

PROPELLER MAKING AND REPAIR.

BRITISH ENTERPRISE AT THE RIVERSIDE WORKS.

It has been apparent to everyone engaged in the aviation industry that propeller making is a specialised business, for whether its specialisation is such as to engage the entire energies of an independent firm or not, the fact remains that the propeller making department of any works has small chance of producing successful results unless conducted with picked men under expert supervision.

As a rule, specialised products are more satisfactorily handled by independent concerns, and we feel particularly interested in the enterprise put forward by Messrs. Lang, Garnett and Co., who have now thoroughly established themselves in the ideally situated Riverside Works at Weybridge. Here, Mr. A. D. Lang is turning to account the very considerable experience of propeller making that he has had with the Bristol Co. and elsewhere, and we are quite satisfied that he is sparing no pains whatever to collect together a staff whose workmanship shall be a credit to aeronautics and to Britain.

The Riverside Works, which the firm of Lang, Garnett and Co. has acquired, are commodious and well-equipped with the necessary woodworking machinery. There is any amount of room for extension, and if the energy which is being put into its organisation results in the business that ought to be forthcoming this place should develop into quite a large factory in the course of a few years. Already it is probably the largest works solely devoted to propeller making in this country.

Besides the Lang propellers, which form, so to speak, the staple product of the firm, and one of which, by the way, was used by Sopwith in the Mortimer Singer Competition, the firm turns out a large number of BE propellers of the four-bladed type. First class workmanship and very particular superintendence is required to make a successful and profitable job of this form of propeller. The timber used is walnut and each layer of the lamination is halved in the boss so as to allow the corresponding layer of the other two blades to pass through at right angles.

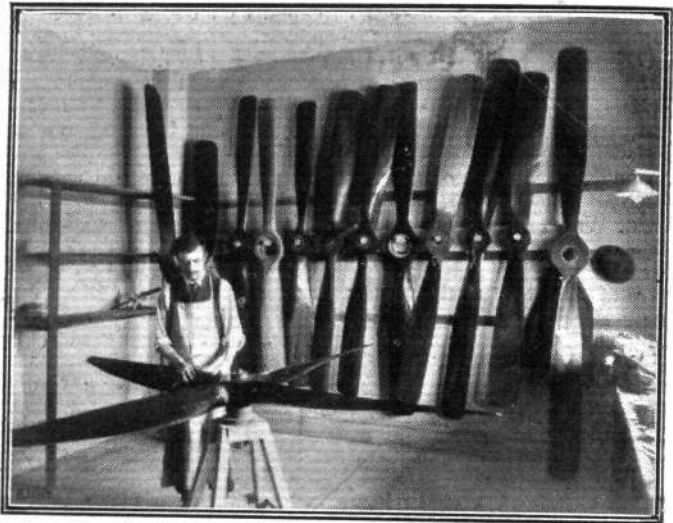
Each of the layers of these propellers is planed to a certain thickness and shaped to a separate template. The layers are then prepared with glue and placed one over the other in stepped formation. The distance from the edge of one lamination to the edge of the next has to be correct to half a millimetre. The laminæ are then clamped tightly together at frequent intervals, and the glue is allowed to set whilst they are thus arranged.

In building these four-bladed propellers, a flat-bench is used as a clamping base and very great care has to be taken in backing the blades with chocks of wood in order to prevent the clamps from exerting a twisting stress.

As soon as the glue is set, the projecting corners of the laminæ are hacked off with a draw knife and the blade surface is gradually shaped down until the angles between the steps of the laminæ disappear. As the edges of the laminæ are located on the finished surface of the blade, and as their positions are accurately determined in the first instance during assembly, it is practically impossible to develop other than the intended blade form if the subsequent workmanship is carefully executed. In any case, a series of two

part templates is used for the purpose of checking the blade section at intervals.

An extremely important branch of propeller work in which Messrs. Lang, Garnett are specialising is the repair of damaged blades. Very often a propeller gets slightly damaged by accident and it seems a pity to throw away £15 worth of material and workmanship if the expenditure of a sovereign or two will suffice to put it into good condition. Mr. A. D. Lang thoroughly recognises that the business of propeller repair is an undertaking of first-class seriousness and importance. Everything depends on the users of repaired propellers gaining confidence from continued immunity



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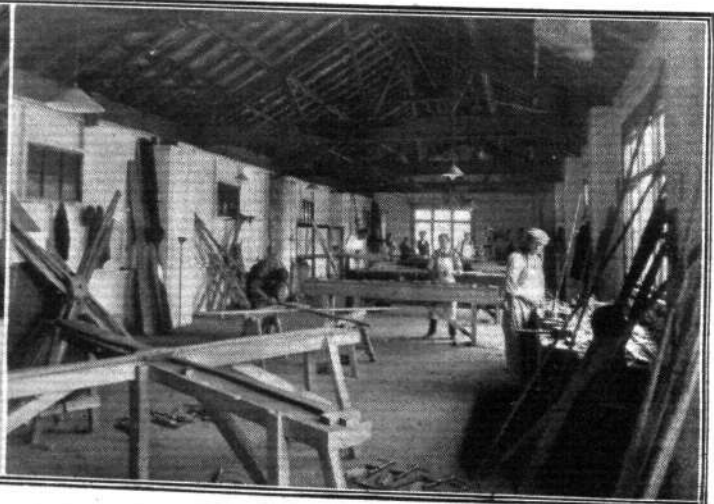
PROPELLERS IN THE MAKING.—A group of finished propellers at the Lang, Garnett Works. In the foreground a four-bladed BE propeller is being polished.

from trouble caused by repaired parts. The repairs are made by carefully cutting away the damaged portion and so chamfering and sloping the edges of the hole as to provide a dovetail for the inserted piece, which is always put in in the pressure side of the blade.

Having seen the work in process at Riverside, we can only say that so far as care and skill can make a repaired propeller secure, Messrs. Lang, Garnett & Co., spare no effort to justify an increase in the business that they are already obtaining from several quarters. They are also engaged on interesting experiments relating to the brass plating of blade tips for seaplane propellers.



PROPELLERS IN THE MAKING.—The interior of the machine shop of Messrs. Lang, Garnett and Co.'s riverside propeller works at Weybridge.



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Interior of Lang, Garnett and Co.'s Main Workshop.—In the foreground is seen the method of building up one of the BE four-bladed propellers.