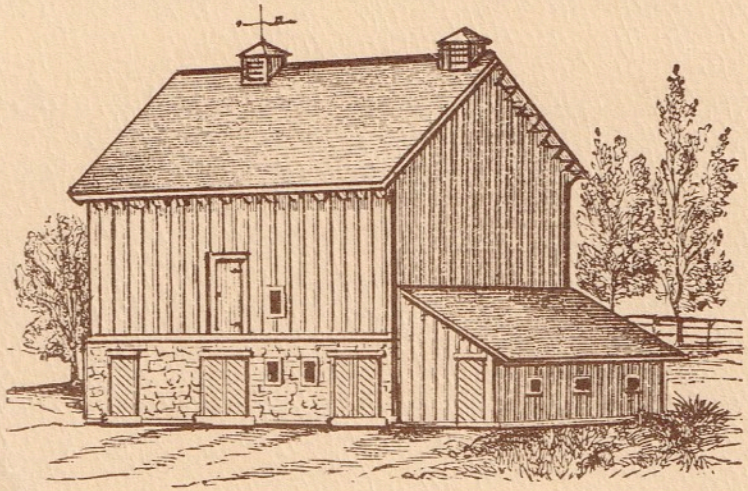
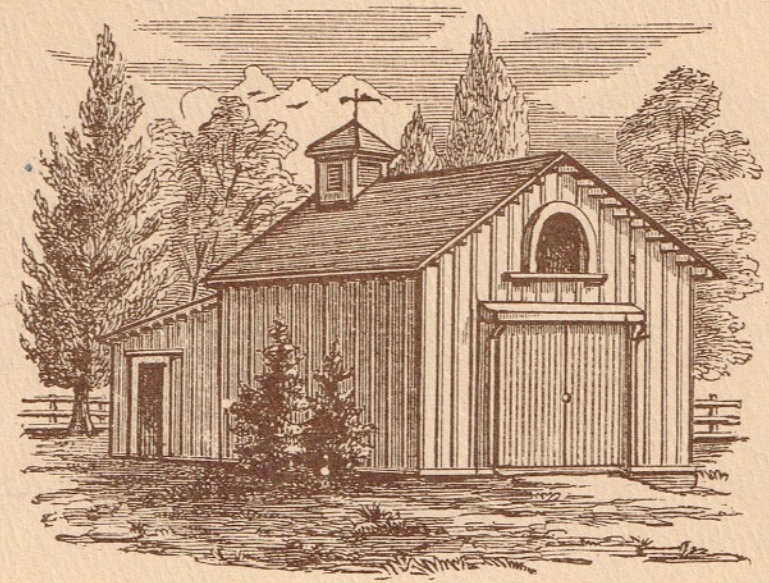


AMERICAN BARNS



A HISTORY OF AMERICAN BARNS

The history of American barns begins in England, where the earliest grain and animal shelters also served as homes. Called *long houses*, these crude, almost windowless, stone buildings were, as their name suggests, long, narrow, one-story structures, divided longitudinally into compartments for fodder, animal quarters and dwelling space for the farmer and his family. Separation of human living quarters from those of animals developed with the Saxons, whose principal crop was barley, and who built special buildings called *barley houses* for threshing and storing grain. Our word 'barn' derives from their word 'bere', meaning barley house - and 'ern', meaning a closet or space.

The size of an English barn was determined by the number of its bays, the distance between each roof truss. Small farmers built barns with three bays - a common type - but in areas where corn was the major crop huge multiple-bay barns were constructed, particularly along the midland plain during the 19th century. An interesting design feature derived from English barns is the high, hooded portal which allowed fully-loaded wagons to enter the barn. In America this hood became the site of a hay hoist for moving bales from wagon to hayloft.

English barns were intended only for threshing and storing grain, not for housing animals and livestock for whom separate buildings known as *cow houses* were constructed. This separation was maintained by the English colonists and persisted in America well into the 18th century. The earliest settlers did not keep livestock.

A less common type of barn built in England between the 13th and 17th centuries was the Basilican Barn. This was a barn with cathedral-like proportions and a floor plan based, like a cathedral, on a central nave with side aisles. In America this form was adopted by Dutch settlers in the Hudson River Valley and spread through the valley corridor up into Canada.

The American Barn

Although stone and brick barns were common in the Pennsylvania area, most American barns were built of wood. Wood was certainly the material of choice in New England, the heart of the eastern woodlands. Our earliest wooden barns were small, one-story, rectangular log buildings with thatched roofs, where grain could be threshed and stored safe from the weather. When sawmills made their appearance early in the 18th century, the colonists built their barns of sawn planks on a frame of hand-adzed posts and beams, fastened with wood pegs.

Early one story Barn

Based on the English prototype, this early American barn had its entry door on its long side and when expanded, the expansion was accomplished horizontally. As animals became a part of the American rural scene the settlers followed the English custom of separating animal shelter from grain storage. The animals were housed in a lean-to shed called a 'byre', which was attached to the end of the grain barn. The most important parts of the early barns, however, were the grain bins and straw mows, carefully and sturdily constructed along the side of the threshing floor.

Raised Barns

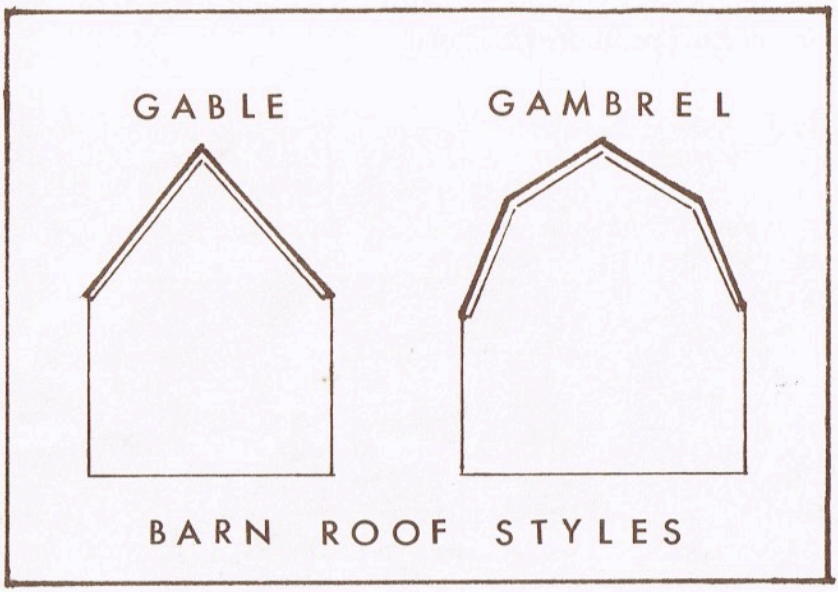
In New England the low-profile, single-story barn was very soon replaced by a two-story, gable-roofed building which, once again, was based on an English form. This *raised barn*, a small, three-bay barn with a steeply-pitched roof, was much better suited to the climate. Variously referred to as the *Connecticut Barn*, the *English Barn* or the *Yankee Barn* its basic shape and proportion (length twice its width) remained constant as it spread across the American countryside, out to the West and north into Canada. Its appearance was virtually unchanged until the latter part of the 19th century, until the emergence of specialty farms and large dairy farms. The Connecticut Barn is what most Americans think of when they think 'barn'. It has become an icon and a symbol of rural America.

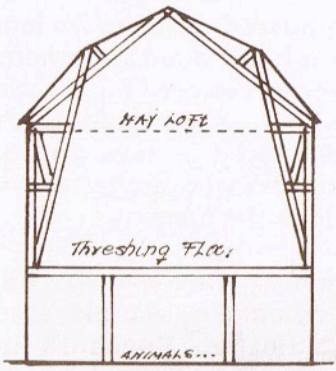
As raised barns with elevated profiles appeared, farmers no longer housed their animals (mostly oxen) in byres but instead kept them on the lower level of the barn. The upper level was reserved for threshing and for storing grain and hay. Threshing was done in the middle of the floor; the resulting grain and straw was stored in bins and bays constructed along the side walls. Animal fodder was pitched down to the stock on the lower level through a hole in the floor.

When barn heights were raised to create more storage space for hay, a 'swing beam', a huge girder cut from a single giant tree, was placed over the threshing floor to support the hay loft. But New England's virgin forests, the source of the giant trees, were soon denuded and the swing beam became obsolete. The presence of a swing beam in an old barn, therefore, is always an indication of early construction.

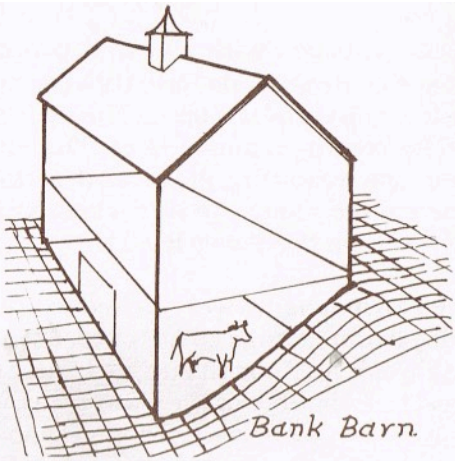
The Bank Barn

When the second level of the barn became the threshing floor, barns were often built into or against a natural bank, enabling loaded wagons to gain access to the threshing floor from the top of the bank. Animals, meanwhile, could be moved into and out of the first story of the barn at ground level. This kind of barn is called a 'bank barn'. In the absence of a bank provided by nature, the farmer building a raised barn had to construct a dirt wagon ramp to reach the second-level work floor.





James-Way Barn

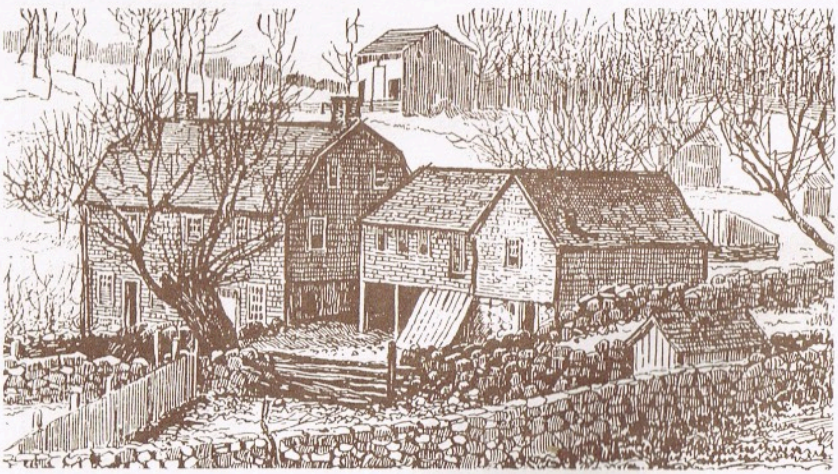


Bank Barn

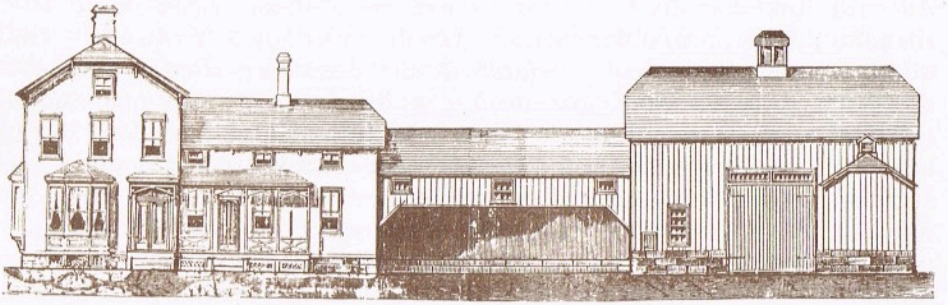
Linked Barn Architecture

During the 18th and 19th centuries, as the need for additional farm outbuildings arose, these new buildings were usually attached to the main barn. Sometimes linked together around three sides of a courtyard, but more often linked in linear fashion extending from the rear of the farmhouse, this form of farm architecture evolved in response to the severity of New England winters. Linked barn architecture made it possible for the farmer to go from house to barn to outbuilding to perform his chores and feed his livestock without suffering exposure to cold or shoveling paths through the deep snows.

Linked barn architecture was an indigenous regional innovation. It is believed by some architectural historians to have been the inspiration for the American Shingle style, a late Victorian architectural style which was the first purely American building form free from the influence of European architecture.



Early Linked Barn Architecture



281. Farm buildings costing $3,000 complete (modelled after the farm of Mr. George Thorpe in East Meriden, Conn.; proposed design 1883: S. B. Reed, architect). [36]

Specialty Farms

In the latter part of the 19th century specialty farms began to appear. In Vermont, for example, because the land was not well suited for raising crops, farmers turned to dairy farming, a type of operation requiring large barns with increased storage space for hay and fodder. Connecticut River Valley tobacco farmers built unique barns to dry and store their crop - vertical-sided buildings with movable, hinged slats. The slats could be manipulated to provide the crucial ventilation demanded in a tobacco barn.

Prior to 1850 most American farmers kept only enough cows to satisfy the needs of their families for milk, butter and cheese. After 1850, however, farmers began to sell farm and dairy products to others and to farm for profit. The newly evolving dairy industry was an important factor in the development of barn design, requiring new forms and bigger barns to accommodate larger herds. Also needed were new ways to store hay and feed and new methods for coping with animal wastes.

As commercial farming grew during the latter half of the 19th century, agriculture became a subject for research and study - much of it sponsored by state universities. From this research came new ideas about barn design and construction. One development was the air shaft, an enclosed shaft which extended the full height of the barn, terminating in a ventilation cupola on the roof. The air shaft also served as a hay chute, allowing the hay to be moved from the storage loft to the cattle floor much more efficiently.

New Developments in Barn Design

Late in the 19th century, barns with Gambrel instead of Gable roofs appeared in direct response to the need for more storage in the hay loft and roomier work areas. The Gambrel style roof not only permitted increased storage space under the eaves, but also provided more head room for the workers. A man working in the hay loft under a Gambrel roof could stand upright anywhere under the roof.

As crop production increased, more room was required on the threshing floor, a problem which was successfully addressed by the invention of a system of pre-fabricated trusses designed to support and frame both the roof and the side walls. The new trusses replaced the construction methods employed in building the Connecticut Barn, based on side frames called 'bents', and eliminated the need for support posts on the barn floor - thus freeing up the entire floor for work space. A system for this kind of construction was devised and patented by a man named James. Called the *James-Way* system, it was popularized around the turn of the century in agricultural periodicals, newspapers and books. A James-Way Barn is always a large barn. They are imposing and handsome with cathedral-like interiors. Because they are also very sturdy and strong, they have had a high rate of survival.

Despite design innovations like the James-Way Barn and the Gambrel roof, it soon became evident, however, that the increased storage space provided by the new barn designs was inadequate to meet the needs of the growing dairy herds. It was at this point, near the turn of the 20th century, that the grain silo was invented. Intended at first as a temporary structure, the silo was designed like a barrel, with vertical stave-like boards bound together by iron bands. The roof, later fabricated of metal, was domed or turreted. The silo was attached to the barn and accessed from the barn's top floor. Stored grain was removed from the bottom. In time the silo became a familiar sight on American farms, particularly in the grain belt of the midwest.

By the end of the 19th century, the farmyard had begun to resemble a small village. There were hay and cattle barns, horse stables, wagon sheds and carriage barns, pig stys and chicken coops, corn cribs, ice house and smoke houses and a special building, known as a manure pit, which was designed as a recycling center for animal wastes.

Regional Characteristics

Barn design, as we have seen, was primarily influenced by the changing demands of evolving farm technology, but other factors also impacted significantly on design. The most important of these were climate and regional architectural heritage. In the South, for example, where warm weather did not require complete enclosure, farmers built the *Double Crib Barn*, a building composed of two animal shelters - one for horses, the other for cows, joined by a roofed-over runway open to the weather. Elsewhere in the South, in horse breeding regions like Kentucky and Virginia, an arcaded stable with a long, low profile evolved. Its stalls were equipped with Dutch doors that opened onto an arcade, which not only shaded the front of the stable and the horses from the sun but also served as a convenient area for washing and exercising the animals.

Shaker farms were known for their great round stone barns. The most famous of the Shaker round barns, built in 1820 in Hancock, Massachusetts, was 270 feet in circumference with walls 3½ feet thick. It had a manure pit at the bottom and a huge cupola for ventilation on the crest of its turret roof. Inside, a 15-foot wide wagon ramp wound its way down along the inner face of the wall. The barn housed 52 head of cattle.

In southern Connecticut, a region with a strong heritage in classic architecture, later examples of barn design are notable for their distinctive mill work. Hallmarks of the style are doors with crossbucks in the form of an 'X', Dutch doors and louvered cupolas with incurved hipped roofs topped by finials or weather vanes.

An even greater diversity of barn design began to appear as wealthy urbanites began to play at farming on the large summer estates they began to build towards the end of the 19th century. Architects and engineers were commissioned to design and build barns which demonstrated the latest ideas in farm technology. Superbly built of the finest materials, these barns often replicated the form and the detail of the main residence. From the 'estate' era of barn construction, therefore, one can find examples of Shingle style barns, barns with Colonial Revival and Georgian Revival detail, and barns in the Tudor Revival style with roofs of shingle laid to imitate thatching. Most 'estate' barns were built between 1890 and 1920.

Today, alas, the only new barns under construction, with rare exception, are intended for commercial farms. Most of them are built of concrete or cinder blocks with metal or composition roofs. Milking, sanitation and waste disposal are mechanized or automatic. The Connecticut Barn is defunct. Wooden barns with crossbuck doors and louvered cupolas are now replicated only as miniature metal tool houses for suburban lawn mowers. A local garden center or Sears' catalog is about the only place where one can find what remains of America's old wooden barns.

Through deterioration and abandonment our remaining inventory of old barns has suffered irreversible inroads. In addition to the ravages of time and neglect, however, barns are also threatened by renovation. Tranformed into homes, restaurants and theatres, dismantled for their old beams and siding, used as 'ambiance' for family rooms and kitchens, greater and greater numbers of our remaining barns are disappearing.

The Connecticut Barn, which became a symbol of America's rural cultural heritage is a valid art form. Its disappearance from our farms and back lots, our country lanes and roads is a sad loss indeed.

BUILDING A CONNECTICUT BARN

Selecting the site

One of the most important considerations in selecting a site for a new barn was drainage. Ideally, a site with some elevation which would permit liquid run-off was preferable. A site which would obviate the need for extensive excavation was desirable as well. If livestock were to be maintained, furthermore, a nearby water source was mandatory.

The farmer also had to make allowance for climate. In colder areas where snow was a factor, he had to make sure that the side of the barn to be used for entry was oriented away from the wind in order to prevent snow pile-up against the doors.

Accessability and convenience were other requirements. When two-story barns with elevated profiles evolved, the second level became the threshing floor. Animal stock was kept on the lower level. By building his barn against or into a bank, the farmer's wagons could pass directly from the top of the bank onto the threshing floor thus facilitating the loading and unloading of grain and hay. In the absence of a natural bank, the farmer had to construct a dirt ramp to reach the threshing floor.

The foundation

In order to support the weight of the barn, a huge girder cut from a single tree was next placed in niches prepared for it on the top course of stone so that the girder's upper face would be level with the top of the foundation. This beam was, of necessity, enormously sturdy since it had to support the entire mass and weight of the proposed barn. After placing the load-bearing girder, vertical guide posts were sometimes wedged beneath its length for additional strength. It should be noted that the beam ran lengthwise from one end to the other of the foundation and not across the width as in later forms of construction.

The sill and floor

Placed flush with the top of the foundation, the sill was the next stage in the construction. Made of twelve-inch square oak beams, the sill served as the base into which the floor planks were then nailed. When the floor was in place, vertical posts, hand shaped and adzed on the spot, were positioned as interior supports on the barn floor.

Raising the barn

At this point during construction a barn raising was called for, an event in which friends and neighbors convened at the barn site to help raise into place the roof and the side frames (called bents). The bents were constructed lying flat on the ground, carefully measured and accurately fitted. They were then raised into place on top of the barn

floor with the help of ropes, pulleys and pikes (long poles with iron tips). Each bent measured eight by sixteen feet and was secured one to the other with mortise and tenon joints and further fastened with wood pegs pounded into place with heavy wooden mallets.

An alternate form of construction was that of the Wemp Barn wherein cross beams were slipped through the tops of slotted posts and secured with wedges and pegs to form a strong interior support system. The Wemp Barn is a less common form of barn construction.

The swing beam

As barn heights were raised to allow increased space for hay storage, a huge beam cut from a single tree, like the support girder, was placed directly over the threshing floor to support the hay loft. Known as a swing beam, this form of construction is always a sign of early work, because the virgin forests which could supply such enormous timbers were very rapidly depleted by the early colonists.

Siding and roofing

After the barn raising, the farmer and his family set about adding the siding and completing the roof, a roof, incidentally, which did not have a center ridge pole. The ridge pole was a 19th century innovation. Siding was made of vertical boards usually obtained from the local sawmill. Prior to 1820 these boards were cut by vertical saws at the mill, leaving characteristic striations on the face of the boards which today's architectural historians find helpful in dating old barns.

The farmer's final job was sheathing and shingling the roof. Sometimes no sheathing at all was applied - only shingles kept the barn safe from weather. Early shingles were made of bark, then of cedar, and eventually of pine, hand hacked from a log by an axe-like special tool called a 'froe'.

Painting the barn

Early barns were always left unpainted. It was not until the 19th century that farmers began to paint their barns to protect them from the weather. The paint was made from items readily at hand - skim milk, lime, and iron oxide. It was the latter material which gave the distinctive red color to the paint, a color which has come to be known as 'barn red'.

In time the Connecticut Barn, based on an English prototype, became a ubiquitous and classic form of American architecture. Its components; a rectangular shape (the length twice its width) steeply pitched gable roof, field-stone foundation, vertical board siding and handsome post and beam interior became a formula which was repeated on farms and home lots all over the country. It was not until the development of commercial and specialty farming in the latter half of the 19th century that barn design changed.

THE DISCOVERY CENTER BARN TOUR

October 11, 1987
Ridgefield, Connecticut

1. Victorian Gothic Carriage House: 52 Catoonah Street

Built in 1896 on the grounds of St. Mary's Church, this Victorian carriage house is an excellent example of a type of structure that dotted America's back yards during the last half of the 19th century. Its style, based on romantic English Gothic architecture, also included elements of the Queen Anne style which can be seen in the fish-scale shingles on the hay dormer and the strap-work of its doors. The cupola is a feature found in 19th century barn architecture in the southern part of Connecticut and the Connecticut River Valley. The first floor of the building is fitted out for carriages and horses and has a tack room for harness. The upper floor, in addition to its hay loft, had a common room for grooms.

2. Casagmo Estate Barn: East side of North Main Street

This large handsome 1892 'estate' barn was designed by an architect as part of a gentleman's estate. Named Casagmo, the main residence, no longer extant, was a large Colonial revival mansion with extensive gardens, situated on a site which figured prominently in the Battle of Ridgefield during the Revolution. The building has a complex amalgam of roof styles, and in its use of texture and detail shows evidence of Victorian Queen Anne stylistic influence. Now a community center, it is a strikingly successful example of adaptive use, offering inspiration and ideas for those interested in renovation. Remnants of its former life as a carriage barn are still visible on the second floor.

3. 18th Century Grist Mill: 15 Sawmill Hill Road

Built in 1749, this old mill stands beside a pond and a small waterfall, part of the Titicus water system which powered an 18th century industrial district situated on this hill. The mill's most interesting historic feature is its 40-foot 'swing beam', an immense girder cut from a single tree which supports its second floor. The swing beam was cut from virgin forests and is, therefore, always an indication of an early construction date. During the 19th century, the mill became a cider mill. An enormous block of maple and some of the screws cut from it which drove the cider press remain on the site.

4. 18th Century-Victorian Carriage Barn: 110 North Salem Road

This remarkably detailed carriage barn is actually a bank barn. Its lower floor, the remains of an 18th century raised Connecticut Barn, has a very low ceiling with undressed log rafters and narrow stalls which were probably used for oxen. The upper two levels, reached

from the top of the bank, were built circa 1875-80 in the Second Empire style, a Victorian style inspired by French architecture. The window surrounds and arched hay-door pediment are all Second Empire details. The crossbucks on the doors, however, are design elements typical of 19th century southern Connecticut barn architecture. At one time the main residence is said to have operated as an inn, which may explain the attention to detail lavished on this outbuilding. During the 18th and 19th centuries, appropriate accommodations for one's horse and carriage were as important as one's personal accommodation.

5. Exhibit of Antique Wagons, Trucks and Autos: 164 Ramapoo Road

Mr. John Couri will be exhibiting his fine collection of antique farm wagons, trucks, tractors and autos dating from the 1850's to the 1950's. The exhibits will be arranged outside around a circa 1880 barn moved to the site from New Hampshire. This is a rare opportunity to examine old farm vehicles and mobile equipment related to agriculture - as well as a fascinating group of antique horse drawn vehicles, sleighs and surreys. For those interested in antique cars the exhibit will include a group of early autos and classic cars.

6. James-Way Barn-Stable Complex: 217 Old West Mountain Road

Built of stone, wood and brick in 1914, this is a late example of a linked New England barn. Its elements include an arcaded hay barn, cattle, sheep and carriage barns as well as a horse stable and a chicken coop. The stone portion, built around a courtyard, has been converted into a residence. Designed for a gentleman farmer, its masonry style is like that found on 18th century French Norman farm houses. Its detail, cupolas and crossbuck doors, however, are features of the southern Connecticut style of barn architecture. The large James-Way hay-barn with cathedral-like interior is of particular interest, as is the manure 'pit', a specialty building developed around the turn of the century for processing animal wastes into fertilizer. The 'pit' was the end station on a suspended mono-rail system which transported wastes from the barns. It is an example of what was, at the time, the latest in farm technology.

7. Turn of the Century Estate Farm: 258 North Street

This turn of the century farm exemplifies the business-like attitude of gentlemen farmers of the period - wealthy urbanites who built lavish farm estates as summer homes. Formerly a part of the Stonecrest estate, the farm comprised 160 acres and 15 buildings, including a dairy and a poultry plant. No longer a working farm, the largest of the cattle barns has been dismantled. The smaller cattle barn has been remodeled as a riding academy. Horse stalls and a tack room occupy the lower floor. The second floor, now largely unused, has an interesting old air shaft, a 19th century invention for ventilating a

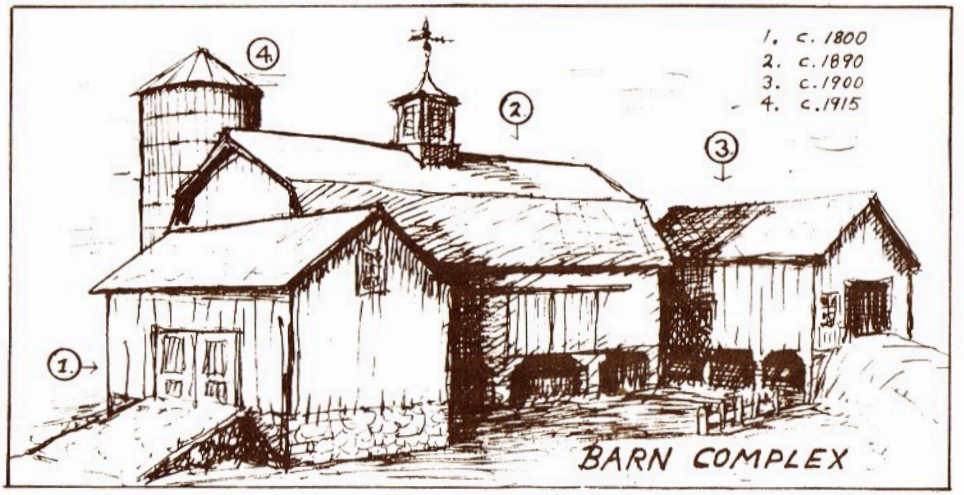
raised barn which also doubled as a hay chute from the loft to the cattle floor. The old farm buildings with their simple but graceful shapes form a lovely pastoral ensemble in a valley setting along a road which dates from the 18th century.

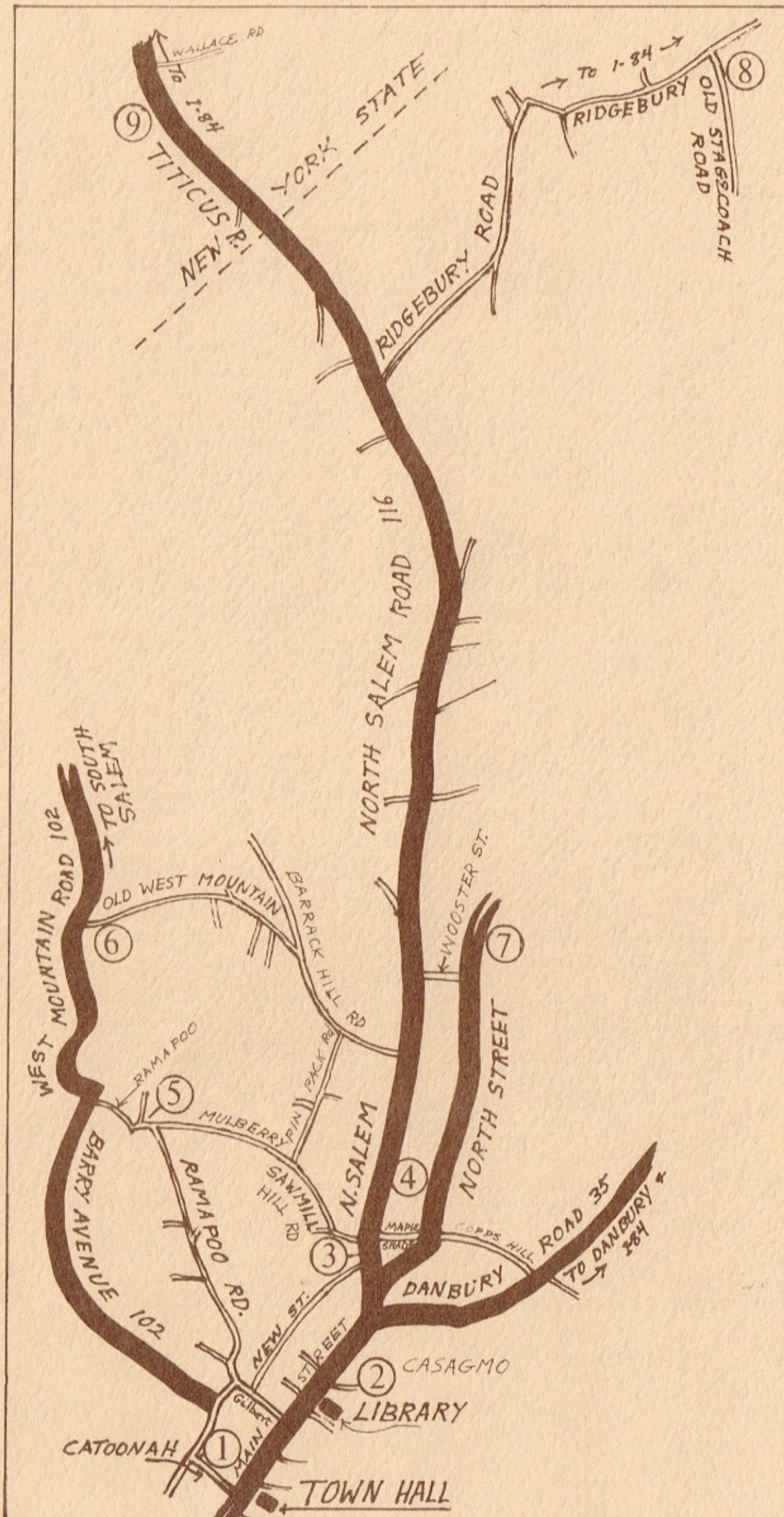
8. A Working Dairy Farm Founded in 1782: 11 Old Stagecoach Road

This 135 acre Ridgebury farm, started by Henry Whitney in 1782, is today a working dairy farm with 75 head of cattle. The larger barn, a 20th century building in the James-Way style, has 36 milking stanchions. Heifer calves are quartered elsewhere. An older barn, which dates from the 18th century, was moved here from North Salem circa 1880. Its huge support girder, placed beneath the barn floor, runs length-wise along the barn's axis. Cut from a single giant tree, it is a feature which is always an indication of an early construction date. The farm has 5 silos - two of them built, as early silos were, of wood staves - an apple orchard, vegetable garden, pond and various outbuildings. About 80 acres are devoted to pasture or planted with corn for silage and hay. Set beside an old stage coach route in a region noted for its Revolutionary War history, its interesting old well supplied water for the French troops in 1781 whose camp site was located across the road just opposite the apple orchard.

9. Contemporary Barn: Titicus Road (North Salem Road) North Salem

Built on the site of a barn destroyed by fire which once housed elephants during the winter months, this handsome modern stable complex blends harmoniously with its setting of paddocks and rolling hills. Some of its unique features are sliding walls that completely expose the stable to air and light, a small green house, a deck and living quarters for the stable manager and his family. The ensemble makes sensitive use of traditional barn construction materials; stone and wood, in a design which is at once both simple and dramatic.





WALLACE RD
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TITICUS RD
NEW YORK STATE
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RIDGEBURY
8
OLD STAGECOACH ROAD
RIDGEBURY ROAD
NORTH SALEM ROAD 116
TO SOUTH SALEM
WEST MOUNTAIN ROAD 102
OLD WEST MOUNTAIN
6
BARRACK HILL RD
WOOSTER ST.
7
NORTH STREET
RAMAPOO
5
MULBERRY
PIN
PARK RD
N. SALEM
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SAWMILL HILL RD
BARRY AVENUE 102
RAMAPOO RD.
MAPLE
SHADY
COPPS HILL
ROAD 35
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DANBURY
TO DANBURY & I-84
NEW ST.
STREET
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CASAGMO
Gilbert
LIBRARY
CATOONAH
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MAIN
TOWN HALL

THE DISCOVERY CENTER

The Discovery Center is a non-profit organization whose goal is to foster a love of nature, an interest in science, and an appreciation of history and the cultural arts in all persons, particularly the young.

Since our inception in 1985, we have offered over 100 programs ranging from nature walks to whitewater canoeing. These programs, which are given on public open space or private land, have been designed to appeal to special groups such as preschoolers, Scouts, the handicapped, and senior citizens, as well as the general public.

The Discovery Center is staffed by our Program Director, who is supported by many community organizations and volunteers who donate their time and expertise to provide these programs. Membership in the Discovery Center enables one to attend most of its programs free, receive a monthly schedule of events, and support a program-oriented nature center in the Ridgefield area. For more information, contact the Discovery Center, P.O. Box 926, Ridgefield, CT 06877, (203) 438-1063.

Written in 1987 by Madeline Corbin
for Ridgefield Discovery Center

Scanned January 2022
by JFS for Ridgefield Historical Society