

**REPORT INTO REPAIR AND CONSERVATION WORKS
TO THE AMOS BROWN HOUSE, WHITINGHAM,
VERMONT, USA DURING THE SUMMER OF 2001**

NIGEL COPSEY

Amos Brown was one of twelve children of Josiah Brown. The family moved to the 65 acre farm in the town of Whitingham, VT from New Hampshire in 1795, and the brick cape that bears Amos' name was probably built soon after their arrival.

The barns were once located across the lane to the front of the house. The present timber ell was added to the east end of the house in approximately 1875.

In the late 1930s the house and its land was incorporated into the adjoining estate of the Grace family, who stabled polo ponies at the farm and held matches in the adjoining meadow.

After the war the Grace family sold the bulk of their land to the Carthusian Order of monks who lived lives of solitary contemplation in timber cells they built in the woods around Whitingham.

The Graces held onto the Amos Brown house as well as some 30 acres, although for a while at least the Carthusians used the house as a chapel. Plaster Stations of the Cross were found neatly stacked in the loft of the ell.

The house was rented out thereafter and much destructive and unsympathetic alteration and repair work carried out, until in 1993 the house was given to the Whitingham Historical Society by the Peter Grace Foundation, as the first step towards its repair and rescue.

This task was undertaken in 2000–2001 by The Landmark Trust USA Inc which acquired the property for \$1.

Carpenters Peter Doubleday and Gene Crawford, and masons David Baker, Glen Rosinski and Nathaniel Noyes as well as English stonemason Nigel Copsy worked on the project, along with Canadian architect Peter Lanken. David Tansey represented The Landmark Trust USA.

The participation of Nigel Copsey was sponsored by the Manifold Trust and the Society for the Protection of Ancient Buildings in the UK. The objective was that he should advise upon the use of lime mortars and repair ethics, working alongside the local masons.

THE HOUSE

The Amos Brown House was built of bricks most likely manufactured on site, certainly within Whitingham (which had two other brick houses, one of which, the Deliverance Wheeler House survives), in a clamp kiln. They were laid in solid wall construction two bricks deep, using English Garden Wall bond, with five courses of stretchers for every course of bonders, using a lime mortar that incorporated a relatively fine aggregate. The lower 15" of the walls was originally faced with a schist stone plinth, typically 2" deep and face-bedded. The house had no gutter, as was common in New England, and the plinth/splashstones were essential to prevent the water dripping from the roof from saturating the lower courses of brickwork and causing undue decay, whether from groundsalt or frost attack.

The brick superstructure of the house rests upon a drystone-walled basement, the foot of which is below the depth of frost penetration, this being some four feet in Vermont. Similarly, the footings of the (missing) fireplaces had been of drystone construction, although only two remained when work began. The stones were generally large and their laying-up lacking in finesse aesthetically, whilst being structurally sound nonetheless.

Archive photographs and the evidence of the building itself show four fireplaces to each corner of the building on the north and south gable walls. The chimneys rose within the building.

The walls of the house displayed significant deflection: leaning outwards and twisting this way and that within one elevation. There was everywhere a tendency for the outer wythe of brickwork to flare out above the splashstones, which represented an undoubted weakness of design, being only 2" deep.

As a whole, the building had subsided to the east, so that brick courses to the north, and especially the south were not level.

On the south wall. The section of wall to the east of the porch doorway had dropped in a mass some 1 ½ ", so that the coursing of the brickwork, even when the poor quality repairs were replaced with bricks of the same size as the originals, would never quite align...

The inner wythe of brickwork had significant remnants of lime plaster, some of it decorated, and the house must have been intrinsically cold for much of the year; the presence of a fireplace in every room essential.

The ground floor had, in the opinion of the carpenters, been replaced wholesale at least once before, and was rotten beyond repair.

The interior layout had been remade in probably the 1950s with sheetrock nailed to timber, and this was removed completely, as were stairs of the same period.

The roof remained original and to the south end there was a bedroom with lime plastered accordion lath walls on three sides, and brick to the south side (the south gable), with early drylining of 2" thick sawn planks, not squared to the sides, still showing the outline of the tree trunk from which they had been sawn.

Although the rest of the loft space was open to the roof, the beams were cogged, where once they had carried joists, and the eaves space had been boxed off. These storage spaces, above and to the sides had been lit by a semi-circular window high in the north gable and by quarter-

round windows to either side of the main sash windows on the same elevation.

A semi-circular window existed still within the more recently rebuilt topmost section of the north gable. The quarter-round windows had been blocked at the same time and the north-west one further hidden by the more recent construction of an external stone chimney stack that served the single fireplace. All of these alterations had been executed with porous bricks bigger than those of the building's original construction, using a very hard and dense Ordinary Portland Cement (OPC) mortar with a coarse aggregate, not unlike the pre-1970s Ministry of Works 'conservation' mortar in the UK.

The roof was of corrugated iron and 'tin' sheet, pleasantly oxidized.. Archive photographs show a timber shingle roof to the house during the Nineteenth Century.

Extensive repairs to the south elevation had been carried out in the 1950s using the same bricks and mortar, above and below the sash windows.

Most of the schist splashstones had been replaced by a poured concrete plinth that projected some 4" from the wall-line.

Sections of wall some 3 metres square to the lower north side of the front door, and a metre square to the south had been rebuilt at some time in the past, reusing the original bricks, and using a lime mortar, but without following the same pattern of bonding, and less skillfully.

The likely reason for its probable collapse was the fact that the uppermost of the two steps to the front of the door, both of them massive slabs of schist, was keyed into the front wall of the house, along with the smaller stone threshold above it. The steps have subsided considerably over the years. Even without this general subsidence, the

movement of the step under the influence of frost heave, and during freeze/thaw cycles would have had an unsettling effect on the brickwork.

When the timber ell was added to the south side of the house, around 1875, a door opening was made in the south-east corner where previously there had been a window. This was evidenced by neat brick quoins to the west side of the opening to the level of the cills on adjoining windows, below which the bricks were ragged, having been broken off to form the door jamb.

To the east of the opening there was a timber wall, that had replaced a brick wall early in the 20th Century when it seems the back brick wall of the house collapsed.

Access to the basement had been crudely formed to the north-east corner. This was called a bulkhead locally. A similarly introduced bulkhead to the nearby Deliverance Wheeler house has led to a serious weakening of the building's structure and has left a corner of the house on the point of collapse.

The ell to the south of the house was littered with the debris of a number of lives: the paraphernalia of maple-sap collection; homemade snowshoes; farm tools.

The wooden porch that remained beyond the south doorway had been dismantled and set aside for reinstatement and restoration by the carpenters.

THE WORKS

The carpenters worked on the house and barns through the winter and spring of 2000–2001.

Barns were jacked up and drystone plinths rebuilt; new timber sills installed and rotten slats to the walls replaced. The interior of the house was stripped out and a new floor above the basement built, supported by large timbers on concrete pads.

In early spring, David Baker and team had started on site and had carried out repairs to the brickwork above the drystone basement walls which was in a poor condition, the lime mortar failing. They had also constructed two new lime mortared stone pad footings for the proposed new fireplaces within the north wall of the house.

Clamp bricks similar to, if generally harder than, the original bricks and of similar dimensions (they were slightly shorter) had been sourced from near Boston, Massachusetts by David Baker.

St Astier NHL 2.0 and 3.5, as well as Buxton putty lime had been imported from Cornwall, UK along with calcined china clay for use as a pozzalanic additive.

All recent unsympathetic and cement–mortared brickwork was removed and replaced with lime mortared masonry.

Wherever the deflection of the walls was deemed structurally unsound, this was taken down; the bricks set aside in sequence and then relaid using lime mortar, although interference with the original fabric was kept to a minimum.

The local masons were palpably nervous about removing any brickwork for fear of a general collapse, reflecting their general inexperience in dealing with repairs to old buildings.

Defective pointing was chopped out and the masonry repointed using lime mortar, generally a hybrid mortar incorporating NHL 2.0 and putty lime 50/50 with sand at a ratio of 1: 2.5. This was 'knocked back' to compliment the eroded original mortar except in those more sheltered areas where the striking of the original mortar was evident. The inclination of the local masons was to strike all pointed or newly laid mortar. This is their normal practice still and the style differs markedly from that common in Britain today.

Joints struck in the same style as on the house and according to contemporary local practice may be seen on late C17 and Georgian brickwork in North Yorkshire, for instance at Sutton Park, Sutton on the Forest. The striking iron used could not be purchased in the UK today.

Concrete plinths were everywhere removed and schist plinth-stones reinstated. These were given restraint fixings of stainless steel tied into the brickwork behind.

A section of concrete plinth to the south of the front doorway had been reinforced by at least four very worn sythe/sickle blades.

At some point, the height of the sash window openings had been increased. At some time also, cast concrete cills had been installed. The flat brick arches to the north and south window openings had been clumsily reset, sometimes with the bricks laid with their tops out. Two of the arches over windows on the west elevation had been similarly repaired. Two remained as first laid.

These arches, as well as one over the south doorway were reset with a very slight camber.

The concrete cills were removed and the brickwork brought up to reinstate the original window opening.

The more recent cement–mortared brickwork of the north gable was taken down to the level of the first floor sash window heads and rebuilt using a mixture of original bricks (reclaimed from the base surviving base of the collapsed and replaced east wall) and new bricks.

The stone chimney stack was demolished and the blocked quarter–round window it had obscured was opened. The outline of the former window–frame and wooden cill could be readily deduced from paint residues, and four of the opening’s original arch stones survived in situ, and this informed the radius of the half–round window above that had certainly existed but which may have been changed during more recent rebuilding. The evidence of the blocked quarter–round window to the north–east matched that of the north–west (see appendix for detail).

The front steps were set aside and when a trench was excavated around the house to be filled with ‘river jacks’ (rounded pebbles dug some 5 miles south in Massachusetts), a drystone pad rising from four feet down was built using large lumps of stone arranged by hand but delivered by an excavator onto the pad. The lower two steps were set without mortar; the top step (and threshold) was laid on a bed of lime mortar.

This threshold, and another of similar design found at the bottom of the bulkhead (see notes in appendix) were the only masoned stones found on site.

Internally, a crack in the brickwork of the north–east section, consequent to the collapse of the east wall, was skillfully ‘stitched’ by Glen Rosinski, replacing cracked bricks.

Four new fireplaces were built, one with a bread oven; the location of the large, kitchen fireplace being easily located due to the size of the drystone footing in the basement below the south-west corner.

The dimensions and pattern of the fireplaces was based as much as possible upon the evidence of the building. The position of smoke shelves and flues could be identified by soot staining. The heaviest soot and creosote deposits were to the back of the former flue in the south-east corner, above the entry-point of the stove flue from the ell.

The fireplaces, flues and exterior chimney stacks were built using new bricks throughout and with lime mortar. Lintols were formed of schist slabs from the same quarry as the plinth stones in Ashfield, MA.

The idea had been floated early in the contract that the four new chimney stacks might be built each with a different mortar recipe (see appendix), including one with cement mortar as a way of testing the relative performance of different mixes over time and as a way it was hoped of demonstrating the superior performance of lime over cement mortars.

The proposal foundered because the Landmark Trust USA were unwilling to suspend David Baker's contractual liability to make good any failure without payment. This was a lost opportunity.

The chimney stacks were all built using a hybrid mortar, 1 part NHL 2.0; 1 part putty lime; 5 parts sand, the objective being to achieve maximum vapour permeability.

Lime plaster and the remains of wallpapers were left, and would ultimately be concealed behind insulation and dry-lining.

At the meeting of the house and the ell in the south-east corner, there was a plastered room that was clearly a part of the living accommodation, as well as two storerooms off this room.

The poor key offered by the accordion lath in these rooms had led to an almost universal failure of the one-coat haired lime plaster. Over the years, failing plaster had been replaced with layers of news- and wallpaper as well as with fibre-board.

On the removal of some of the latter, a hole made through the lath to allow a stove flue to pass into the back of the south-east fireplace chimney was discovered.

The intention was to replaster these rooms, but to leave the remainder of the barns as found, with all the paraphernalia left also.

The stations of the cross found in the loft, were carefully cleaned using acetone and cottonwool swabs. They were of cast plaster, handpainted. One was missing. The handpainted text was in French.

The intention of the Landmark Trust USA was to hang them high in the middle barn, available to the view but not the touch of visitors.

The failed and failing brickwork to the base of the east wall having been removed, and the decision having been taken to retain the timber wall built in its stead (and altered itself at some point, see architect's drawings below), the plinth was built using stone laid in lime mortar. The bulkhead was removed and blocked with stone.

The east timber wall had been faced not with wooden slats as were the barns, but with imitation brickwork made of pressed tin, painted brick-red. Subsequently this had been overlaid with asphalt sheet which again sought to imitate brickwork, rather less successfully. The client had sourced more of the tin sheet and the intention was to reinstate this finish across the whole elevation.

On the excavation of the drainage trench behind the house, the circular stone walls of the original well were ripped out before discussion,

photography or recording could take place. This was a major disappointment.

The exterior walls of the house had been painted (at least twice, and certainly for the first time before the construction (in the 1950s?) of the stone chimney stack with a brick red/ 'barn red' paint. Bricks behind the timbers of the south porch were unpainted, which indicates quite clearly that the brickwork was first painted after the addition of the timber ell around 1875/1880, since the porch would not have existed before this. Sloane offers several traditional recipes for house and barn paints (see appendix), all of which contain a good deal of linseed oil as well as slaked lime. The linseed oil content would significantly diminish the breathability of the fabric and render the brickwork more vulnerable to frost attack. There was ample evidence that the softer bricks and the mortar had suffered as a result of the application of relatively impermeable paints.

Where it was practicable, the paint was carefully scraped from the mortar. The mortar was powdered up to 5mm behind this paint layer.

It was decided to repaint the house, but using a pigmented hydraulic limewash, using NHL 2.0. (see appendix)

The new chimney stacks were not limewashed.

GENERAL OBSERVATIONS

WEATHER

Temperatures throughout most of the contract were relatively high; always above 70 degrees Fahrenheit during the day, frequently in the low 80s; occasionally in the 90s and on the odd occasion in the high 90s.

There was rain perhaps once or twice a fortnight and this tended to be heavy and persistent when it came and to last for at least 8 hours. In August there were occasional torrential downpours associated with storms.

There was rarely any particular or even perceptible wind, probably only two windy days during my stay.

There were some days of very high humidity, but these were not the norm.

As long as it was covered with hessian (burlap, US) mortar did not tend to carbonate too rapidly; indeed, the carbonation was readily controllable and tended to be relatively rapid and efficient.

We experienced few of the perennial problems of aftercare of the mortar so irksome in the UK.

Whilst a relative rarity in that part of Vermont, the Amos Brown House was clearly an outlier of a significant brick-building tradition along the Deerfield River valley some five miles south of Whitingham in Massachusetts.

There are a number of brick capes of similar design and dimension in the valley, one of which, in Colrain, which was built at almost the same time as the Amos Brown House, almost certainly by the same masons. Its

dimensions are almost identical. It retains some 90% of its original fabric, lacking only the kitchen fireplace, with a little altered internal layout.

The Colrain house represented an invaluable reference, which was not properly explored until works to the Amos Brown house were almost completed. This is to be regretted. (See appendix for more detail of this house).

Brick capes occur elsewhere in Vermont, of course. There are a good number in and around Chester, Vermont, where there is a strong masonry tradition, using brick and, more especially the local schist and slate, there being some 300 stone houses within the neighbouring towns of Chester and Springfield.

Masonry houses are of course a minority of the houses in Vermont and New England as a whole, wherein the vast majority of the buildings are of timber-frame construction.

Towards the end of the contract, Nigel Copsey hosted a one-day lime workshop with the assistance of Glen Rosinski and Nathaniel Noyes, which had been promoted by the Landmark Trust USA.

A number of local masons attended and were eager to learn more about lime mortars, reflecting a general willingness to embrace 'new' ideas and practices among all masons that I encountered in Vermont.

The enthusiasm, care and consideration; the strong craft consciousness of masons I came across was both a revelation and a delight to me, which held a cruel spotlight upon the state of the craft in the UK.

American masons enjoy high wage levels even within the American working class, as well as high status and high self-esteem and these three elements inform their approach to their work as well as their confidence in dealing with architects and clients. The apprenticeship

system would seem still to be adhered to. In the cities unionization remains firm, and whilst in more rural areas union membership may not be high, the standards achieved by collective organization would seem to be held dear and to inform working practices. Overtime is very rarely worked, for instance, and comes expensive when it is.

'Masons' in this context means bricklayer and rubble stone layer, not stone carver.

I have every confidence that, could the masons be persuaded to use lime mortars and to eschew cement altogether, and to become familiar with conservative repair ethics (with which they would seem to be entirely unfamiliar), then the stock of vernacular masonry buildings in America would be more than safe in their hands, particularly given the willingness of most of their clients to listen to their counsel.

APPENDIX

Throughout the contract, I made notes of problems and decisions; I recorded discoveries and 'discussed' possibilities and ideas. These were copied to the client and the architect in Canada and were made available to the craftsmen on site (whilst often being the basis for or the outcome of discussions amongst the craftsmen on site. Ultimately they were copied to the SPAB in London and to my employers, Nimbus Conservation Ltd.

These notes show some of the evolution of ideas during the contract; they are sometimes contradictory.

I think that there is some value in appending them, in chronological order, unamended, to this report, forming part of the report.

APPENDIX

A) Architect Peter Lancken's preliminary drawings showing the most likely evolution of the building.

B) The same, annotated to show variations informed by discoveries within the fabric during the works.

C) Site records.

03.07.01

SOUTH DOOR

On removal of a plank of wood mimicking a lintol to the inner wythe of the wall, a robust lintol was revealed, 6"x 6" in section, its soffit at a level higher than that of the plank.

The brickwork to the outside had been poorly rebuilt with a hard cement mortar over the doorframe, with no lintol.

On removal of the brickwork, the position of the original flat arch of the doorway was clear, and was higher than the existing, consistent with the position of the 6"x 6" lintol.

It has apparently been decided to narrow the door opening—which would appear to be original— by one brick's width, entailing the tooting out of the existing brick jamb and the building up of a new one.

The rationale for this is symmetry and to allow room around the side of the (new) brick fireplace for trim. It would seem an unnecessary disruption to original fabric to follow this path, however.

This was the decision regarding the doorway to the other side of the fireplace which was originally a window before the addition of the current timber structure to the south added around 1875. Symmetry and 'tidiness' were not seen to justify the removal of historic fabric and evidence of the earlier alteration that might easily be read in the future.

It would seem that the ethical issue is the same in each case, and that the inconvenience of accommodating trim should be solved—for instance—by the introduction of a wider timber jamb (spread over two jambs this would not be very much), should it be deemed essential to reduce the size of the door opening (which involves dispensing with the existing door, the age of which is unknown).

Alternatively, the fireplace might be redesigned, amended.

11.07.01

The demolition of the external stone fireplace has proceeded alongside that of the cement-mortared rebuild of the north gable.

Behind the chimney stack there were four brick voussoirs of the previously only deduced quarter-round window.

A straight joint filled with recent brickwork to the east of the north gable had suggested the existence of quarter-round windows that would have lit the storage spaces below the eaves.

The frames for two quarter-round windows were found in the loft space.

Moreover, the half-round (but not the quarter-round) detail exists in the brick house in nearby Colrain, MA that would appear to be almost

identical to the Amos Brown House, if better preserved and much more intact in terms of original detail and features.

The radius of the half-round frame found in the loft differs from that of the quarter-round.

The design and manufacture would appear to be the same; the painting and pattern of weathering also.

The coincidence of their laying together in the loft would suggest that they were alongside one another in the same wall of the same building, almost certainly this one.

However, it is puzzling that they should have been set to different radii—

The radius of the 4 surviving voussoirs of the north western $\frac{1}{4}$ -round window are NOT the same as the idle quarter-round frame, being in fact the same as the OLD half-round frame.

New frames are to be made to the radii of the found $\frac{1}{4}$ and $\frac{1}{2}$ round frames. This is consistent with the evidence of the frames, but not with that of the masonry.

The radius of the $\frac{1}{4}$ -round is greater. Is it perhaps the case that $\frac{1}{4}$ -rounds in association with a half-round would look 'odd' or 'smaller' unless they were made slightly larger?

The masons would have had less experience in the nuances of architectural form than the carpenters, perhaps, simply because the sheer volume of timber buildings locally far outweighs that of the masonry buildings.

It would seem almost churlish not to believe that the old frames came out of this building and they are apparently contemporary with the door-frame and fan-light.

It would seem possible, therefore, that this is a cock-up, and that the cock-up, if such it is, was the masons', not the joiners'.

Also found in the loft were two $\frac{1}{4}$ -round windows of much more recent construction, the same as the $\frac{1}{2}$ -round window built into the cement-bound brickwork of the gable top. They are of the same geometry as the $\frac{1}{2}$ -round. They were never installed.

The gable dismantled, it is proposed to rebuild this using bricks recycled from the decayed footing of the east timber wall (which is to be made new in stone) for the window arches and new brick for the rest.

The gable had been rebuilt not only with cement, but with bricks of a different size to the originals.

13.07.01

THE COLRAIN BRICK HOUSE

Initial observations in anticipation of a measured survey

The house would appear to be as good as identical to the Amos Brown House.

It is impossible to resist the assumption that it was built by the same hands, at around the same time.

It is approximately 33' long, and the window configuration is the same.

The four chimney stacks remain. All are of the same pattern; only one would appear unmolested by either cement repointing or rebuilding of some kind. There is no reason to doubt that these are essentially the stacks as first built, the extent of their respective repair or restoration reflecting the amount of use of each flue over the years.

There is no elliptical arch or fan-light over the doorway, as at Amos Brown. Instead, a deep, geometrically set flat brick arch of soft red rubbers. There is evidence of interference/disruption above this arch, which may suggest that this is an addition.

The bricks alongside the springers of the arch, indeed, that form the springers, are not whole nor even half bricks with the angle worked, but are fragments, suggesting that the gauged brickwork arch was cut into an existing elevation.

Alternatively, the variation of doorway detail is a common enough practice by a builder seeking to individualise a house built to a common or pattern book design (which these houses probably were).

There are half-round windows at each end of the house (there is no evidence that the AB house had such a window to its south gable), but no quarter-rounds, nor any suggestion that there ever were.

The plinth/splashstones are visually the same as at the AB house, but they are much more robust as regards depth, being 4"–6". This makes them structural in a way that the splashstones at Amos Brown simply are not. This factor alone may account for much of the reason why the Colrain house is in apparently so much better condition than the AB house.

Also in Whitingham is a large, two-and-a-half-storey house, a little earlier built than Amos Brown [I estimate], the bricks being only $1\frac{3}{4}$ " high, $7\frac{3}{8}$ "– $7\frac{1}{2}$ " long and $3\frac{1}{2}$ " wide (bricks at AB are typically $7\frac{3}{4}$ "x $3\frac{3}{4}$ "x 2").

The footprint of the other Whitingham house [the Deliverance Wheeler House] is 40' 3" long by 30' 4" wide; of Amos Brown it is 40' 5" long by 30' 3" wide.

Its bricks and original lime mortar are in excellent condition, the striking pattern almost universally intact, but there has been considerable– and in places perilous deflection– very largely due to the failure of– and the ill–informed attempted redress of the failure of– thin plinthstones. These are of similar dimension, design and geology as those used at Amos Brown.

The rear elevation of the larger house is built upon a robust plinth of slates and schist laid in their correct beds; it is without false-bedded schist splashstones and there is minimal deflection of the wall above.

The Colrain House is roofed with slate–in common with many other buildings in the Deerfield Valley– the Amos Brown House with corrugated iron sheet. There is photographic evidence that the Amos Brown House was formerly roofed with shingles, which it is proposed will be reinstated.

It is unlikely perhaps that the slates of the Colrain House are the original roofing material. The closeness of the Deerfield River may have facilitated the easier movement of heavier materials from further afield at an earlier date than would have been economic in the higher lands around Whitingham, however.

It would seem essential that a measured internal and external survey, and photographic record be made of the Colrain House at the earliest opportunity.

It is remarkable, given its apparent similarity and wealth of original detail, that this has not been done sooner, and before so many of the restoration and design decisions at the Amos Brown House have been taken and acted upon.

It would have provided a very rare opportunity and resource in the context of the Amos Brown Project.

CHIMNEY STACKS

A primary reason for the involvement of Nigel Copsey, Nimbus Conservation and the SPAB in the project at the Amos Brown House is the promotion of the use of lime—as opposed to cement—mortars.

The main objection to thoroughgoing lime mortars locally appears to be that they are 'too soft' to cope with the harsh winters.

The majority of the original lime pointing at Amos Brown is good, however.

As part of the project, four new chimney stacks are to be built, by the same group of masons, using the same bricks and at the same time of the same year.

There would seem to be an unmissable opportunity here to set up a trial of four different mortars and to monitor their performance over forthcoming years.

Explicitly in its pronouncements and implicitly by inviting the participation of Nimbus as advisers, The Landmark Trust USA has demonstrated its commitment to the propagation of the use of traditional lime mortars.

One might suggest that one chimney stack be built using a sand + putty lime + metastar mortar (@ 2 $\frac{3}{4}$: 1 : 10% metastar); a hybrid NHL 3.5 and

putty lime mortar (@ 1: 1: 5 sand); an NHL 2.0 mortar (@2 ½ : 1) and finally a cement-based mortar in accordance with local practice.

Clearly, the mason on site would not be expected to carry liability for the future failure of any one of these mortars.

PAINTING OF THE AMOS BROWN HOUSE

There has been some discussion of whether or not the brick house should be repainted.

The house was painted 'barn red' relatively recently in its history—after the addition of the south porch, since bricks beneath the timbers of this as they butted up against the house are not painted. [the porch would not have existed prior to the addition of the ell circa 1875]

The paint/wash is water soluble, diluting onto brushes during the wet stages of the repointing process and coming onto the bristles of the stiff brushes during beating back of the pointing. Indeed, a certain amount of pigment has been redistributed onto the new mortar during this process.

Peter Lanken has stated that in his experience paint on brickwork fails at best and does damage to the masonry at worst. I don't believe he has direct experience of lime-based washes in this context, however.

If it is considered ethically and aesthetically correct to repaint, I would advise the use of a lime-based colourwash to match the existing.

Eric Sloane [REF] offers several traditional recipes, but we may readily devise a lime, pigment, casein or linseed oil wash for this building that might 'feed' the lime being left in the joints and not disrupt the inherent breatheability of the structure.

14.07.01

It is proposed that the brickwork over the basement windows should be corbelled back onto an angle-iron lintol. The corbel detail was observed over the basement lights on the Colrain brick house.

PAINTING

There can be little doubt that the painting of the house in more recent times has led to the accelerated degradation of the lime mortar joints to a depth of up to 5mm, as well as to the spalling of the faces of a significant number of the softer bricks.

Where there remain heavy paint deposits on the mortar joints, a light scraping removes these quite easily as the mortar behind powders away. Indeed, it is already powdered but held by the paint residue.

Elsewhere, the paint has fallen away over the main width of the joint, as the powdering of the mortar behind has released it. It remains towards the edges of the joint, giving it a narrower appearance than it actually has.

The powdering has almost certainly been caused by frost action upon moisture held within the mortar by the relative impermeability of the paint. Those bricks which are decaying by the same process have lost their layer of paint, whilst harder, less porous bricks alongside have not.

Even traditional paint recipes as detailed by Eric Sloane are heavy on casein AND linseed oil (in the same mix), both of which carry the paint towards impermeability.

OPTIONS:

- Do not repaint. Allow the paint on both mortar and bricks to wash and lift away as it will;
- Do not repaint, but carefully scrape away most of the paint from the mortar joints, leaving the paint on the bricks to dilute and/or fall away over time

The abrading might be carried out with metal, plastic or wooden scrapers and fine stainless steel brushes applied directly to the joint.

The removal of paint from the joints would also reduce the effect of the apparent widening of repointed joints because of the 'overhang' of paint from the bricks into the joints.

Of the dozen or so houses visited so far in a 5 mile radius of Amos Brown, none have been painted [NB closer examination of the Colrain house showed that it too had been painted at some time, probably only once], and none have been- or have needed to be-repointed. Both brick and mortar on all of these other houses are in a somewhat better condition than on the Amos Brown house. That said, the area around the AB house is said locally to be a particularly cold spot.

On Amos Brown, wherever the mortar has been defended from running rainwater—as for 18” below the groundfloor window cills, or below the cornice on the west, the mortar displays the impression of the originally struck joint and the paint remains very well attached.

On the north elevation, the vast majority of the paint has long-since detached from the mortar joints, which are recessed some 5mm.

*Repainting

If repainting is selected as an option, then this must take the form more of a post-repair sheltercoat and be simply lime and pigment, assiduously prepared and cared for to facilitate maximum adhesion and maximum carbonation.

This would 'feed' the mortar joints. As much of the old paint as possible should be teased away from joints before this treatment.

FRONT STEPS

The steps were formed of three major schist stone units with concrete and rubble stone accretions to keep the steps functional after subsidence.

The bottom step reached back to the front edge of the drystone foundation of the house and measured 84" x 60" x 8".

The second step measured 72" x 51" x 7". Its back edge was lined with the inside of the brick wall of the house, ie. : it passed through the wall.

In the opinion of the local masons and carpenters, this is an unusual detail, not typical of local regional practice and that the cantilever/lever effect of this stone under the influence of frost heave will have exerted significant disruptive force on the front, west wall of the house.

Their inclination, before the removal of the steps, would have been to have made this step independent of the building, in keeping with local practice.

On top of the slab was a masoned threshold stone (the others having quarried edges only) 53" x 12" x 7" with a 2" fall to a 52" nose. The front nose was lined with the outside of the house. It was set on a bed of cement mortared slates, having the feel of a 'building-up'.

In front of this threshold and slate 'uplift' was a cast concrete step, apparently contemporary with the concrete plinth repairs.

The objective of the client was to retain the 'as found' positions of the steps, assuming their structural liberty-taking to be original.

The steps were removed by an excavator; the ground before the house excavated to a depth of four feet (below frost depth) and a drystone pad was built to receive the largest, bottom step; the intention being to minimize the impact of frost heave and, therefore, of potential disruption of the steps and leverage particularly from the second step.

On dismantlement, between the bottom of the second step and the top of the stone footing, there was a leveling course formed of plinth/splashstones -so that at least the most recent siting of the second step would seem to date from the replacement of failing splashstones with concrete (possibly as early as 1946).

This would place the insertion of the second step into the period in this building's history of the most ill-informed and heavy-handed repairs and challenges at least the idea of reproducing the detail.

The steps were rebuilt upon a drystone pad.

The first step was set down directly upon the pad; the second step was laid upon an NHL 3.5 lime mortar with a 1 ½" high course of slates at the front edge of the first step. It was set through the full depth of the wall as before.

The threshold stone was set on a lime mortar bed also.

The trench before the house and around the newly built drystone pad was then back-filled with river pebbles (river jacks, US) from a nearby gravel-pit.

NORTH-EAST FIREPLACE

The evidence of the building contradicts the proposed fireplace design.

The original fireplace shape and size may be read from the broken tie-bricks, plaster lines and soot staining.

The fireplace was smaller than proposed—what is proposed is of similar dimensions to the fireplace on the south-east corner—which is consistent with its being in a smaller (bed) room.

It was lower; the chimney reduced to a simple 16" flue somewhat lower in the building than has been proposed.

Significant spalling and crumbling of the brickwork at the back of the fireplace—to the inner wythe of the north wall of the house— is consistent with direct heat (or sustained radiated heat through an iron fireback).

Smoke staining to sound brick begins at 21"— above the typical top of a fireback; 7" below the likely soffit of a stone lintol.

It would seem likely that the original fireplaces were simpler in design than the new ones, being rectangular on plan, and straight back to the house wall.

From the evidence of the house wall, this fireplace had 12” wide jambs (a brick and one half) and a 24” opening.

The depth may only be guessed at.

The opening was almost certainly bridged by a schist stone lintol from the same source as the plinth stones to the outside of the house.

Replacement plinth stones and new fireplace lintols have been sourced from:

Ashfield Stone, Ashfield, MA, some 20 miles away.

THRESHOLDS

During excavation of the drainage trench to the rear of the house, a masoned threshold stone was found below the floor of the more recently installed bulkhead into the basement.

The stone was laid in the line of the wall, as if in a definite position—which is to say, it seemed not to have been disturbed during the making of the bulkhead, suggesting that it was the threshold of an original access into the basement.

Unfortunately, it was removed before its position could be accurately measured or photographed.

In material and style of masoning, it is similar to the threshold stone to the front door of the house.

Two main possibilities present themselves:

The wide bulkhead was introduced later than the timber wall which replaced the tumbled brick wall.

The stone may very likely be the threshold of the original access to the basement, which was not removed when the bulkhead was widened.

Alternatively, it may be the threshold of a back doorway, opposite the front doorway, which was lost along with the brickwall and not reinstated in the timber wall.

It would seem unlikely, however, for this threshold not to have been carted away with the fallen bricks, or, if saved, for it then to be only then used as hardcore for the floor of a new bulkhead.

Hatches to basements are typical locally.

The stone has been broken in two places; it measures $47 \frac{3}{4}$ " x 12" x $3 \frac{1}{2}$ " but is missing possibly 2" from one end where the corrosion of a piece of iron symmetrical to one still set in the stone at the other end has led to the cracking away of material.

It has a raised water-bar.

As with the front threshold, it was fashioned out of a slab of stone with an emphasis on minimizing the effort of stone removal—it was meant to find the weathering by being tipped rather than the weathering being worked off to its apparent depth when fixed.

17.07.01

Written in long-hand in pencil on the underside of the cill of the doorframe of the south door:

“ F. Lee Titus
Wilmington VT
Oct. 8 1946
Also F (?) Sparrow
Same date”

18.07.01

QUARTER-AND HALF-ROUND WINDOWS, NORTH GABLE

The removal of the brick infill from the space previously occupied by the NW quarter-round window allowed a closer inspection of the evidence of the masonry, which challenges the apparent evidence provided by old and more recent window frames found in the loft space.

It is my firm opinion that the evidence of the building itself is the only ultimately reliable indicator of the original form and dimensions of these window openings and the most reliable basis for the introduction of new windows.

The evidence offered by the reopened NW light is confirmed by that of the as yet unopened light to the NE of the gable.

The rise of the quadrant may be measured vertically with good accuracy because the original window frame was set back, leaving a 1 ½” reveal of

brick on the jamb—the line of mortar that sealed the frame has left a mark; the bricks to its front are clean to a height of 23”, a dimension confirmed by the horizontal measurement to the bottom edge of a brick that has been cut to an angle to receive the first voussoir of the brick arch. Two bricks above this have been similarly shaped.

There is clear lime mortar staining to the two bricks above the clean reveal, demonstrating the position of the voussoirs (and confirmed, of course, by the position of the four voussoirs found in situ).

The radius of the brick opening accords with neither the old quarter-round nor the old half-round frames found in the loft. Nor with the radii of either the newer half-round window built into the gable, or the unused but relatively new quarter-rounds.

It would be difficult to base any design decision upon the evidence of these found window frames—however compelling it is to think they must have been in the building—when their dimensions so confound the only solid evidence available, which is that of the building itself.

In revision of previous speculation, it would seem most logical and likely that the radii of both half and quarter-round windows was the same (and that it will jar and appear odd were they to be set to different radii). There is no definite evidence of the radius/rise of the original half-round window because the gable apex was rebuilt in recent times. It would seem appropriate, therefore, to set the rise of the masonry arches of half- and quarter-round windows at 23”.

The position in the gable of the ¼-rounds is known (the cill section is imprinted on the brickwork); that of the half-round is not—but may be taken to be as at the Colrain house.

CHIMNEY STACK MORTAR DESIGN

David Baker carries the liability for defective or failed work on this project.

He is concerned that the thoroughgoing use of lime mortar on the chimney stacks—which he favours in principle—might fail.

Which is to say, he is confident that mixes with which he is familiar—that contain masonry cement—would not fail.

He is understandably concerned about the vulnerability of the mortar in the stacks to frost damage and would like to use a soap-based air entrainer to help reduce this perceived vulnerability.

Detergents, however, contain sodium sulphates and sodium chlorides, neither of which salts are desirable.

The objective is the design of an eminently vapour-permeable mortar with good durability.

It is not simply a pointing mortar, but a bedding mortar which will be struck. It will have integrity throughout the bed depth, therefore.

My suggestion would be that we use a mortar of compatible density and flexibility to the lime putty plus metastar mortar of the main chimneys below the stack (within the building) and that the issue of extra air entrainment be addressed by the addition of 5% brick dust by volume.

Therefore: 10 gallons of sand : 2 gallons putty lime : 2 gallons NHL 2.0 : 0.7 gallon brick dust.

The stacks must be covered as soon as building has finished and remain so for as long as is practicable—at least for two weeks, preferably for

three. Bricks should be pre-wetted to maximize adhesion between brick and mortar.

The chimney cap itself might use NHL 3.5.

19.07.01

SOUTH ELEVATION

The south elevation had suffered the most interference of any still standing wall.

New brick rebuilds using ordinary Portland cement had taken place below ground and first floor west windows; D.I.Y flat arches had been introduced above all three surviving windows (a window to the east on the ground floor had been made into a door into the timber pantry around 1875). Brickwork above the doorway into the porch had been similarly refashioned, but without even a poorly articulated flat arch.

The ('DON B') bricks were very porous , to modern standard size (2 ½" high); there had been no attempt or possibility to match courses.

The section of wall to the right of the porch doorway had subsided away from the wall above and on the other side of the doorway by approximately 1 ½"—2".

This meant that there would always be a misalignment of somewhat less than a brick's height in the coursing of the brickwork.

Overall the building had subsided to the east, meaning that brick courses were none of them level.

The elevation as a whole displayed significant and variable, almost random deflection.

Repairs have to reconcile this variable deflection and be carried out according to it and to the various falls in the brickwork, the planes of the wall either side of openings were often quite at odds.

It is essential that any new brickwork reflects the character of that original, turned and twisted masonry around it. Instruction was that the building should be repainted, so that bricks for the rebuild were chosen for compatibility of shape and size, not necessarily for colour or finish.

The brickwork between the first floor window heads and eaves was in a poor, loose condition, and was relaid in lime mortar—bricks were removed, cleaned and their position in the wall mapped; they were relaid in exactly the same position.

To the right of the first floor window head, the 'drop' in the coursing was made up with a course of schist shims, by way of an unobtrusive, but instructive honest repair.

The apex of the gable was loose and was rebuilt using the same bricks.

The flat arches were built with a 3/8" rise to their center

The gable was repointed only as necessary—patch-pointed—a judgement made the easier by the expectation that the wall would be painted/lime-washed.

Concrete plinth was removed from the base of the walls and replaced with Ashfield quarry schist stone plinth. These differ in appearance to the surviving original plinth stones. The new plinth stones were restrained with threaded stainless steel dowel turned down into the stone and

passed the full thickness of the brickwork. A plate was then attached and bolted tight against the inner wythe of the wall.

The new fireplace to the south-east corner was tied into the jamb of the 'pillar' of brick between the two doorways by toothed brickwork—a major strengthening factor upon this most weakened part of the structure. This tying enhanced the brick underpinning of this area already carried out.

The pointing mortar was:

2 ¾ local sand : 1 putty lime : 10% metastar calcined china clay.

The bedding mortar was:

2 ½ : 1; sand: St Astier NHL 2.0.

WEST ELEVATION

Plinths had been almost entirely replaced by concrete, although the concrete repairs to north of the doorway were probably earlier than those elsewhere on the building—they are flush with the brickwork and more weathered and are possibly associated with a probable collapse (and a certain rebuild) of the brickwork in this area. [It transpired also that they passed the full depth of the brick wall, which projecting concrete plinth did not]

The flat arches above the two windows either side of the doorway have been botched. The two outermost window heads are original.

Repointing was required particularly in an area to the NW corner, associated with the presence thereabouts of a shrub which slowed the

drying out of the wall and—exacerbated by the impervious paint layer—led to significant frost damage to both mortar and bricks.

The quoin, where wind-drying had been more possible was largely sound,

The lower NW corner was cracked and loose, having dropped above a failing and failed plinth.

This was rebuilt, using original, undamaged bricks where possible, over new stone plinths.

Patch-pointing was carried out as necessary, recessed to match better the original pointing once paint layers and frosted layers have been carefully removed.

It is proposed to reduce the paint where it is still well-adhered, with fine stainless steel brushes and water.

An area of brickwork to the north of the door, some 2 metres long by 1 metre high has been rebuilt in the past. This is shown by the change in course pattern—the coursing to the front of the house is stretcher-header-stretcher on each course, unlike which has 5 courses of stretchers to one complete course of headers (English Garden Wall bond)—and the general untidiness of the work. It is slumped. The coursing as a whole falls approx. 1" over two metres.

The repair is detectable inside and out, but was executed in lime mortar.

The concrete plinth passes to either side of the basement window passes the full depth of the wall and is all that supports the wall between the door and window.

For structural and aesthetic reasons, it is proposed to rebuild this section of wall to the original course pattern, eliminating the slump but not the general fall north to south.

It is proposed to needle-pin through the wall at the top of the rebuild, to remove all defective brickwork and the concrete plinth and to rebuild using lime mortar.

Most of the bricks will be salvageable.

A secondary repair was carried out more recently above the plinth and the iron lintol above the basement window. Modern size bricks have been built in using cement.

The cause of the original collapse to the north of the doorway may only be guessed at—a collapse above the basement window; leverage under frost heave by the second step, if it was built into the wall at the time (the presence of old plinth stones beneath it may challenge this), failure of the plinth, or a combination of these factors.

NORTH ELEVATION

The gable above window head level had been completely rebuilt, using 'Don B' bricks and hard cement mortar through the full depth of the wall.

The window heads had been remade similarly and ineffectually.

As across the whole building, new windows had been installed over cast concrete cills. The windows were some 3 bricks, 7" deeper than the originals, none of which survive.

A stone chimney stack was added more recently to the NW corner. Schist, face-bedded and hasrd cement bound.

A 3 metre x 1 metre section of brick wall below ground floor window cills and to the east of the stone chimney displayed severe deflection over failed and failing original plinth.

This was carefully removed and reset in lime mortar over new or reset original plinth.

The wide, filled spread joint reflecting the falling away of the back, east wall will be stitched with new brick and repointed.

The gable top will be rebuilt using new S & H bricks; the arches will be reset.

On removal of the stone chimney stack, the form and dimensions of the former $\frac{1}{4}$ -round window was easily and accurately legible. New arches will be formed to these dimensions; the $\frac{1}{2}$ -round window will be set to the same rise.

When this is done and the $\frac{1}{2}$ -round set two courses of brick above the window heads as at Colrain, its extrados is the same distance from the roof as the extrados of the $\frac{1}{4}$ -round window. This is a compelling coincidence.

The $\frac{1}{2}$ -round window will be set at the site it is in the Colrain house.

The bricks exposed by the removal of the chimney stack are clean of mortar—no dampening having taken place during its construction, clearly. They have a coat of barn red/red oxide paint. It is a thinner coat than on bricks elsewhere and is a paler red, more pink. This may be due to less oxidation. It may denote a different concentration of pigment in the earlier coat of paint; the original painting of the building.

Clearly, the building had been painted prior to the building of the chimney, but the chimney is possibly the last significant addition/alteration to the building and postdates the Don B brickwork.

The mortar of its construction was denser and of different composition to the cement work elsewhere.

The paint has detached from the bricks and the mortar on this elevation for the most part.

STATIONS OF THE CROSS

The stations of the cross were found stacked in the loft of the pantry/barn extension.

They would clearly seem to date from the time when the house belonged/was used by the Carthusian monks.

The monks were a silent order who lived mostly solitary lives and at no point did they live in the house. They had individual huts/cells in the woods.

The stations of the cross were very dusty and grimey. They are of plaster of paris.

As work has progressed on the house, they have been moved on several occasions and have been chipped and some have fractured in the process. This is unfortunate.

There is no virtue in rebuilding missing detail. Fractures will need repair, however, which may be effected by the pouring of plaster of paris/casting

plaster onto the back of the panels, reinforcing this with Hessian/burlap plasterers scrim.

The shallow relief images are framed with a semi-circular, beaded, disc moulded and barley-twist decorated surround.

Without this, a semi-circular arch springs from the abacus of Corinthian capital-topped circular pilasters with shallow relief ivy-leaf decoration. Above this is a crocketed pediment with flower carving within the cavetto. Within the pediment is a shield with the number of the station painted on it in Roman numerals.

Between the two corbels beneath the column bases, the scene is described in French, in painted sans-serif capitals.

The panels and surround will be cleaned with acetone and cotton wool, with occasional light abrading with denture brushes. The acetone will be rinsed away with a light mist spraying of water.

The surrounds have been overpainted with a beige/ stone-coloured paint. Here and there may be seen traces of gold leaf and polychrome glinting through.

Whatever the provenance of these stations of the cross, it was decided at some point in their history that they were too ostentatious for their purpose.

It is proposed to hang the cleaned and repaired stations of the cross in sequence, high on the wall within the middle barn.

They are an important part of the history of the Amos Brown house.

28.07.01

MORTAR MIXES AND APPLICATIONS

Sand for the project is being dug from a pit in the woods close to the junction between Route 8A, Jacksonville–Charlemont, and Burrington Hill.

The supplier is Alvin Hillman of Heath, MA.

The sand is well-graded, relatively fine and very similar to the sand used in the house's original construction.

Whilst it has been used unwashed, there has been no salt efflorescence associated with its use. The pit is on a hill-top, and gathered from below the layer of discolouration by organic matter.

Lime has been supplied by the Cornish Lime Company of Bodmin, Cornwall, UK.

The lime is:

Buxton putty lime made from Derbyshire limestone;
St Astier NHL 2.0 and 3.5.

The pozzalanic additive is metastar calcined china clay.

The fireplaces used putty lime @ $2 \frac{3}{4}$ sand : 1 lime + 10% metastar by volume.

The chimney stacks used a hybrid mortar: 10 gallons of sand : 2 gallons of putty lime : 2 gallons of NHL 2.0 + 5% brick dust crushed on site from Don B bricks.

Repairs to brickwork at or near ground level used 2 $\frac{3}{4}$ sand to 1 St Astier NHL 3.5;

Rebuilt brickwork at higher levels and repointing work generally used :
2 $\frac{3}{4}$ sand : 1 lime putty : 10% metastar.

Stone chimney pads in the basement used 2 $\frac{1}{2}$ sand : 1 St Astier 3.5

Replastering work used both putty lime + metastar and 2 $\frac{3}{4}$ sand : $\frac{1}{2}$
putty lime : $\frac{1}{2}$ NHL 2.0

Mortar was mixed in an Imer mortar mixer and was left to churn for at least 20 minutes to $\frac{1}{2}$ an hour, often longer.

Mortar was frequently 'knocked up' 24 hours after first mixing, whether putty lime or NHL based, as per St Astier recommendations, and with no apparent ill effect.

STRIPPING OUT THE PANTRY

The 'pantry' is the first room in the timber extensions to the brick core house. It is accessed from the south-east of the house, and forms part of buildings added circa 1875.

To the east is a large walk-in larder(?) / storeroom, shelved.

The existing door from the brick house into this space is formed in the site of a former window (see above).

The north end of the timber addition as it abuts the south brick wall is framed with 4" x 2" timber with lath to the inside, nothing to the outside. There is a gap of 5 $\frac{3}{4}$ "-7" between lath and brick.

The brick wall behind had formerly a chimney breast rising from a (still existing) drystone footing at basement level.

At some time, a stove flue was passed through the lath and the brickwork into the main chimney beyond.

The lath would appear to have been cut around this flue as they were attached, rather than having been cut in situ—suggesting that the stove was thus installed at the same time as the extensions were added.

The chimney here was the heaviest used in the house, judging by the thickness of carbon deposits to the brick and the heavier damage to the bricks of the fireback.

To the NW corner of the pantry, removal of tongue and groove and fibre boarding revealed:

- * flue hole (since blocked);
- * lath without plaster;
 - plaster up to 4' high, loose and crazed with areas of crumbliness, held by horse hair.

To the west wall, to either side of the window, the lath is formed of 5 ½" to 7" planks, split (often minimally) and nailed as if still planks.

This is 'accordian lath', formed of wetted and axe split planks. They have more the appearance of too-quickly dried planks splitting naturally than of planks riven by human action.

Whilst hugely evocative of place, this material helps to explain the generally failed or failing attachment of the plaster.

The plaster itself is one coat only and is typically only 3/8" thick. It has 'sagged' around the laths, giving a slightly rumped appearance.

As the plaster has failed or fallen or come loose over the years, various improvised, low-cost repair strategies have been adopted.

Probably the earliest surviving such strategy is the attempted consolidation of the SE corner by the application of newspaper to the plaster, overlaid with one thickness of patterned and then plain wallpaper, painted white.

Where plaster had fallen, the layers of wallpaper were underlaid with cardboard from packing cases.

In one corner to the N of the door into the larder, the thickness was created by multiple layers of patterned wallpaper.

The newspaper to the SE corner is dated:

“Boston Sunday Post, August 13, 1933”.

That plaster which may be saved, will be saved. The pantry will be replastered with lime plaster and yak hair.

It is a possibility, at least, that the lath in the larder might be left exposed—this part of the building will not be ‘lived in’ by the tenants of the Landmark Trust property.

31.07.01

EAST HOUSE WALL

At some time the east wall of the brick house collapsed (most likely), or was removed. The timing of this event is presumed to be around 1900/1910. [hearsay put the collapse at around 1930]

A brick plinth was rebuilt beneath a timber-framed replacement wall, within which lime-mortar bound plinth were found red-painted face-bricks, which clearly indicates that the wall collapsed sometime after at least the first painting of the house with red oxide (sometime after 1875).

Old schist plinth stones were laid beneath the brick plinth of the east wall, above the dry-stone footing/basement wall.

The brick plinth had been faced-up with the same concrete, in the same fashion as elsewhere on the building—some time after the brick plinth, one must presume and almost superfluously other than to mitigate the damaging effects of rainwater splashing up from the ground (none of the bricks show any significant decay).

The timber-framed wall originally displayed a different window layout, as evidenced by the framing. Landmark proposes to return this to its earlier window layout.

It would appear that the wall was clad in the first instance with pressed tin imitation brickwork. This is patterned in very shallow relief with brickwork and joints, and was painted red. At sometime more recently, this tin was covered in asphalt 'brick-facing', similarly, if less convincingly, suggestive of brickwork.

The Landmark Trust have acquired a supply of the pressed tin, made from original Victorian moulds. It is proposed that the pressed tin finish should be reinstated.

There has been much debate about this wall. The original assumption had been that it should be rebuilt in brick.

The argument that it should remain in its current form prevailed for a combination of ethical and economic reasons.

There was extensive discussion thereafter about whether the window arrangement should match the proposed period of the room layout—and be symmetrical, and as at the front/west of the house. Or be left as they are now. Or take a step back to the layout as originally framed (but with no reference to the proposed room layout).

The logical conclusion of the ethical position adopted to justify the retention of the timber wall would be the retention of the current window arrangement, and even the asphalt exterior. This is poor condition. Pressed tin cladding may be seen locally and be seen to perform quite badly—it rumples up, allowing moisture penetration and promoting decay.

In the context of so much other historical compromise over this wall, may a reasonable case not be made for the application of a clapboard finish—applied over the existing, surviving pressed tin?

This would unify the rear elevations of the range of barns and the house.

There is no evidence of there ever having been clapboard here, however.

This would be neither conservation nor restoration: it would be an aesthetic and structural judgement from the here and now.

The cill of the rear wall is to be cut out and renewed. The brick plinth is to be replaced with a stone footing/plinth, laid in lime mortar.

I would counsel that the clapboard be put upon the rear wall after removal of the asphalt and the recording (and leaving in place) of the pressed tin brickwork.

09.08.01

LIMEWASHING

The house will be limewashed.

The mix will be:

First coat: 3:1, NHL 2.0 : pigment, diluted to a milky consistency.

A second coat of the same proportion will be applied of a slightly thicker consistency.

The pigment used was red oxide/ iron oxide/ mars red 222 from Kremer Pigments Inc., 228 Elizabeth Street, New York, NY 10012. The catalogue reference is 48250.

The walls are to be well wetted with a hose over a period of some hours before application.

The purpose of the limewashing in the context of this building has been much considered.

Because of the degradation of some of the mortar behind a much more waterproof paint, there is some virtue in 'feeding' the mortar and consolidating it somewhat.

There has been much repair and replacement brickwork, with recycled bricks, new bricks, painted and unpainted bricks, as well as extensive patch-pointing.

There is a strong case for a unifying sheltercoat. It is important that this should be breathable—so no casein or linseed oil should be added.

THE COLRAIN BRICK HOUSE, internal inspection and measuring.

The external dimensions of the house are:

38' 6" long and 30' 3" wide.

The Amos Brown house is:

40' 5" long and 30' 4" wide.

The owner is confident that the house was built in 1810.

Although the Amos Brown house has 1790 painted above its front door, 1800 has been taken to be its likely date of construction by the Landmark Trust USA.

Either way, it is very likely that the two houses were built by the same hand or hands.

The bricks measure $7\frac{3}{4}$ " x $3\frac{3}{4}$ " x 2", the same as at Amos Brown. They appeared to our eyes to have been fired at a generally higher temperature than the bricks at Amos Brown, seeming generally harder.

There were significant if variable remains of red oxide paint that had been applied to all of the brickwork elevations. This has survived most extensively on the north and south elevations.

The lime mortar across all elevations was in excellent condition.

The bonding of the brickwork is an eccentric English garden wall bond (typically between 3 and 5 courses of stretchers to 1 course of headers). At Amos Brown, the ratio is 5:1; at the Colrain house, it is 7:1.

There is little deflection, however.

The plinth is of granite, and is typically $5\frac{1}{2}$ " thick and 12" high—a major contribution to the minimal deflection in the brickwork.

At Amos Brown, the deflection in the walls is extensive above a 2" thick plinth.

The window openings in Colrain have been deepened, from 59" to $63\frac{1}{2}$ ". At Amos Brown, they had been deepened to 59" and have been returned to 53".

The two basement windows are not vertically aligned with the windows to either side of the door, as they are at Amos Brown.

The front elevation is not quite symmetrical, being $208\frac{3}{4}$ " to the right of the right-hand jamb of the front door, and 206" to the left of the left.

Window openings are typically $34\frac{1}{2}$ " wide. The basement windows are $32\frac{1}{2}$ " wide, reveal to reveal.

The rear elevation window positions do not mirror the front.

The two windows visible without the timber addition are of different height and width to one another.

The first floor windows to the gables are smaller than the groundfloor windows, being a whole brick narrower—26 ½” by deduction.

The lack of symmetry exists on all elevations (see sketches attached).

The radius of the half-round window would seem to be 18”.

The owner said that the building was once a coach-house/ stop.

Internally, the Colrain house retains the vast majority of its original fabric,

At least two of the fireplaces have their original trim; three their original basic dimensions and brickwork.

Door surrounds and doors would appear original and exhibit significant deflection typically.

Various vinyl and polystyrene units have been applied to some walls and ceilings.

The major fireplace has been removed but probably took up all the width of the room, except for the doorway, and extended some 60” into the room, as evidenced by a line on the ceiling.

The house has its original floorboards throughout.

The basement wall has been pointed heavily with a lime mortar—it is uncertain if this reflects an original bedding with mortar, pointing or repointing.

The base of the now missing main fireplace, (with beehive oven) is of stone; large stones. It measures 10' x 7' 10", and adjoins the south basement wall, being similarly pointed.

The footings of the other three fireplaces are of brick, being two piers surmounted by a semi-circular brick arch/vault that carries the stone slab or brick of the fireplace hearths above.

They have wooden shelves between the piers of brick.

- A) measures 50", with a 25 ¼" opening;#
- B) measures 49", with a 25" opening;
- C) measures 48 ¾", with a 24 ¾" opening.

The passage from the kitchen to the back bedroom and staircase has an elliptical plastered ceiling. The staircase rises into an added dormer, the loft space having earlier been accessed by ladder, according to the owner.

Upstairs, there are two rooms of similar dimension, within the longitudinal beams. Both have elliptical plastered ceilings.

Doorways downstairs are typically 38" wide to the outer side of the trim. The opening is 28 ½" wide and 77 ½" high.

In the NW room, there is a section of timber in the floor, north/south, that marks the remains of a partition wall that existed between the room and a hallway from the front door.

