

HARRY LAWLEY MILNER, *Fellow* 1886 - 1956

WHEN H. L. Milner died suddenly on 19th December 1956 within a few days of his 70th birthday, aviation lost a man whose name commanded respect in any assembly of aeronautical engineers.

Born in 1886, he was educated at Manchester College of Technology and Manchester University; he was a Whitworth Exhibitioner in 1910 and a Whitworth Scholar in 1912, serving an apprenticeship in the shops and drawing office of Sir W. G. Armstrong Whitworth and Co. Ltd. The late Professor Petavel, under whom Milner studied, arranged for an aero-engine to be sent to the University for research work but unforeseen difficulties led to a change of plans and, in 1912, Milner went to the Royal Aircraft Factory where he did research on aero-engines and spent some time in the Aeronautical Inspection Department. After leaving Farnborough he was for five years Managing Director of United Aircraft Co. Ltd. at Gosport and for the next five years a Director of United Manufacturers and Agencies Ltd. in London.

Realising the potentialities of a variable pitch propeller, he joined Dr. Hele-Shaw and Mr. T. E. Beacham, the patentees of the Hele-Shaw-Beacham propeller and undertook the design and development work in conjunction with the Gloster Aircraft Co. Ltd., who held the sole manufacturing licence from the patentees and a development contract from the Air Ministry. Milner joined Glosters in February 1926 and by 1928 a steel-bladed constant speed propeller had been made for the Rolls-Royce Kestrel engine and a duralumin c.s. propeller for the Bristol Jupiter. Both were tested and flown that year and were the first constant-speed propellers to be made, the patent for the Hamilton Hydraulic two-pitch propeller not being applied for until the following year.

As it became evident that engine and propeller design were closely linked, the Air Ministry gave independent development contracts to the Bristol Aeroplane Co. Ltd. and to Rolls-Royce Ltd. In 1934 Milner left Glosters where, in addition to his work on propellers, he had also worked on the Gloster Gauntlet and on various projects, and joined Bristols to continue the development of variable pitch propellers, mainly for the Mercury and Pegasus engines.

In 1937 the Bristol Aeroplane Company and Rolls-Royce formed a new company, Rotol Limited, to pool the results of the work which had been done at Bristol



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and at Derby on propellers and Milner was appointed Chief Designer. In pre-war days he was responsible for the propellers on the Vickers Wellesleys on their record-breaking distance flight to Australia, and his work of the nineteen-twenties came to full fruition in the Rotol airscrews on the Armstrong Whitworth Whitley and Halifax bombers and on the Hurricane and Spitfire fighters.

One of his most important inventions was the Propeller Blade Integration machine. The impossibility of manufacturing blades identically the same led to

vibration trouble, owing to the blades on an airscrew giving different thrusts. The Blade Integration machine summed up the effect of small manufacturing variations in pitch, chord and thickness along the length of each blade and worked out the correction to be applied to the nominal blade setting angle, to nullify the effect of such variations and prevent vibration. This machine was patented in 1941 and before long blades of every manufacture had the correction marked on them before being assembled into a hub for use by the R.A.F. To this day Milner's invention continues to prove its worth.

In later years he was appointed Project Engineer at Rotol and spent his time studying the future trends in propeller and accessory design; evidence of the value of his basic ideas is to be seen on such high efficiency propeller-driven air liners as the Vickers Viscount and the Fokker Friendship.

Mr. Milner became an Associate Fellow of the Society in 1916 and was elected a Fellow in 1944.

Lt. Col. J. D. Blyth, *Fellow*, writes:—

We are for the most part an inarticulate folk, fearful of displaying emotion lest we be thought guilty of sentimentality. Yet there are times when such reticence ought to be overcome and after nearly a third-of-a-century of close friendship, I feel that it is no less than my duty to pay this tribute to the memory of "Pop" Milner, both on my own account and on behalf of all who knew him. The tale of the achievements of Milner the engineer has been told already and, although much might be added to that list, it is Milner the man of whom I would speak now.

By worldly standards his social circle would have been adjudged small, for he neither desired, nor courted,

publicity. It would not be strictly true, perhaps, to say that he shunned renown; so modest was he by nature that, in spite of his prowess, I am sure that the idea of such a thing as fame never entered his head.

Kindly and unassuming, he delighted in simple things—the warmth of the sun on his face, the peace of a river bank, pottering in his garden in which (as he told me, chuckling with glee at the story against himself) he once tended a plot with anxious care while he waited in vain for the appearance of a row of beans which he had forgotten to sow! Laughter, indeed, was an essential part of his make-up, quiet bubbling laughter never tinged with spite. He had a sense of humour peculiarly his own—quaint, often impish, always endearing.

Space will not allow me to speak of all the fine traits in his character, but I cannot refrain from quoting a spontaneous compliment to his honesty and integrity contained in a remark made to me some years ago by an engineer with whom I was about to start working. "I don't know much about you," he said, "but you're a friend of 'Pop' Milner's, and that's good enough for me." I felt that I was basking in reflected glory.

The memory of his happy personality will live in our affections; and what more suitable requiem can he have than the words of Kipling, who must surely have had men such as "Pop" Milner in mind when he sang—

“Let us now praise famous men—
Men of little showing—
For their work continueth,
And their work continueth,
Broad and deep continueth,
Greater than their knowing.”