lb aircraft, flying for six hours, changing from "C" to "D" standard would improve the payload by nearly 8 per cent.

He would see from these figures how important this study and how irrational it might be to compare the weights and economics of civil aircraft without due regard to the standard of comfort provided. This completed the lecturer's illusory statement by design efficiency and which, he emphasized, was primarily the responsibility of the project department. It was the project stage that decided whether a design should be light or heavy and it was at this stage that the most weight could be saved at the least cost in design time and money.

The intense amount of work being put into the study of the aerodynamic and structural problems on modern aircraft was not being followed with a similar programme relating to wing construction methods. This was rather surprising when one considered that, for a particular aircraft, the aerodynamic and structure calculations were based upon the wing estimate, and at the moment this depended as much upon the intuition of the man making it as it did upon the useful data at his disposal.

Because of the unsatisfactory state of affairs which prevailed in the past, a new pattern for the collection of weight-data was being evolved. This was the S.B.A.C. giving active support and considerable encouragement to the work, but the lecturer wondered whether responsible people, both in the government establishments and in the industry, really knew how little labour was available for the job and how much its success depended upon the energies of a small group of men.

LONDON AIRPORT PROGRESS

(Continued from page 795)

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(Continued from page 795)

ments. The chief maintenance area (No. 1 site) is situated to the east of the runway, is over 240 acres in extent. It will be used by B.O.A.C. and B.E.A.C. No. 2 maintenance area is situated to the south-east of the runways, occupies over 70 acres, and will be used by the Commonwealth and foreign airlines companies. A further 400-acre area of concrete should also be laid.

A large amount of drainage was needed to provide for the disposal of rain-water falling on the concrete areas, and the total length of storm-water drains laid up to last October was 75 miles. The volume of excavation to date is in the region of 9,100,000 cu yd, and airfield lighting ducts 98 miles in length have been laid.

The area of the original site (the three-runway scheme) was 1,500 acres and the future area for the civil aviation scheme entails construction on some 4,600 acres. The surface of the aerodrome is almost entirely flat, the fall across the site from N.W. to S.E. being 6 ft, and from N.E. to S.W. being only 2 ft.

Between the runways nearly 700 acres of grass are being cultivated, with a top dressing of high-grade concrete laid to a depth of 12 in., and a further 3,000 acres is being reserved for future commitments. Development of a separate permanent freight area is planned north of the western end of No. 1 runway.

Part of the present programme calls for the construction of a "fuel farm" (to be located on No. 3 maintenance site), which will enable suppliers to store up to 2,000 tons of fuel, thereby replacing the present temporary storage tanks. It is under-stood that the question of pipeline delivery to the central terminal area is under consideration and it is expected that the pipeline system may later be extended to permit the pumping of fuel direct to the aircraft at a speed of 300 to 400 gallons per minute.

Some idea of the extent of the civil-engineering achievement which the construction of London Airport represents may be obtained from the following statistics. A total of 120 acres of ponds and gravel-pits was filled in, and, before this work could be done some 100,000,000 gallons of water and 860,000 cu yd of silt had to be removed. During the construction of the first three runways and the perimeter tracks the average daily output of high-grade concrete was 1,500 cu yd. The total volume of concrete laid to date is 680,000 cu yd. On all runways, taxi-ways and aprons which were completed under the first contract, the high-grade concrete was laid to a depth of rain, directly on gravel. Up to August 31st, 1949, 75 per cent of contract No. 2, which entailed the construction of three more runways and the central aprons, had been completed. For the second contract, it was decided that a base layer of 8 in. of concrete should also be laid.

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A unique electronically operated remote-control system for the entire airport lighting system is installed in the control tower and obviates the necessity for the hundreds of cables which would be required for a direct-wire system.

Traffic at London Airport is constantly increasing, and a total of 17 companies now use it on regular services. During 1948, totals of 16,744 landings and 16,791 take-offs were recorded. For the month of August, 1949, aircraft movements amounted to 4,179, representing some 47,000 passengers handled, and showing a considerable increase over the figure for August, 1948, when figures of 3,699 aircraft movements and 42,000 passengers handled were achieved.

The ultimate cost of this vast enterprise has been recently estimated at £26,000,000. It is envisaged for the completion of the project, it is thought that London Airport will eventually be the world's most well-equipped and up-to-date, if not the largest, international air terminal.

TOLERANCING STANDARDS

Wen the current edition of B.S. 308 (Engineering Drawing Office Practice) was published, it was announced that the subject of tolerancing would be dealt with in a separate publication. A draft B.S. 308: Part II (Dimensioning and Tolerancing) is now in circulation for comment.

The subject is a difficult one, and a period of five months —until March 31st, 1950—has been allowed for comment in order to give manufacturers an opportunity to appreciate fully the implications of the system as applied to industrial practice. It is desirable that a common system, equally acceptable to the needs of industry and the Services, should be evolved, and that the current opportun to provide it is not presented. Copies of B.S.I. publications may be obtained from the British Standards Institution, 24, Victoria Street, London, S.W. 1.