

WOOD AS A MATERIAL OF CONSTRUCTION

THE present scarcity of metals has focused attention on the possibilities of timber as a substitute material. And substitutes have a habit of coming to stay. This possible outcome of what at present is forced war-time economy is to be welcomed because timber, quite apart from the shortage of other materials of construction, has received all too little attention in this country. One needs to be reminded that the very word "timber" tells a tale—being derived from Greek and Latin roots meaning "to house", "to build". And while the utilisation of timber as a material of construction and also as a source of food, drink and clothing, as a source of energy and as a source of raw material for a bewildering range of processing chemical industries has made phenomenal advance in other countries, we in India have for the most part not kept pace with these developments. An index of our backwardness in this respect is well provided by our almost complete dependance on imports (which at present are very much restricted) even for such a comparatively simply processed wood product as plywood.

The chief reasons for this state of affairs are our innate conservatism coupled with our ignorance until very recently of even the basic properties of Indian timbers. It was easier to import. And as a direct result of the propaganda on behalf of other materials of construction these latter actually made inroads into even the limited fields where timber thereto held sway. In India, unlike for example in the U.S.A., the Government happen to be the principal owners of timber and in the nature of things could not keep up the same kind and amount of sustained and subtle forms of publicity which competitive materials with powerful interests behind them put forth for the favour of the consumer. It was, therefore, inevitable that timber not only did not make any headway but actually lost ground as a material of construction.

Added to these was another factor which is not peculiar to this country. This may best be described as the psychological factor; for example, such a statement as "timber is not strong" would appear in quite a different light when the weight-strength ratio is considered—weight for weight, a timber could actually be "stronger" than some metals. But this needs to be said and said loudly and often. Again, the drawback

alleged to timber that it is not permanent loses much of the point in the light of the modern concepts of economic permanence—that no component of a structure need outlive the usefulness of the structure itself. Anyway, modern methods of preservation have very greatly prolonged the "life" of timbers. Again, while it is true that timber is combustible, it does not follow that it is necessarily the first to give way in any actual fire; metals may also fail at temperatures that are encountered in "fires". And economic processes have been evolved which make timber if not fire-resistant at least fire-retardant. Enough has been cited to indicate the nature of the misconception and half truths associated in the popular mind with timber. Such prejudice and ignorance have been combated in other countries by the twin weapons of educating the public, on the one hand, on the truth about timber and its limitations, and on the other by sustained research which tries to exploit to the utmost the characteristic properties of wood, and, yes, even to improve upon nature by appropriate modifications. The courses on timber engineering in some of the continental engineering colleges and the Timber Development Association in England are classical examples of the first approach to this problem while "Masonite", metal-faced plywood, and "Teco" timber connectors stand out as monuments to recent research in timber.

No greater harm could be done to the cause of timber utilisation than to claim that all timbers are good for every purpose. Timber is not ductile; it splits easily along the grain; it is not hard enough for some purposes. These are some of the major limitations that must be squarely faced. But, timber is light, easily worked with simple equipment to different shapes, easily fastened together, has a comparatively high salvage value and is a poor conductor of heat and electricity, and is susceptible to a minimum corrosion. This is a very valuable combination of properties in a material of construction quite apart from the æsthetic aspect which can, as in interior decoration, become an all-important matter. Timber could be finished to give a variety of attractive effects, while the grain, texture and figure of timber render possible decorative schemes which, for individuality and variety are hard to beat. In short, from the æsthetic point, timber has almost a personality of its own,

There are certain other features in timber utilisation which are of importance in our country. Timber is the material *par excellence* for construction by the villager. Thus, for example, the low first cost and easy workability of timber must be exploited to the utmost in the solution of our rural transport problem. In these areas, the traffic does not warrant the heavy outlay on steel bridges to span the innumerable streams which often maroon entire villages. Treated, prefabricated timber bridges would offer a solution. Suitable type designs could be prepared; and the small timber members going into such a structure could generally be had in the neighbourhood of the site itself. The carpentry and the labour for erection could be provided by the village community itself. The preservative material and the fasteners are the only materials to be "imported". Unlike in steel construction, the greater part of the material and labour would be indigenous and thus contribute largely to its total low cost, and keep even this little money within the community. If the traffic should develop beyond the capacity of such a modest structure, or at the end of its normal life—which need be no more than ten to fifteen years—another bridge could easily be built.

In India, institutions designed and devoted to timber research are woefully few. And these few are doing pioneer work, often against odds. They can no more than touch the fringe of the problem. But, their work has already succeeded in putting some "condemned" species on the utilisation map

of the country. Such, for example, is the gradual replacement by indigenous timbers of imported ash and hickory handles. They have done a great deal to educate the public on timber preservation. They have also been directly responsible for the starting of a few timber industries. This should be viewed as no more than a promise of what could be done. Japan, for example, has transformed the humble bamboo into a prime constructional material. The same can and must be done for Indian timbers. Unlike in temperate climates, the number of species in Indian forests are bewildering and neither are the crops homogeneous. The country is so vast that not only do the species differ from region to region but the properties of the same species vary according to its habitat. These complications necessitate sustained research in laboratories devoted to forest products and strategically located all over the country. The work of these institutions has to be planned and translated into industrial practice through a *liaison* agency. And finally the innate conservatism of the consumer and any of his prejudices against timber must be combated by intelligent and sustained propaganda coupled with readily available instruction on the most effective and modern methods of using timber. Such a planned programme does involve considerable outlay. Experience in other countries has proved such expenditure to be good investment. There is no reason to believe that it would be otherwise in India.

MR. D. N. WADIA, M.A., B.Sc., F.G.S., F.R.A.S.B., F.N.I.

WE have very great pleasure in announcing the award, by the Council of the Geological Society of London, of the LYELL MEDAL to Mr. D. N. Wadia, Government Geologist, Ceylon. According to the conditions of the 'Lyell Geological Fund', this Medal is awarded annually by the Geological Society "as a mark of honorary distinction and as an expression on the part of the Governing Body of the Society that the Medallist has deserved well of the science", and the award of this medal to Mr. Wadia this year is an honour which he richly deserves. Mr. Wadia is well known as one of the foremost Indian geologists in the country, and both as a teacher of Geology as Professor in the Prince of Wales College at Jammu, and later, as an active and enthusiastic field geologist on the staff of

the Geological Survey of India, Mr. Wadia has contributed in no small measure to the promotion and progress of geological studies in India. Apart from this, he has all along taken considerable interest and played a prominent part in the work of the various scientific bodies in India, in recognition of which honours and distinctions have been freely conferred upon him. Ever since its inception, *Current Science* has been fortunate in securing Mr. Wadia's wholehearted support and co-operation; and we take this opportunity of offering him our sincere felicitations on the signal honour that has now been conferred upon him by the Geological Society of London. We wish Mr. Wadia many more years of active service in the cause of science in India.