

The Future of Forest Industry in the Northeast

This morning we plan to take a hard look at what may happen to wood-using industries in New England, New York and eastern Canada in the long run. This particular form of "space cadeting" is a popular but perilous sport with foresters. Danger lies at two extremes. It's hard to resist the temptation to assume that the past is irrelevant. Then in the fullness of time anything can happen. But most of our experience with forests and industries suggests that evolution is more the rule than revolution. If, because of this we stick too close to a simple projection of the present into the future, however, we are subject to a kind of tunnel vision that excludes some of the most promising innovative developments. We must somehow strike a middle path.

All of us know enough about the real world to realize that as we look farther and farther into the future there comes a point in prediction-making where the chance of being wrong is greater than that of being right. Optimists and foresters generally believe that this time when the odds turn against us lies a matter of some decades in the future. A recent evaluation of economic forecasts, however, found a considerable deterioration in accuracy over as short a time as six quarters (1).

In reality, it depends on what we are trying to foresee. The economy is designed to encourage people who search out and seize opportunities and quickly adjust to change. In a system with so much built-in volatility, a long time may often be measured in months. Government, on the other hand, has the responsibility of maintaining an acceptable degree of stability in a changing world. The system insures that really radical governmental shifts are likely to take years. Then there are the cultural values that we imprint on our children and

these patterns persist for generations. Finally, some natural processes go on essentially unchanged forever. Because a look at the future of forest industries needs information from each of these fields of knowledge, we must generally deal with a very mixed bag when it comes to accurate anticipations.

Even so, we know that whatever future eventually unfolds we will get there one step at a time, starting from today. Consequently, it may pay to look most closely at options in our near future and deal with the long term very sketchily, and then only concern ourselves with those things we are confident can be projected with acceptable accuracy. Finally, because businessmen probably know their own prospects better than any outsider, we on the panel will also stick to the things we know best and hope that the combination will form a useful background for later discussion at this conference.

Any game of futures requires some rules to help us select relevant facts and assemble them into a cogent picture. I propose that as a point of departure we borrow from ecology the basic idea of a system in dynamic balance with its environment. In the world of plants and animals, it is commonplace to believe that species fail because they are not attuned to their surroundings, while those that prosper do so because they have adapted to the constraints and opportunities of their environment. Plants and animals interact mainly with natural systems, including the niches created by people. Industries, however, must respond not only to the natural, but also to the social and cultural forces that affect them. A serious misfit with any of these elements can lead to decline and failure.

Because none of us on this panel is really an expert in industry affairs, we can contribute most by defining those elements of the environment that can significantly affect the life and character of a wood-using industry. Then we can get some idea of which natural and social facts are important, the value

of each factor today and where it is trending. This should define the significant interfaces of the industrial environment that a business must fit smoothly if it is to have a high chance of survival.

As a starter, I'd like to talk about New England not only because it's an interesting area, but also because it can serve as a kind of prototype region. The six states have very distinct boundaries with the ocean, the border and the lakes and mountains, so much of what goes in New England is inward rather than outward looking. This reinforces the idea that this is a functioning region even though there is a healthy exchange of ideas, finances and things with areas outside. But, perhaps the strongest reason to treat it as a region is because the people who live here think it is. From the beginning of settlement, New Englanders have recognized themselves and their land as somehow set apart, and for good or ill this belief has shaped their character.

Although New England may function as a region, it is far from uniform. In fact, one of its characteristic is being made up of small landscapes which seem to have generated small but viable towns, businesses, financial institutions, farms, forests and colleges. (Some unkind critics also add small minds, but we shall ignore them). Although the major landscape units, the hills and the valleys, are often small, they do have a general north-south orientation. Many other natural social and cultural facts also follow this "Appalachian trend" so that the character of the land and of its people subtly changes as we go from Greenwich, Connecticut to Fort Kent, Maine. At the extremes, the land, forest, business, culture, things people do and the way they think are almost as different as night and day. In between the differences fade gradually and are not easy to define.

In order to set up useful models of possible industrial environments, it may be best to keep things simple and deal with the extremes of southern New

England versus northern Maine. This way the contrasts will be sharpened and the impact of environmental factors on industry will be decisive. Although these north/south extremes will not apply literally elsewhere, they may give us useful prototypes for discussion.

Well, what are some of the environmental factors that can have a vital impact on wood-using industries in northern and southern New England? First, some of the eternal varieties of climate that are not likely to change much as long as we are in this interglacial period. We have lots of hard data dealing with natural factors, so these industrial design variables can be quite clear.

Winters are colder in the north with the average January minimum at 0° to 6° compared to 16° to 24° in the south (2). In summer the difference in heat is not so great, but the south is slightly warmer with an average July maximum of 78° to 80° compared to 70° to 80° in the north. Average annual precipitation diminishes slightly to the north with 36" to 40" compared to 40" to 52" farther south. Snowfall is the reverse with a moderate 32" to 64" in the south compared to a heavy 80" to 96", which often produces spectacular accumulations for long periods in the north. As a result the frost free growing season in the south is longer, 120 to 180 days, compared to 90 to 120 days in the north.

These factors combine to make the north an attraction to people from the south as an escape from summer heat and a magnet area for winter sports. Farming in the north must be more specialized to a short growing season and severe winters. Woodworkers must also be prepared to cope with hard winters and black flies in the summer.

Forests cover about 60 percent of the south and 90 percent of Maine and in both places trees have integrated the prevailing climatic factors to produce different forest types. Central and transition hardwoods dominate two thirds

(64%) of the forest area in the south, while northern hardwoods cover less than one third (29%) of the north (3). In the south, coniferous types (pine, hemlock, spruce, fir) cover only a fifth (21%) of the land while in Maine they cover almost half (47%). The boreal forest is also less complex with almost four-fifths (78%) of the land supporting a combination of spruce, fir and northern hardwoods. In the south nothing so clearly dominates, transition hardwoods cover 27%, oak types 37%, other hardwoods 15% and conifers 21% of the forest land -- a complex mixture of types four-fifths of which are hardwoods.

Small, infrequent forest fires quickly extinguished are typical in the south, while a similar pattern holds in the north except for the rare holocaust that under the right conditions can sweep through the extensive conifer types. The more uniform boreal forest is also more susceptible to occasional high losses to insects and disease. So far, such depredations in the south generally debilitate without killing trees on a significant scale. Hurricane catastrophies, however, have visited the southern forests 4 to 25 times in the last 300 years (1635 to 1959) while the north suffered much less with only 1 to 4 serious blows (4).

This pattern of windthrow and forest complexity has combined with past land abandonment to create a more variable patchwork of forest stands in the south than we find in northern Maine. A wood-using industry in the south cannot anticipate anything like the uniformity of logging chances that cover much of the north and these patterns are not likely to change.

Let's turn now to some of the significant cultural and factors that a successful industry must be designed to cope with. As just mentioned, past land use history has helped create the present pattern of forest stands. This is especially effective in the south where abandoned farm lands cover 45% of the area compared to about 10 percent in Maine (5). Although some abandonment con-

tinues, it is unlikely that much more farm land will go out of use -- and in a few places some land may even be cleared again for agriculture. A more serious loss appears in the south where 85 percent of present timber removals result because the land is being developed which permanently removes it from forest production.

Because owners have a critical say about what land is used for, it is significant that almost half (49%) the commercial forest land in Maine is held by wood-using industries, mostly in large tracts. In the south they have only 1% and almost three quarters of the forest (72%) is held by miscellaneous private owners, mostly in small tracts. It seems likely that there cannot be much more expansion of industrial holdings in the north, but private holdings in the south are increasing fast, and individual ownerships are likely to get even smaller than they are today. Continued fractionation of land holdings will combine with forest complexity in the south to greatly complicate wood procurement and logging. In the north, industries have an initial position of strength based on control over large, relatively uniform forest areas so supply problems should be simpler.

What landowners want to realize from their forests is a major determinant of industrial possibilities. In the south the situation is very complex because private owners have three quarters of the land and have such wide interests. Cataloging the reasons that people have for acquiring and holding onto forest land has been difficult because they come from all walks of life and, like all humans, do things for a complex of reasons. It is clear, however, that most owners expect to realize a number of satisfactions from their forest land and that income from timber is only one value among many. Their management problem, therefore, boils down to devising a program of action that will produce the most satisfactory mix of values. I have discussed this problem

with my neighbors while looking at their fields and forests. And although Petersham is certainly a poor sample of Massachusetts, to say nothing of New England, it may help to talk a bit about some of my fellow townsmen.

Over the last four years, we have mapped all the property in town and in the course of this we talked with a lot of people about how they got their land and what they expected to gain by keeping it. The answers we got confirmed what every study of landowner motivation I've seen has shown: no one has a simple reason to hold land. Although it vastly oversimplifies the situation, I believe it's worth recognizing about three typical attitude/action complexes in Petersham. First, those who look upon their woods as a place where, in the words of the old hymn, "Every prospect pleases and only Man is Vile". Second, those who are attracted to a forest primarily because it's "Far from the Madding Crowd". And finally, a group of folks who advocate "wise use", with what they mean depending on their own brand of revealed wisdom.

Those owners who value forests primarily for their naturalness can be split into two subgroups. The purists believe that human use has done nothing but scar the land and that if nature is left strictly alone, she will slowly but surely recreate the best of all possible forests. Some dress this belief in the jargon of succession and climax while others don't get much beyond some vague feeling about the balance of nature. In any case, they believe like Bo Peep's mentor that it's best to "Leave them alone and they'll come home wagging their tails behind them".

Occasionally, the reasoning gets rather convoluted. I well remember that when Ken Galbraith first bought his old farm in Vermont, he was loath to admit to friends that he was doing nothing with the land. As an economist, this made him uneasy until he picked up the perfect rationalization at the Harvard Forest. Thereafter, he told people that he was busy raising a climax forest.

At the other extreme from the Bo Peep Gang, I have friends who believe in the goodness of nature, but also want to do things like protect their land with waterholes and a network of roads and trails. In addition, they want to give nature a helping hand so that the precolonial forest will reappear more quickly. These folks are apt to cut short-lived gray birch and poplar when it overtops longer-lived trees that will eventually win out, but will get ahead quicker after judicious weeding. They are also likely to prune pine to get clear boles like old-growth trees. Altogether, these people are likely to use rather intensive practices to speed forest development, but their big mature trees are not for harvesting.

A second group of Petersham residents value forest land primarily as an attractive buffer against other people. These folks are apt to have spent most of their lives in cities, but now some commute, while others enjoy their second home in the country. Generally, their first act on passing papers is to post their land against all forms of trespass to reinforce their feeling of being alone at last.

This kind of space user tends to like a neat woodland that is easy to get around in, and usually doesn't feel that human interference with nature is a bad thing. In fact, most of the people that I know in this group are anxious to carry out any forest operation that they believe will help them enjoy their property more fully. However, they generally like big trees better than small ones, don't like to see down-trees go to waste, dislike the messy aftermath of the average sawlog operation, and are reluctant to share their land with strangers.

Another group of my friends place a high value on forest amenity, but they also believe that land should be used for products. One that I know grew up on a farm and bought his present place because he wanted his children to have a similar set of memories of their childhood. After clearing some

woodland for fields he manages the rest for fire wood. Doing most of the work of thinning and improvement cutting with family labor, he knows better than most the cost of clean up and is more willing than some to let natural rotting take care of the slash. In common with most of the full-time farmers I know, he uses his land in a way that not only avoids waste, but also maintains its productivity.

These kinds of owners generally deplore logging operations that don't fully utilize all the products on the site. They hate to see stands high-graded and left encumbered by poorly formed and battered trees. They want to see utilization that goes well up into the tops, slash down close to the ground where it will rot quickly, carefully laid out roads that won't erode and a minimum of bark knocked off residual trees. They also believe that a well conceived and carefully engineered operation will get their forest growing more vigorously and that amenity will be restored quickly enough so that resale value is not impaired by a scarred and crippled landscape.

The last Petersham owners I can talk about value their forest land for just what they can get out of it. Land is a commodity to be bought cheap and sold dear, if in the meanwhile it makes financial sense to skin it, they will. Alternatively, if it will pay best to keep the forest untouched, they will hold it until the right buyer comes along, or they may do a logging job that is carefully laid out to preserve the amenity value they intend to sell later.

In the old days, most of these owners were sawmill operators who, over the years, bought and sold vast amounts of land. What they did to manage the land was all part of earning a living and was generally based on short term advantage. As one old fellow told me, "Don't put your money in the bank, buy land". Modern exponents of this approach are generally assemblers of large

tracts for development and have little interest in using the area for anything except speculative gain.

To summarize, I find that well over half my neighbors value their forest land most highly as a natural environment, a pleasant place to be and a buffer against other people. All my acquaintances believe that land should be used wisely, but only about a third would put products very high on their list of uses. Only a very few look on land primarily as a money maker to be bought and sold whenever it is worthwhile.

This emphasis on psychic income over cash returns makes valid economic sense in today's land market. Most forest land is now selling for two to five hundred dollars an acre and returns from timber growth are not likely to even pay the interest on such an investment, to say nothing of taxes and other carrying costs. Wherever a brisk demand for land has been generated by urban people, the returns from speculative and/or the pleasures of ownership must be added in to make much economic sense out of the transaction. All this means that products in the south will increasingly be a spin-off of amenity management, a fact that must be designed into any successful business.

This situation contrasts sharply with the ownership pattern in Maine where the wood-using industries own large tracts and have been expanding their holdings whenever possible. Access to most of the unorganized townships is over company rather than public roads and this provides another valuable aid to management. Without the constant public surveillance of woods operations so common in the south where the public is dense, the Maine companies are more free to design silviculturally effective cuttings even though they may not be aesthetically attractive. This freedom may not continue if environmental interests change the rules or if the public gains more frequent access. Also,

the companies themselves may find it desirable to develop some of their prime land for recreation. In fact, development is already underway in several places and in the long run this will create a new reason to maintain an attractive landscape.

Of course, the most obvious cultural difference between northern and southern New England is the fact that the south is densely settled and the north isn't. Counties in the southern states have from 51 to 1,000 people per square mile with cities running up to 13,000. In the north, counties have from 0 in the unorganized areas of Maine to 250 people per square mile. This closeness of settlement greatly affects access to the countryside, land values, the effective demand for outdoor recreation, interest in attractive and healthy environments, and the whole industrial climate. In the south, neighbors are interested and can readily see what goes on in the woods, in the north it's not so easy.

Of course, industries in the south produce very close to their consumers and this will become more important as the energy costs of transportation rise. However, companies must also compete for workers who have a larger array of alternative employment than is common in the north. However, for years work in the north woods has depended on Canadian labor so the labor situation may about even out north and south. The big companies of the north are probably in a stronger position than the relatively few small companies still left in the south to make a concerted effort to improve their labor supply.

Finally, neither location is immune from increased public regulation for environmental protection. However, a company that is the sole economic support of a town or region may have some bargaining advantage about the extent and timing of changes. In the long run, any industry must be prepared to cope with more persistent regulation of its land use practices and of its manufacturing activities.

Well, these and many more are environmental facts with which any industry must cope if it is to survive and grow in New England. There is enough contrast between the populous south and the forested north to accommodate an array of businesses. We should expect that present wood-using industry differences will continue. But we should also expect that new and more viable forms will evolve in both areas as ingenious people in the public and private sectors continue to search their environments for cues and learn how better to adapt to a changing world.

With this as an introduction, we have two men here who will try and carry the analysis one step farther. Prof. Carl Reidel, director of the Environmental Program at the University of Vermont, is a man of wide experience in forestry and environmental affairs. He will cope with the situation in the urbanized parts of the region. Prof. Norman Kissick, has taught forest policy and management in an innovative way at the University of New Brunswick for many years. Norman will discuss industrial futures in the hinterland, with special emphasis on eastern Canada. Both these men have been Bullard Fellows at Harvard so I know they can talk sense about the future.

References

1. New England Economic Review, Federal Reserve Bank of Boston, November/December, 1975.
2. The data on climate and population density came from A Forest Atlas of the Northeast by Howard W. Lull, USDA, Northeastern Forest Experiment Station, 1968.
3. The information on forest acreage, types and ownership classes came from The Timber Resources of Southern New England, NE-36, 1974 and The Timber Resources of Maine, NE-26, 1972. Both by the USDA, Northeastern Forest Experiment Station.
4. Atlantic Hurricanes by G. E. Dunn and B. I. Miller, Louisiana State University Press, 1960.
5. Information on the extent of abandoned farm land was developed by comparing data on farm land from the several Censuses of Agriculture.

THE FUTURE OF FOREST INDUSTRY IN
NEW ENGLAND AND EASTERN CANADA

PAPERS PRESENTED AT THE 42^D YALE

INDUSTRIAL FORESTRY SEMINAR

UNIVERSITY OF MASSACHUSETTS

AMHERST, MASSACHUSETTS

JANUARY 20, 21, 22, 1976

EDITED BY

LLOYD C. IRLAND

YALE UNIVERSITY

SCHOOL OF FORESTRY & ENVIRONMENTAL STUDIES

HAROLD B. GATSLICK

UNIVERSITY OF MASSACHUSETTS

DEPARTMENT OF FORESTRY & WILDLIFE

CONTENTS

		<u>Page</u>
 <u>I. ENVIRONMENT FOR FOREST INDUSTRY</u>		
E. M. Gould, Jr.	THE FUTURE OF FOREST INDUSTRY IN THE NORTHEAST	1
Carl H. Reidel	THE LONG RANGE FUTURE FOR THE REGION: INDUSTRIAL SURVIVAL IN URBANIZING NEW ENGLAND	14
Norman Kissick	LOOKING AHEAD--FOREST INDUSTRY IN EASTERN CANADA	23
 <u>II. EASTERN CANADA: NEW POLICY DIRECTIONS</u>		
Jean-Paul Nadeau	FOREST LAND MANAGEMENT ISSUES	28
Louis-Jean Lussier	A NEW APPROACH TO MANAGEMENT OF PUBLIC FORESTS IN QUEBEC	35
Jean-Marie Pouliot	RECENT FOREST POLICY DEVELOPMENTS IN THE PROVINCE OF QUEBEC	53
R. E. Tweeddale	THE EFFECTS OF THE NEW PROVINCIAL FOREST POLICY ON THE FUTURE OF THE FOREST PRODUCTS INDUSTRY IN NEW BRUNSWICK	59
J. W. Giles	LAND USE CONTROLS: THEIR IMPACT ON FORESTRY	73
 <u>III. GROWING TIMBER</u>		
David M. Smith	WHAT'S DIFFICULT ABOUT NORTHEASTERN SILVICULTURE	79
David B. Field	INFLUENCES OF PROPERTY TAX AND LAND PRICE LEVELS ON TIMBER MANAGEMENT DECISIONS IN THE NORTHEAST	85
Alan C. Page	THE PRINCIPLES OF GROWING TREES RAPIDLY	96
George W. Weiland	FOREST MANAGEMENT IN NORTHERN NEW ENGLAND, i.e., DEAD RIVER COMPANY STYLE	109
Perry R. Hagenstein	THE REGULATORY CLIMATE FOR FORESTRY IN NEW ENGLAND	114

	<u>Page</u>
<u>IV. NEW MARKETS AND NEW TECHNIQUES</u>	
I. Wentworth and J. R. Stillinger	COMPOSITION BOARD PRODUCTS POTENTIAL IN NORTH EAST UNITED STATES & EASTERN CANADA 124
Robert A. Caughey	WOOD AS A PARTIAL ENERGY SOURCE AND ITS EFFECT 135
R. L. Youngs	THE MADISON FOREST PRODUCTS LABORATORY EFFORTS TODAY 138
Irving S. Goldstein	CHEMICALS AND PLASTICS FROM WOOD 151
Peter Koch	UTILIZATION OF BIOMASS FROM MIXED-SPECIES SOUTHERN FORESTS--A NON-PULP GENERAL SOLUTION 161
 <u>V. REACHING OWNERS OF SMALL TRACTS</u>	
Lester A. DeCoster	REACHING THE SMALL OWNER 163
Hugh Putnam, Jr.	EVALUATION OF THE FOREST IMPROVEMENT PROGRAM 166
Reginald B. Elwell	REACHING THE SMALL OWNER 169
John Torunski	PROGRAMS IN EASTERN CANADA 173
Stephen Orach	PROGRAMS IN THE UNITED STATES 180
Frederick S. Ziemann	REACHING THE SMALL WOODLAND OWNER 187
 <u>VI. WORKSHOP NOTES</u>	
H. V. Nelles John Muench Michael F. Cyr Bradford Wellman	FEDERAL ROLE 195
Thomas E. Hamilton Robert B. Forster Schuyler Jackson Donald F. Strout Neal P. Kingsley	RESEARCH NEEDS 197