WOOD HELPS WIN THE WAR

J. E. Davis

University of Illinois and State Natural History Survey, Urbana
Chairman, Illinois Wartime Timber Marketing Committee

In a state so intensively agricultural as Illinois probably the great majority do not realize the key position taken by wood in the pursuit of our war program. Even the three million acres of Illinois woodland—only nine per cent of the area of the State and less than 0.3 per cent of the farm woodland area east of the great plains—is so important to the war effort that special measures are being taken to increase production of our native timber and to maintain operation of the State's 1,000 wood-using industries.

It should be enlightening to review some of the facts of the utilization of wood in the war. During 1942, about 90 per cent of the lumber produced in the United States went to the war effort. There are more than 1,200 different items of military and naval equipment that can use lumber. Add to this the paper and wood for packaging lend-lease, quartermaster and ordnance supplies, and domestic lumber demands for agriculture and war industries, and a total consumption of more than 38 billion board feet is built up. In 1941, before the heavy war demand, it took more than 36 billion feet to approximately meet our requirements.

Figures on the war requirements for strategic materials are usually rather closely guarded secrets but early in 1942 some figures were released that will give an insight into the rôle of wood in war now that our war effort is in full swing.

More than 200,000 defense housing units have been built, representing housing capacity sufficient to take care of the combined populations of cities the size of Madison (Wisconsin), Fort Wayne (Indiana), and Grand Rapids (Michigan). Housing for soldiers in army camps requires 1,000 board feet per soldier for tent camps and about twice that amount for barracks. Many of the larger cantonments have required 20 million board feet of lumber each.

It has been estimated that lend-lease required nearly 10 billion board feet of lumber in 1942. How can so much lumber be used for this one phase of the war effort? We have some information on a few lend-lease items for 1941 that will show how lumber and other forest products are consumed in such shipments.

The 1941 shipments of poultry and eggs required 90 million board feet of lumber, 360 million square feet of veneer, and 500,000 tons of paper and fiber board.

Dairy products used 74 million board feet of lumber, 2⅓ billion square feet of veneer, 60 million barrel staves, 5 million butter tubs, and 400,000 tons of paper and fiber board.

Fruits and vegetables used 1½ billion board feet of lumber, 3 million square feet of veneer, 46 million barrel staves, and 102,000 tons of paper and fiber board.

These figures cover only a few lend-lease items, and are for a period when we were far from the height of lend-lease shipments and had not yet established armies on the world battle fronts which have to be supplied primarily by shipments from home. There are no more recent figures available, but it is easy to imagine something of the increase of supply packaging problems since 1941.

The packaging of supplies for war export is not the simple matter of loading ships with foodstuffs in the packages we are accustomed to seeing in our local groceries, or with uncrated machines as we have often seen rolling over the railroads on flat cars. War export items must be packaged virtually water-tight and in packages substantial enough to withstand the roughest conceivable handling conditions. Particularly in the servicing of invasion armies it already has proved necessary to dump the entire supply into the surf later to be gathered on the beach or to be dragged in by cables from winches on shore. Such problems multiply the lumber, paper, and fiber board used for war shipments many times over that used for similar items in peace time.

War industries have been enormous consumers of wood products and their

demands are increasing. This is due to the direct use of wood in war items, the substitution of wood or wood products for critical metals, and the use of wood in crating, car bracing, and dunnage. In the case of ammunition, there are more than 80 different types of shell boxes used for the purpose of retransport. In this and in many other types of ordnance items various parts are sub-contracted to scattered manufacturers and are then brought together at one assembly point. These parts, many of them of delicate precision, must be packed mostly in wooden containers to go to the assembly plant.

More than 100 articles normally made of metals can be replaced by wood, and the limits of such substitutions are unknown with the new developments in plywood and wood plastics. It is expected that most of our trainer planes and probably the proposed huge freight planes will be built largely of wood. Already, the molded plywoods have proved their worth even in battle planes. The newly developed compregnated wood offers strength, hardness, and water resistance equal to some of the metals.

Going from the air to the sea, waterfront developments for 1942 were estimated to require 55 per cent more piles than were used in the average for the 1936-40 period. Wooden ship building has had a tremendous revival. Many types of the smaller boats are satisfactory if built of wood, and this use of wood releases steel for its more urgent use in combat vessels. White oak is the most commonly used wood for shipbuilding, and high-grade white oak is now so badly needed that by order of the War Production Board it is illegal to manufacture white oak into furniture veneer or to sell logs for this purpose. Even the great "battle-wagon" which appears to be all-steel is a heavy user of wood, for half a million board feet of lumber go into the armored steel battleship.

Actually, these are comparatively few uses of wood in the war effort, but I want to turn particular attention to the place of Illinois-grown wood in the war program. Probably the most important use of wood for the war in this state is the meeting of domestic requirements in the production, packaging, and shipping of agricultural products.

There is always an active construction program under way in rural Illinois in the maintenance and replacement of farm structures, and a vastly expanded production program meant more construction for the expansion of housing facilities. Although the building limits permitted for farm construction have been fairly liberal, many farmers have found it difficult to obtain buildings adequate to meet the needs of their production capacity. Here Illinois woodlands come into their own. There is no farm construction need that cannot be filled by some native wood. It did not take farmers long to realize that native lumber from their own woodlands at a cost of twenty dollars a thousand board feet would make a lot more building for 1,000 dollars than could be built with finished lumber at seventy or seventy-five dollars a thousand. So far as the application of native woods to farm construction jobs is concerned, its limitation depends only on the ingenuity of the builder. I recently had a report of a cornerib built entirely of willow. Willow could hardly be considered a construction timber, but willow was the only timber available, and it was made to serve the purpose.

Probably more houses were built for farrowing sows this year than ever before in Illinois history. However, the increase in hog houses was not in proportion to the increase in hogs, and it is admitted that part of the heavy pig losses this spring were due to chilling because of inadequate housing. More attention will have to be turned to proper housing in another farrowing season. The old gooseberry bush down in the timber just won't do for a farrowing house in weather like we have had this spring. Green, rough lumber cut from a few of the trees down in the timber will make good hog houses, and at low cost.

Fence posts, fence boards, gates, machinery repair parts, wagon parts, eveners and implement handles are a few other farm items for which home grown wood may be used. I did not place fuel wood in this list because it requires special consideration. Coal has been abundant and cheap in Illinois and but few have made a practice of burning wood for heating or cooking. I have repeatedly warned that we may face a fuel shortage in the winter of 1943-44 and wherever supplies are available wood should be used for fuel.

Even if a serious shortage does not occur I feel that anyone who has wood and wood-burning equipment available is not justified in creating an extra drain on transportation by demanding other fuels. Wood is good fuel. A standard cord of oak and hickory has more heating value than a ton of the average Illinois coal. Illinois woodlands could produce enough firewood annually to replace a million and a half tons of coal.

I must skip over the containers for marketing and storage of the agricultural products. This use includes baskets, boxes, crates, trays, cases, and bins. Just this week I have been in southern Illinois studying the basket and box situation for fruits and vegetables. There is a definite shortage of fruit and vegetable containers which, if not corrected, will hamper the production of food for the war effort. These containers, manufactured by eleven concerns in Illinois and several others in adjacent states, are made entirely of wood from our farm woodlands.

Some special war items deserve particular attention. Outstanding of these is black walnut which is used for gunstocks and airplane veneer. The walnut timber crop is so important in Illinois that a survey of walnut owners has recently been completed and an inventory of the walnut resources is now being made. There are over thirty black walnut buyers now active in Illinois purchasing trees and logs for war use. It is estimated that more than 25 million board feet of black walnut went into war use in 1942.

Another special item is dogwood. Dogwood is used for shuttle blocks for the textile industry which in turn is indispensibile to the war program. This industry was facing a critical shuttle shortage until steps were taken to bring about the marketing of more dogwood. Twenty thousand cords of dogwood are being harvested from the national forest in southern Illinois for this purpose.

In the Peoria area a paper mill has recently started using native woods for paper manufacture. Inferior species and cull material from woodland improvement cutting are used so that all classes of timber find their place in war production.

The heavy machine manufacturerers of Peoria, Rockford, and Chicago are turning to the use of native woods for crating, skid timbers, and car blocking. These industries as well as the paper mill were in existence and were using wood before the war but they used wood shipped considerable distances. The importance of current trends lies in the lessening of the drain on transportation facilities and the release of softwood lumber for other war uses.

Going back to the over-all lumber situation, the 1942 total lumber production fell some 4 billion board feet short of meeting war and essential civilian requirements. Lumber production in Illinois started dropping off in the fall of 1942 and by January 1943 was more than fifty per cent below September 1942. Since January, there has been a slight increase but not sufficient to meet demands. Early in 1943 the various agencies concerned with forest production in Illinois organized the Illinois Wartime Timber Marketing Committee. The objectives of this group are to coordinate the production efforts of the member agencies and to pursue an active program designed to increase and maintain lumber production. The fruit and vegetable container study previously mentioned is one of the projects of this committee.

More recently the War Production Board and the United States Forest Service have proposed a program patterned on similar lines.

This state and national attention to lumber production is indicative of the key rôle wood plays in the war. Lumber is listed with steel, aluminum, and copper as a critical war material. Shortages of lumber and other forest products threaten to impede seriously our war effort. Wood helps win the war, but every day that wood production lags behind war needs, just so much longer is the day of final victory postponed. I believe that the problems can be overcome and production brought nearly up to schedule, but it is up to every individual, as well as the foresters and lumbermen, to understand the place of wood among other critical war materials. Only then can we achieve the most effective use of our forest resources.