



This article was first published in the April 1966 issue of *Forest History*. It has been one of the FHS articles most frequently requested to be reprinted in other publications. This study of land-use changes and proposed philosophy is standard fare in many college courses and continues to have bearing on current issues of land-use planning, conservation plans, wilderness theory and forest management.



Early stages in the land use history of the Petersham, Massachusetts area are portrayed in these photographs of three of the Harvard Forest Models.

**Top** The primeval forest of Central New England.

**Middle** Clearing for settlement c. 1700–1760.

**Bottom** Farm abandonment after 1850 with white pine invading the old fields.



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THE VIEW FROM



# JOHN SANDERSON'S FARM

*A PERSPECTIVE FOR THE USE OF THE LAND*

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**J**ohn Sanderson was a prosperous farmer in Petersham in the second quarter of the 19th century. He lived on land now part of the Harvard Forest, and his house was one we are still using as living quarters for staff and students. In the 1830's and 1840's when the Sandersons lived there, all but about 100 of the 850 acres that make

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up the Prospect Hill Tract of the Harvard Forest, of which their farm was a part, were entirely clear of woodland. They were in pasture or under some sort of cultivation. Most of the tilled land was in tiny fields immediately back of the house. The stone walls separating the fields are still there, hidden by the trees.

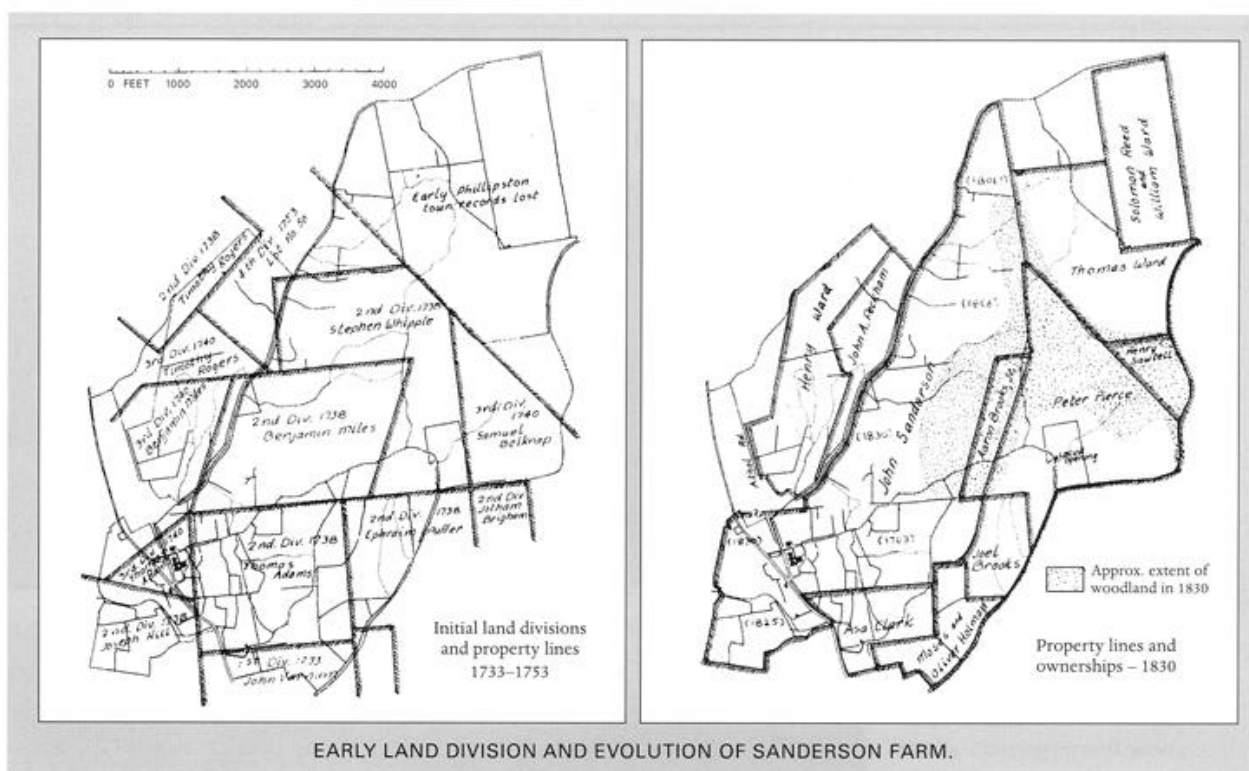
Agriculture in Petersham, as in many towns like it in southern New England in the first half of the 19th century, offered attractive opportunities. Markets for farm products were good in the nearby industrial communities which had been recently established in the valleys of the larger streams where there was

water power. Road nets were being steadily improved within the towns, as well as longer stage roads to markets and to the coastal and Connecticut Valley cities. Under these circumstances the Sanderson family and hundreds of others like them were able to accumulate savings in one form or another. Their habit of investing much of their capital in the improvement and enlargement of their farms, houses and in improving their general living conditions argues that they looked forward to permanence. They and their forebears had wrested the land from a forested wilderness and made it flourish in a tradition of husbandry that they had brought over from England in the 17th

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BY HUGH M. RAUP

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EARLY LAND DIVISION AND EVOLUTION OF SANDERSON FARM.

century. This tradition had not changed materially, so far as they knew, for some centuries, and they did not conceive of its changing in the future. However, though they knew that there had been several decades of increasing prosperity behind them, they also knew that times had not always been as favorable.

The first settlers who came to Petersham in 1733 lived by a subsistence agriculture. They had no external markets worthy of the name for nearly three generations. They cleared very little land during that time, for they had no need to, nor could they afford to. The land surface of the town had nearly all been forested. The uplands were covered with mixed hardwoods in which there were occasional white pines and hemlocks. The bulk of the hardwoods were oaks and chestnuts. In the deeper

valleys and on lower north slopes were hemlocks mixed with beech, sugar maple, the birches, and a few large white pines.

### A SELF-CONTAINED ECONOMY

In September 1771, after the town had been in existence for 38 years, an inventory of land was taken and later published in the "Massachusetts Valuation Returns" for that year. Petersham reported 845 acres of pasture, 443 acres of tillage, 958 acres of upland mowing, and 256 acres of meadow. This made a total of 2,502 acres or about 12 per cent of the area of the town. A more realistic figure for "cleared" land would be about 10 per cent because the 256 acres of meadow formed a natural feature of the landscape and did not represent clearing. Inventories for the next 20 years show the same slow rate of clearing. By 1791 only about 15 per cent of the town had been cleared of forest.

The simplicity and self-contained quality of the farm economy in those early days was reflected in the road system. In the 1730's and 1740's this was scarcely more than a suggestion consisting of an east-west track leading from Lancaster to Sunderland and dead-end roads pushed a few miles north and south through the woods from the village. In the 1790's the system was still extremely simple, but there were roads connecting Petersham with surrounding towns and the beginnings of an internal net.

The first Sanderson appeared in the town during this long period of slow development. He was Jonathan, father of the John Sanderson mentioned earlier. In 1763 he bought the land where our old house now stands. Property rights in our Prospect Hill Tract in Petersham go back to 13 original parcels of the town's common land. The northeast portion of the tract is



A photograph of John Sanderson's house which is still in use on the Harvard Forest.

in the town of Phillipston, the early records of which have been lost. Four divisions of common land are represented in the Petersham portion, laid out between 1733 and 1753. The major design of the land ownership pattern, here as elsewhere in the town, was laid down in these original surveys and much of it soon became fixed by the construction of stone walls. Some of the parcels remained intact for many years, while others were soon broken up in a spate of trading and speculation. Jonathan Sanderson's 50 acres came from parts of two 2nd Division Lots and one 3rd Division Lot.

## PERIOD OF PROSPERITY

Between 1791 and 1830 the cleared acreage in the town was greatly increased to over 60 per cent of the total, and this expansion continued until mid-century. John Sanderson assembled his farm and amassed his wealth during this period, as did many others. He had started as a tanner in 1792. He inherited his father's old farm in 1806 and bought a 60-acre piece in the same year. In 1825 he got two more parcels, one north and another southwest of his home place. Finally, in 1830, he filled out the property to about 330 acres which remained intact only until 1845 when it was sold by his heirs.

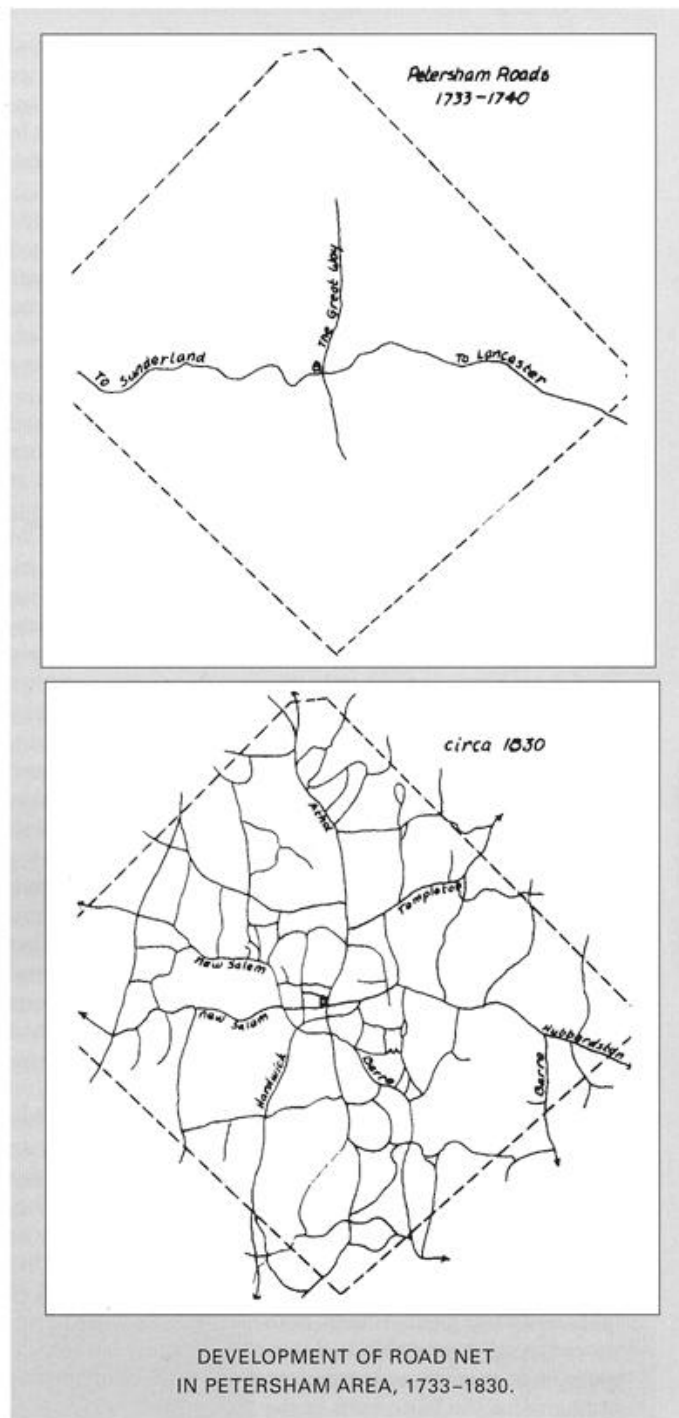
The rate at which the pre-settlement forest was cleared from our Prospect Hill tract is conjectural, but we have three fairly well-established check dates for the 600 acres that lie in Petersham. Deeds, probate records, and the town inventory indicate that only 11 per cent of these 600 acres were cleared in 1771 and that this cleared land was in the immediate vicinity of three or four houses along the road in the southwest part of the tract. The second check date is 1830, at which time accurate maps were made of many Massachusetts towns showing the location of wooded areas. Between 130 and 140 acres of woods appear in the Petersham part of the Tract on this map, making about 77 per cent of the area clear. The third date is 1850, for which we are dependent upon deed descriptions and evidence in the forest itself. The woodland appears to have been further reduced, perhaps to as little as 50 acres, leaving about 90 per cent of the area cleared.

The town roads in 1830 are further evidence of the intensive use of the land. Not only were there many ties with surrounding towns but an intricate system of connecting and feeder roads within the town itself. Hardly an acre was more than a quarter of a mile from some kind of road. The Georgian domestic architecture that is so much a part of our landscape had its finest flowering in this time of agricultural prosperity. The people who built these houses must have expected a long future on the land for themselves and their families.

Today forests cover nearly 85 per cent of the land surface in Petersham, and farming has nearly disappeared. The reasons for this change cannot be found in the town itself. They must be looked for beyond its borders.

## TALE OF TWO FAMILIES

My maternal grandfather was born in southeastern Pennsylvania of Scotch-Irish parentage in 1824. His family moved to the town of Dayton in southwestern Ohio in 1836. What their



means of livelihood were before the move I do not know, but after the move my great-grandfather was a carpenter and builder. A couple of years later the family was in the milling business, and my grandfather continued at this, operating both saw and grist mills until 1854.

During the period of this family move, the incomparably rich farmlands of our Middle West were just becoming fully settled. But markets for the things they could produce so lav-



ishly were far away and difficult to reach. The Appalachian and Allegheny Mountains had been for generations a solid barrier to the free westward movement of people, materials, and investment capital. Transport was expensive and hazardous in the other direction also—to the population centers of the lower Mississippi and Ohio Valleys.

The Sandersons in Petersham and my grandfather's family in southwestern Ohio could scarcely have been more isolated from one another. Not only were they ignorant of each other's existence, but I venture to say that each would have had no conception of the way the other lived, even had they been acquainted or related. I propose, however, that the lives of these two families and their descendants are interrelated.

When I was a boy in Ohio, in the years around 1908 and 1910, my mother commonly sent me to the grocery store about a mile from our house. Nearly everything I bought at that store came out of a wooden box or barrel. My parents were extremely fond of salt mackerel and used to send off an order for some each year to a dealer on the eastern seaboard. I think the rest of the family cordially hated the stuff, but we had to eat it anyway! The fish always came in a wooden bucket. I didn't know then, of course, what I do now—that all or nearly all of those boxes, barrels, and pails came from one or another of the hundreds of factories that were turning them out in quantity in southern New England at the time, a large percentage of them within a radius of a few miles from Petersham. Further, they were being made from white pine lumber that was coming from vast, pure stands which darkened the landscape hereabout.

This pine, mature for cutting, was coming from land that scarce 60 years before had supported the prosperous farm communities of which John Sanderson was a part. It was land that had profitably absorbed huge quantities of labor and capital during a period of more than a century with bright prospects for continuing good returns. It is obvious that something had happened which was not in the investment plans of the farmers there in the 1830's and 1840's.

Something of large import had also happened in the Ohio country. It was reflected in my family. My grandfather was an old man when I was a boy of ten. By the standards of the day and of the rather small city near which we lived, he had become quite well-to-do. In 1854 he gave up his saw and grist mills and secured a job as bookkeeper with a small firm that was beginning to manufacture farm implements, notably hay rakes and some smaller tools. In the ensuing 25 years he advanced to full partnership in this company, which became famous for its mowers and reaping machines and eventually became one of the basic units in the International Harvester Company. He sold his interests in it in 1881 and retired.

#### **WESTERN FOODSTUFFS AND THE ERIE CANAL**

This is only one example of the sudden and rapid expansion of the farm implement business in the Ohio country in mid-19th century. Many other firms were doing the same thing. All of them were reflecting a large expansion of agriculture in the Middle West which had, up to this time, got little beyond the subsistence stage for lack of markets. Now the markets had

appeared, and the land could be used on a large scale and intensively to supply them. The land was ready for the kind of mechanical innovation that the industrial revolution was just then producing. It was relatively level, free of stones, and could be managed in large units. It was also rich, for it was in the region of the tall grasses and humid prairies with their deep black soils.

I doubt that my grandfather gave a thought to the manufacture of mowers and binders when he and his family were operating mills in the 1830's and 1840's, or even dreamed that such things might be needed in their country. The conceptual frame they had for their lives didn't allow for such unknowns.

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“This pine, mature for cutting, was coming from land that scarce 60 years before had supported the prosperous farm communities of which John Sanderson was a part.”

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Even when he got his job with the small company making hay rakes I suspect that he saw it only as a better business opportunity in the local community, not as a gateway to sure wealth on a rising tide of regional prosperity.

The timing of the events I have mentioned is significant. Whatever it was that changed the plans of the southern New England farmers about the middle of the 19th century was coincident in time with whatever it was that brought phenomenal expansion to the farms of the Middle West. The markets for farm products did not disappear in New England, for the industrial towns continued to flourish and grow.

But in another part of the Northeast, in a region entirely outside both New England and the southern Lake States, another kind of development had been going on. It was in the hands and minds of a different kind of people, whose major interests were not in agricultural production, or in the services of supply to this production, but in the trade and transport of its products. These were the people of upstate New York. Inspired by Governor Clinton they realized in the 1820's that their geographic position gave them the key to an old and troublesome problem. The one low-level route from the Atlantic Seaboard to the rich agricultural lands of the Middle West lay through the Mohawk Valley from the head of navigation on the Hudson at Albany to Buffalo on Lake Erie. To speed up transportation on this route a canal would be necessary. But to bring it to pass required first a large framework of assumptions

that could be used to rationalize all the operations that would have to be performed before the canal could become a reality. There had to be a vision of the regional arrangement of productivity, markets, costs, and prices in a span of country that up to this time scarcely anyone had thought of as a unit. It was not enough that a few people such as Governor Clinton should have this vision; it had to attract the investment of both public and private capital in what was for those days a gigantic undertaking.

The Erie Canal was opened in 1830 and was an immediate success. Settlers moving out to the western country began using it, and foodstuffs from the West began moving eastward. Though it had railroad competition beginning in the 1840's, the whole canal was enlarged by 1862 and recorded its highest tonnage figures in 1880. The farmlands of the Middle West now had access to the eastern markets and could attract eastern capital for their expansion. They produced foodstuffs in far greater quantity and far more cheaply than farmlands in most of the New England states.

### PETERSHAM DECLINES

It was this that destroyed the agricultural prosperity of the Sanderson family in Petersham and of similar families in southern New England. Our upland sandy loam soils are droughty and essentially infertile. They can be made productive but only by rather heavy fertilization. They are stony, and the fields have always been small. The agriculture of the 18th and early 19th centuries was based largely upon hand labor, and mechanization requires a large capital investment. The farms here could remain prosperous only so long as they had no serious competition. Once the latter appeared, their economy collapsed. And it did so rather suddenly and on a large scale over wide expanses of the landscape. Agricultural use of the land was simply abandoned as the Sandersons and others like them sought prosperity elsewhere. Probably at least half the open land, and perhaps more, went out of farming within 20 years after 1850. The abandonment has continued more slowly during the period since then, until only the lands particularly well situated with respect to market outlets in large population centers have remained in agricultural use. The white pine was a native, widely-distributed tree throughout southern New England in

pre-settlement time, though it rarely occurred in pure stands on the upland loam soils. Throughout the period of intensive agriculture in the first half of the 19th century it was always present in farm woodlots and in fence-rows around the small fields. Its light, winged seeds find a good seed bed in abandoned pastures and unused previously cultivated ground, whereas the seeds of native hardwoods do not. The result in the 1850's and 1860's was the natural seeding of large areas to pure or nearly pure stands of white pine. Because it takes 50 to 60 years to grow a commercially usable stand of such pine on these sites, large quantities of it became available between 1900 and 1920, which was the great logging and milling era in southern New England. This was the pine that went into the boxes, barrels, and pails from which I bought groceries when my mother sent me to the store.

### THE FLOW OF CHANGE

The transportation system that ruined the agricultural prospects of the Sanderson family in Petersham had the opposite effect upon my family in Ohio. It brought modest wealth to my grandfather. He wasn't a farmer but he found a way to supply farmers with some things they had to have. How much he understood about the regional evolution that made possible his growing wealth is conjectural. Though he was widely read, his formal education had been limited. Some methodical soul has computed that he had only about 150 days of schooling in his life. However, he saw to it that his children and grandchildren got what they needed. I think it might be said that I am here as a result, in some appreciable measure, of a flow of economic, social, and technological change that was set in motion by the people of New York when they built the Erie Canal. I think it can be said also that I am here, in a fractional though nonetheless real sense, at the expense of John Sanderson.

Throughout this story I have spoken repeatedly of relationships between the well-being of the people and the productivity of the land. Within the limited horizons of a given region such as New England or the southern Lake States it is easy to become enamored of the idea that the land is all-important in this relationship. Our people in America, particularly the conservation-minded during the present century, have based most of their thought upon it. It is a central, basic assumption upon

which much of the conservation movement has been hung. It is said that the land and its productivity must be preserved at all costs. Every acre must be brought to its fullest usefulness. It is widely believed that irreplaceable topsoils are everywhere being lost or degraded; that our forests are threatened with extinction and are growing scarce already; therefore we must manage them so as to re-



*The abandoned farm produces a crop of white pine, 1910. Harvard Forest Model.*

new and preserve rates and kinds of productivity in them that will satisfy future needs.

I propose that this assumption is now in serious conflict with reality. Our most trying problems in this country seem not to arise from scarcities or unduly slow rates of production but from embarrassing surpluses of nearly everything. Not only is this the case now, but it seems to be true also for the foreseeable future. I think it worthwhile to inquire whether the assumption that the land is all-important in determining the prosperity of the people was ever valid. Such an inquiry requires some historical perspective, and one of the few parts of our country in which this can be done is New England.

**“I think it worthwhile to inquire whether the assumption that the land is all important in determining the prosperity of the people was ever valid.”**

When the Petersham people began to clear land rapidly in the 1790's they did so not in response to any stimulus that they themselves initiated. First, there was general improvement in trade and credit in the 1790's, and their developing roads made it possible to carry on business with neighboring towns. But far more significant than this was the industrial revolution. It had begun in England during the 18th century but was not felt in upcountry New England until the early 19th century when investment capital began to flow into the water-powered mills that I mentioned earlier. The mills created large local markets for farm products, and this, with the concurrent development of better roads, made it possible for the people of Petersham

and other such towns to form new concepts of their destiny and new values for their lands in terms of these concepts. The land itself did not change. Only the people's ideas changed in response to other people's ideas brought to bear from outside the region.

The prosperous economy built on these markets by the Petersham people went to pieces around 1850 and with it the whole system for rationalizing their existence, again from causes not initiated by themselves and not arising from anything they had done to the land. They had to conjure up a new set of ideas or move away. The Sandersons took their capital and started a bank.

## NEW VALUES

And again the land did not change, except in terms of the human values of the time. It merely seeded itself to white pine and went on being productive but in its own way. In the early 1900's the people who owned it found to their amazement that it had value again of an entirely different kind. It had these values for perhaps four main reasons, only one of which had any connection with the inherent productivity of the land. First was a new and seemingly insatiable demand for boxes, barrels, and pails to carry the products of a burgeoning midwestern agriculture over a rapidly expanding railroad system. Second was the presence of the pine itself, which was actually a sort of accident in the aftermath of the building of a transport system into the Middle West. Third was the happy location of most of the pine in a readily accessible part of New England. It was handy not only to railroads and coastwise shipping, but even to an intricate road net within the forested area—a road net inherited from the good farmers who had built it long before the pine was even thought of. Last but not least, a purely technological development, the portable sawmill, came into its own in New England at this time, to speed up operations and cut haulage costs.

The pine had no value in itself. It acquired value only because in the period of time when it happened to come to maturity there was a human demand for containers that could be made from its wood, a transportation system to carry both the wood and the packaged products, a labor force and a local technology to cut and mill the lumber and make the containers, and a price and wage structure to make the whole thing economically feasible. All of these conditions had to be met at once. They all had first to be conceived in people's minds; then they had to be made attractive to investors so that capital would flow into them. A century earlier or even 50 years earlier, all that pine would have had very little value and most of it would, of necessity, have been cut down and burned to get it out of the way for farming.

About the middle of the 19th century another kind of people began to take an interest in the Petersham land. At first there was only a trickle of these but in the 70's, 80's, and 90's they began to dominate the scene. They were the so-called “summer people.” They bought up and renovated old houses and came with their families from the eastern cities to spend the summers in quiet country surroundings. Their conception of what they wanted from this land was basically aesthetic, and



*Portable sawmill on the Harvard Forest in 1910.*



they have had an immense influence upon the present form and character not only of Petersham but of a great many other towns in this region. An aesthetic interest in forest and landscape for their own sake was comparatively new in America. Evidence of it prior to the middle third of the 19th century is highly localized.

The new people gradually transformed the appearance of the town. In the early 1800's the village common was open, with the houses unadorned by foundation plantings except for the occasional lilac bush. Country roadsides were unshaded except for what may have come up in fencerows. Some plantings began to appear in the 1830's and 1840's, as indicated by a few small trees around the village common in 1835, but there is no evidence of more extensive planting until the latter half of the century.

### FOREST MANAGEMENT AND THE HUMAN ELEMENT

In the early 1900's an entirely new scene began to be played in the eastern landscape. Its stage was set with the maturing white pine of the abandoned farmlands, and its major theme involved long-term planning for the continued production of pine. Its actors were foresters, just at this time beginning to appear on the American stage. I can document one part of this scene rather thoroughly over a period of about 55 years, for it took place at the Harvard Forest.

The Forest began its existence in 1908 with a firm commitment to the idea that good forest management could and should be economically self-supporting. In the course of events, and for reasons too numerous to mention in detail, this gradually became a forlorn hope, finally a dismal failure.

If I were to select the most important single cause for this failure it would be that the human element had been left out of the calculations. Our foresters have always been more concerned with trees than they have with people. In 1908 it was expected that the little pines com-

ing up from seed in the cutover stands of our forest would be sold at a profit in 1968 or 1970. Those that came up after the next good seed year, about 1911, would be sold 60 years later, and so on *ad infinitum*. The foresters looked ahead that far without the slightest hesitation, assuming that people's demands of the early 1900's would continue unabated. That people might not want the pine lumber in 1970 was unthinkable. Actually the demand that took the pine in 1908 is already gone and has not been replaced. When I go to the store now almost nothing comes out of a wooden container. The pine that went into the boxes and pails I used to know is nearly all gone from the woods and is replaced by hardwoods which, in general, are not yet large enough to produce much lumber. Nowadays we do a great variety of things with paper, plastics, and with wood pulp and chips made up into useful materials. Most of these are technological developments undreamed of 50 years ago. They were not produced from the land or the forests but in people's minds.

Petersham acquired its modern form only toward the end of the 19th century and became desirable to moderns as a place to live only in the 20th. Now it is attractive not only in summer but year-around because of good roads and automobiles. Though the land has not changed, the people have. They are responding to economic growth and innovation. The summer people are now few in number. Their places are being taken by people who think of themselves as permanent residents, people who have business or industrial interests in nearby cities and towns. They like to live there because aesthetic values pleasing to them were formulated by people who came there in the last century. They *can* live there because the capital investments, technologies, and market outlets of their businesses place them in the neighborhood, and because still other capital investments and technologies have supplied them with adequate transportation and living conditions.

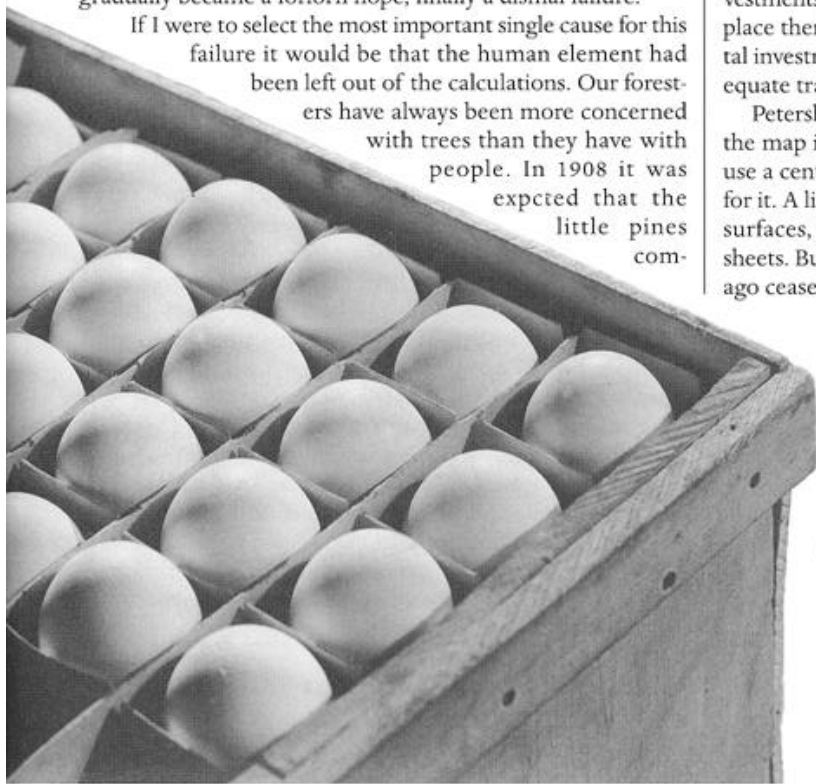
Petersham roads are now strangely reminiscent of those on the map in the 1790's. Much of the elaborate net that was in use a century ago can still be found if one is willing to search for it. A little of it is kept up by the town with tarred or gravel surfaces, and more can be found on old Geological Survey sheets. But most of the little connecting and feeder roads long ago ceased to be useful.

### LAND, IDEAS, AND PEOPLE

We look now at the Petersham lands and forests in a new way that would have been beyond the wildest dreams of John Sanderson. Even most American foresters, if they are to conceive of it, have to forget nearly all of the "Forester Image" they have created for themselves during the past 60 years.

I suggest that the principal role of the land and the forests has been that of stage and scenery. The significant figures have always been the people, and the

White pine crates, boxes, and other packaging were common in the early 1900's.



FOREST HISTORY SOCIETY PHOTO



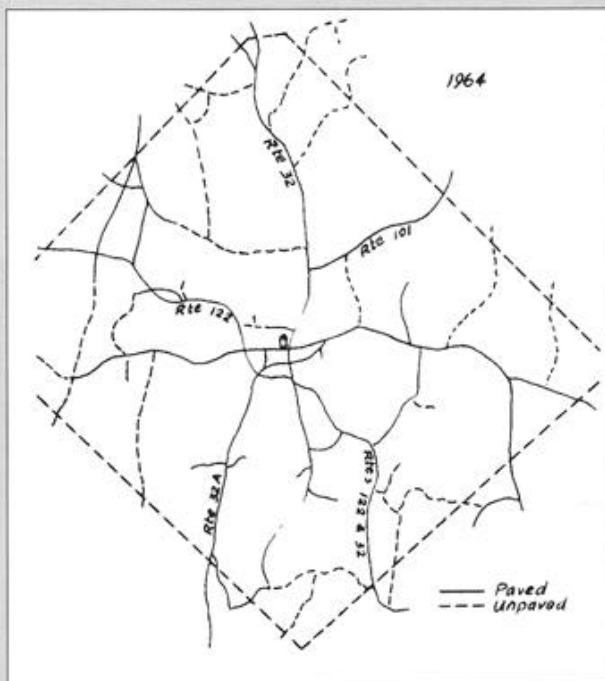
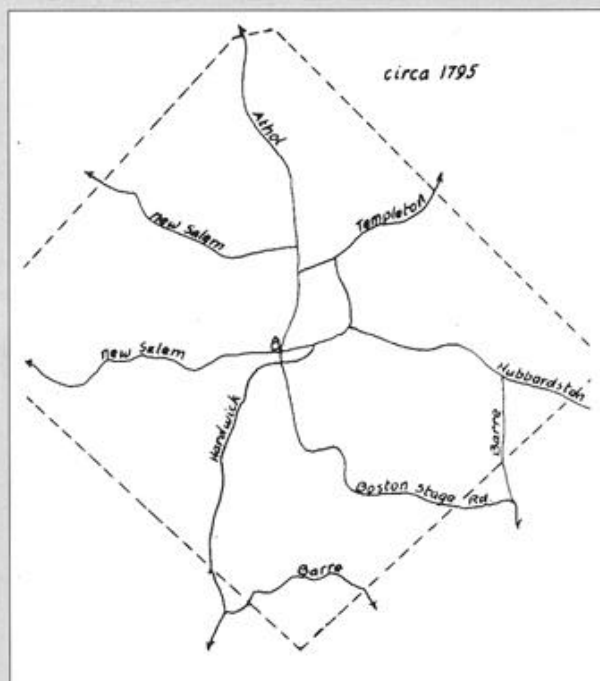
ideas they have had about what they might do at specific points in time with the stage properties at hand. At each such point in time an actor could play his role only by the rules he knew—in terms of his own conception of his relation to the play of which he was a part. He was always hampered by lack of precise knowledge of the stage and its properties, the land and the forests. Perhaps more important than this, he had severely limited knowledge of the changing rules by which he and other actors of his time were playing. Both of these failings are perennial and no doubt will continue to be. I suspect that John Sanderson was a good farmer in Petersham in the second quarter of the 19th century. Three generations of his family had worked this piece of land, and I suspect they had made it about as productive as possible with the knowledge, technology, and capital resources they had. But their prosperity was swept away by a new cast of actors who had a new set of ideas designed for a larger stage. These ideas had nothing to do with agriculture in southern New England. They began to take form when a lot of Irishmen imported from Erin managed to dig a ditch across upstate New York. The people who visualized and built the canal were primarily interested in moving freight and passengers at a profit. Where these came from or went, at either end, was of secondary importance so long as the flow continued. Still another cast of characters—the midwestern farmers—hastily made a new script for their play when suddenly a wide-mouthed funnel appeared through which they could pour their products eastward. In short, they reconstructed and greatly enlarged their scheme of things. The comfortable old New England farmers had to adjust their operations as best they could when their markets were cut away by a flood of cheaper and better goods. All the segments of this play were going on

in the same short period of time, the second quarter of the 19th century, but the actors in each segment were essentially uninformed about what those in other segments had in mind.

## PLANNING HORIZONS AND CAPITAL INVESTMENT

Nowadays we think and talk a great deal about planning. We do not know with any degree of precision what John Sanderson's planning horizon was. I have suggested that he probably thought of his general investment in agriculture as fairly permanent. On the other hand the evidence shows that he had a good business head, and I doubt that he ever got involved financially in any venture that he couldn't see his way out of in five to ten years. Certainly his heirs did well by themselves when they sold their property while land prices were still good, though serious decline was imminent. A modern farm planner probably would say, I suspect, that John Sanderson planned loosely and in short terms, or even that he had no plans resembling those we have today.

John Sanderson's general attitude toward his farm and his land cannot be stated any more precisely than his planning horizons, but it can be inferred from that of the time in which he lived. For the early New England farmers the forested wilderness was an impersonal, physical barrier to be tamed and exploited to the hilt. It was to be *used* to the greatest extent possible within the limitations of existing knowledge and technology. No change in this view appeared until the mid-19th century when people began to think seriously about population dynamics and their effect upon future supplies of natural resources. It took about 50 years after that for such thoughts to make much headway in this country, and the conservation



PETERSHAM ROAD NET, 1795 AND 1964.



*The "old field" white pine is followed by hardwood, 1915. Harvard Forest Model.*



*The volunteer mixed hardwood stand has reached cordwood size, 1930. Harvard Forest Model.*

movement as we know it did not take form until the early 1900's. From the start it has been plagued by stresses originating from deep cleavages between theory and reality, the former often clouded by emotions.

In one of these cleavages we put moral issues, whether they belong there or not. Merely by being himself and exercising his ordinary intellectual and manual skills, man has learned to produce what he needs for food, clothing, shelter, and amenities. Further, he has shown amazing capacity for innovation that bids fair to take care of future wants. He has not been as clever with distribution as he has with production, nor has he solved many of the basic social problems that have plagued him and his ancestors. Some have learned to control birthrates, but most have not yet achieved this.

Man has accomplished all this against odds. Throughout most of the long period of his early experiments he was dealing with things and processes in wild nature that were entirely mysterious and potentially evil. Only in the last century or so, with the rise of conservation thought in all its manifestations, has he confronted himself repeatedly with the accusation of sin against the same "nature" and "use" that were for so long his arch enemies. This sin has had to be defended by whatever means came to hand—scientific research, favorable cost-benefit ratios, or simple economic necessity. Fortunately for John Sanderson he lived before his sense of sin against his land became popular, so it probably never occurred to him to defend it.

Another deep cleavage is caused by sharp differences in the

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time spans of management. When the conservationists began talking and writing about “the future” and providing resources for it, their “future” was not on any time horizon visible to a farmer, or manufacturer, or businessman. It was far over the horizon and out of sight. It had to be imagined, and realists found they couldn't do this because they knew that change and innovation were going too fast for their systems of calculation. The conservationists still cling to

their distant horizons, causing some of the most difficult problems in modern resource use planning. I suspect the root of their idea is the old one that the land is all-important in determining the destiny of the people, that the stage is more important than the players. This idea has been supported, too, by the early identification of much of the conservation movement with forestry. Foresters have always had trouble with time because the human mind produces changes in the uses of wood several times faster than trees can grow.

Comparing the two institutions of record in this story, the Sanderson Farm and the Harvard Forest, I must concede that John Sanderson produced by all odds the better economic results. Admittedly both institutions failed in the end, for reasons that were strangely similar though different in time and space. But the Sanderson capital escaped, which is proof of the basic flexibility of its management. The Harvard Forest capital did not, for it was committed to an inflexible long-term plan. A fundamental problem in modern resource management is finding a way to bring its planning horizons within sight of the people who have capital to invest.