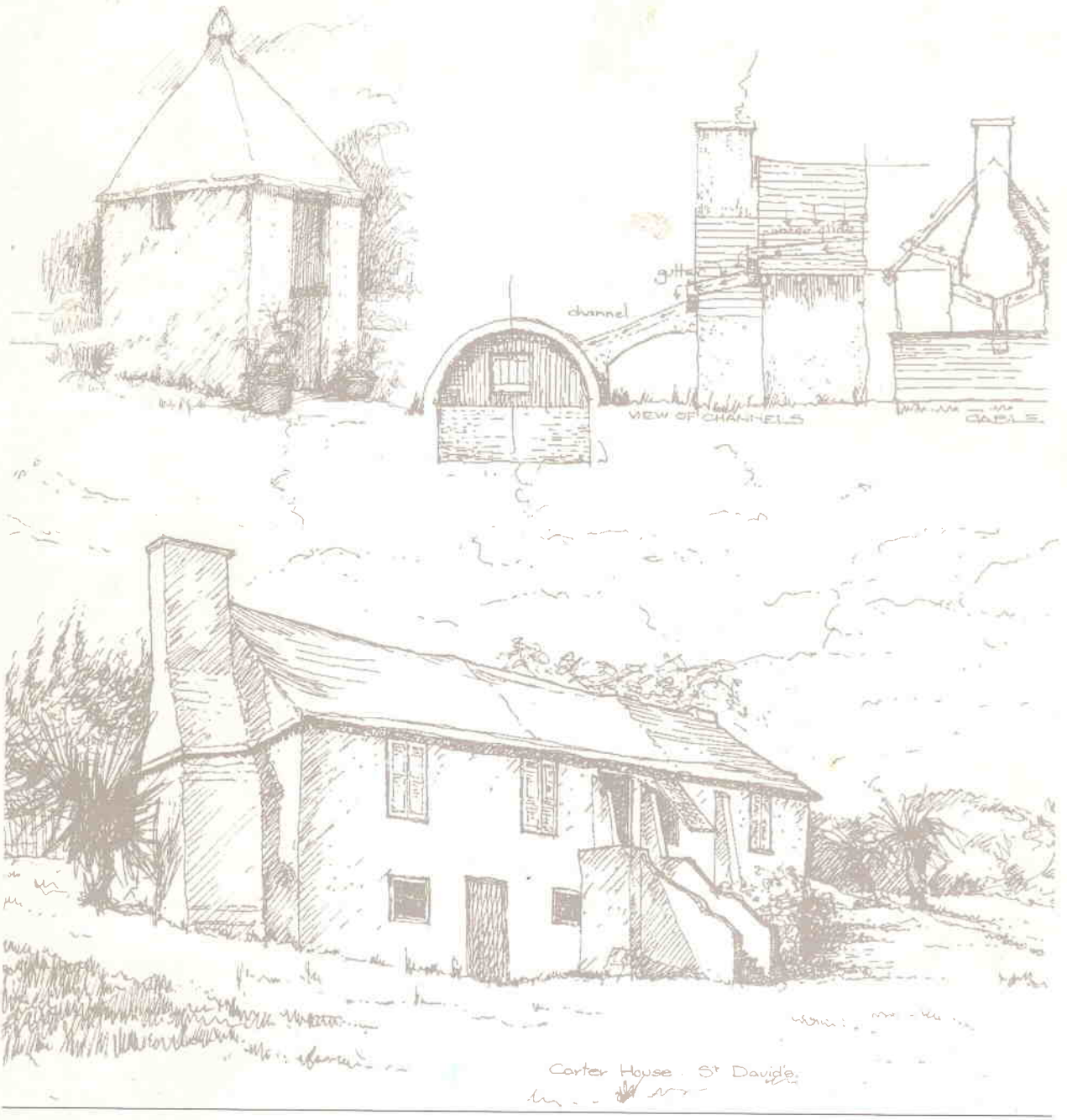
THE TRADITIONAL BUILDING GUIDE

Advice For Preserving Bermuda's Architectural Heritage

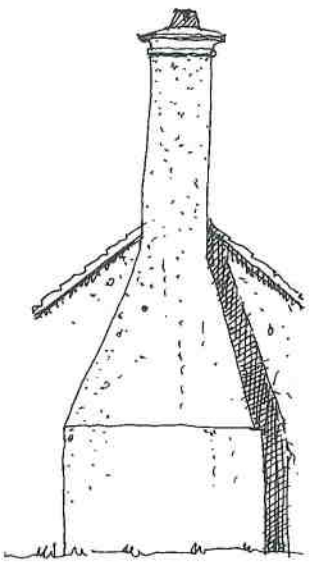


DEPARTMENT OF PLANNING & BERMUDA NATIONAL TRUST

As the tank is now part of the house, it is even more important that it be watertight. New tanks are lined with a hard waterproof mortar made of one part cement to one and a half parts sand, perhaps with a proprietary waterproofing agent added.

The repair and maintenance of tanks

Water tanks require cleaning and maintenance about once every five years. All the water is pumped out and the silt in the tank is removed by the bucketful so that any cracks can be patched. Then a coat of fresh cementwash is applied to the interior. The mortar used inside a water tank should be one part cement to one and a half parts sand using "fat" sand, not too sharp. Sand from stone saws is ideal.

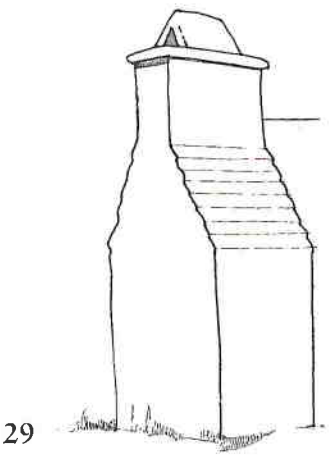


28

CHIMNEYS AND FIREPLACES

Chimney construction

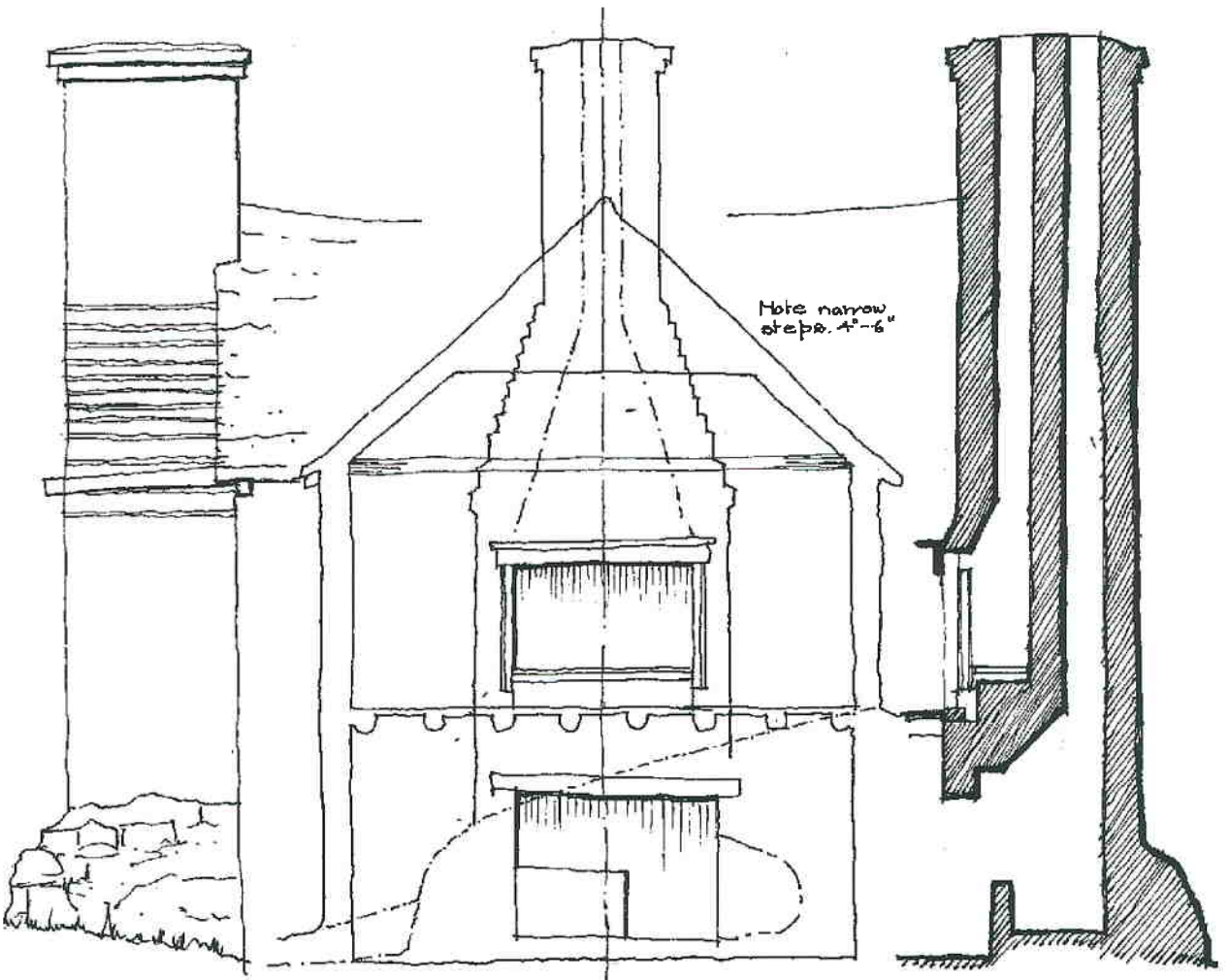
Bermuda's chimneys are unique. Their beauty lies in their simple, massive forms. Inch for inch, Bermuda probably has the largest chimneys in the world relative to the size of our houses. Although we understand the practical reasons for the development of many other features of our traditional architecture, and although we know that soft stone was originally approached with caution, we are not sure why Bermuda's early chimneys are quite so large. Early chimneys were almost always built externally at the gable ends of houses, perhaps for support during high winds. The same chimneys may have braced earlier wooden houses with thatched or shingled roofs. Building at the ends of a house, rather than centrally, was also a way to try and avoid the heat of cooking in summer. Perhaps large medieval cooking hearths, remembered from England, were part of the expectations of the early settlers. But our chimneys are equally large in small, single room houses, and may have had additional functions that we do not yet understand.



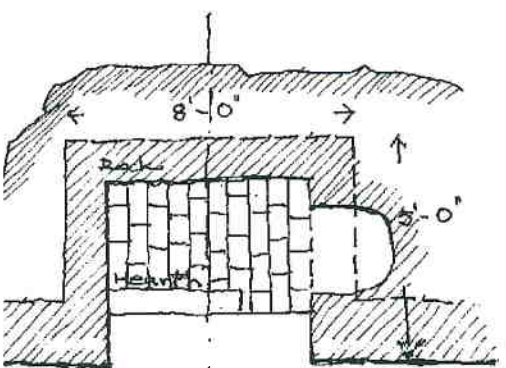
29

Though there are no rules, the base of an early Bermuda chimney is generally at least eight feet wide by four feet deep, and it rises up in straight and stepped increments, reflecting the arrangement of stone blocks used in its construction. However, this

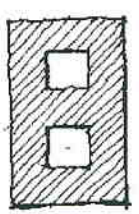
CHAPTER 4



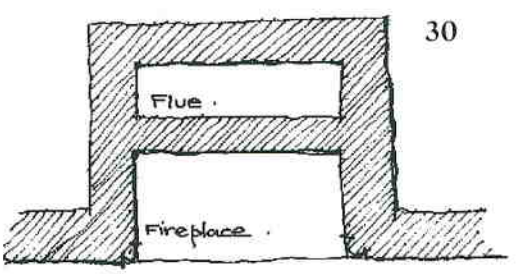
ELEVATION. SECTION & OUTLINE OF CHIMNEY. SECTION THROUGH CHIMNEY.



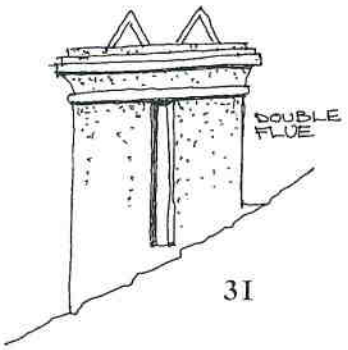
GROUND FLOOR.



PLAN OF CHIMNEY



FIRST FLOOR.



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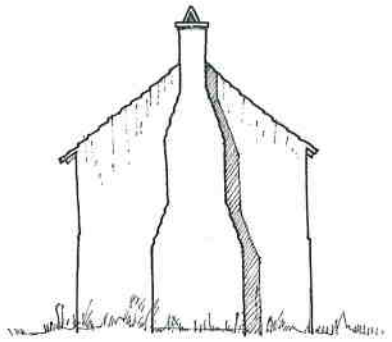

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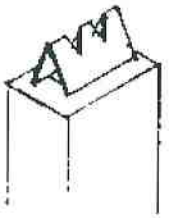


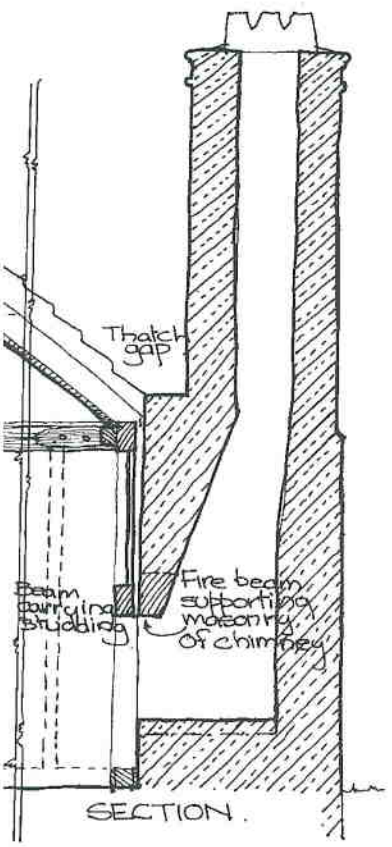
35

may not always be expressed on the outside. On some chimneys you do not see the stepped "weathers" as they have been canted off. [28] Like buttery roofs, chimney construction can look smooth. Some chimneys were built of small stones, which rose in slow and graceful increments of one and a quarter inches. Others, more utilitarian, rose in increments of two inches, resulting in a squatter and fatter profile. [29]

Early chimneys, wide and deep, often housed more than one fireplace in multi-storey houses. [30] There are many examples of twin flues in a chimneystack and occasionally even three. Sometimes a double flue is expressed as a separation at the top of the stack [31] sometimes as a scratched delineation in the stone. If there were two fireplaces, the lower flue rose from the basement behind that of the fireplace on the principal floor, producing a very deep chimney. The steps and angles on the exterior of a chimney reflect the position of fireplaces in its interior. Straight sections generally indicate a fireplace, while the sides of the flue were stepped in on each course above the fireplace. [32]

The earliest chimneys often had a corbelled "collar" at the top of the chimney, which was more than just decorative. This broke the down draught on the lee side of the chimney, preventing smoke from being sucked down the stack. [33] The corbel also extended over the opening to narrow it and so improved the up draught. At about six inches from their tops, many early chimneys also had a second simple corbelled moulding, now softened from years of limewash so that it looks rounded. [34] Later 18th century and 19th century chimneys copied this detailing as a decoration lower down the chimney stack. Stone slates, sometimes known as praying hands, which perch atop the stacks, are a more modern way to stop the down draughts that cause a chimney to smoke. Also known locally as rooster combs, these were used extensively in 1930s Vernacular Revival houses.[35]

There is a theory that stone chimneys were once built to buttress timber-framed houses before stone houses were common. Use of thatch or shingles may have accounted for the curious separation of the chimney from the roof by a shoulder at the ridge,



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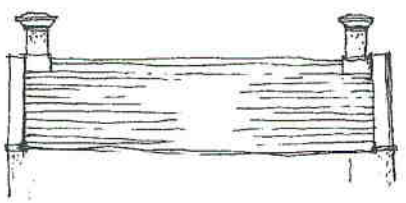
which was perhaps a method of preventing fires. [36] Sometimes there is a small gravity water tank for extinguishing chimney fires set into the crook of the chimney. These tanks were often situated where there was a place to feed uncut logs into a fireplace through the outer chimney wall.

During the 19th century false chimneys were sometimes built on both gables and hipped roofs, in some cases without obvious support from below, to give symmetry to the front of the house. [37] Bermuda's chimneys tended to become smaller during the century, perhaps because of the introduction of coal and paraffin as fuel. They were now built with neat, square throats. Revival style houses generally copied early, deep stepped chimneys, which are more picturesque.

Bermuda's massive chimneys are often the only part of a house remaining after it has been abandoned. A number of solitary, ruined chimneys punctuate our landscape today.

Fireplace construction

Bermuda's fireplaces had two practical functions, cooking food and heating a house in the cooler weather. The design and construction of a fireplace, as well as its place within the overall plan of a house, usually make it clear which function was intended.



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Our fireplaces were built at different heights from the floor, and the height indicates their use. Heights are traditionally equated with the human body, floor or ankle level, knee level and hip level. [38] One fireplace in St.George's is at waist level and it was apparently built for a tall woman to do her cooking. There are no hard and fast rules for the design either of Bermudian cooking or heating fireplaces. They were constructed in different ways and they changed over time.

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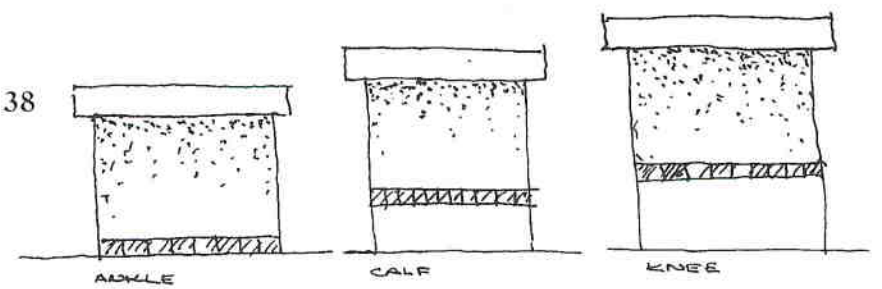
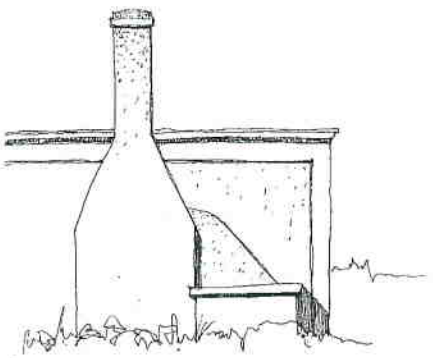


Cooking fireplaces

Cooking fireplaces were located in a room within the main house or in a separate out-kitchen. Large 18th century houses frequently had an out-kitchen located more than ten feet from the main building. A fine one can be seen at Verdmont. Cooking fireplaces were large, generally spanning the full width of the chimney, with an interior shape that conformed to the chimney.

Cooking rooms in Bermuda may originally have had earthen floors, and if they had wooden ones, these were probably given a stone or brick hearth extending a foot or two into the room to protect against sparks and falling ashes. There were a variety of other solutions for fire safety, such as stepping back the grate within the fireplace.

The front of a cooking fireplace, where it faced the room, was topped with a cedar lintel. Although this was of wood, it did not burn as the smoke path or draught up the chimney pulled the fire backwards and away from the lintel. But you will certainly see scorch marks on the back of it if it is old. Some later or rebuilt fireplaces have had an angle iron added as a lintel. Ovens were inside the main fireplace or were built on the side of the fireplace with their own hearth and flue. This is often expressed on the outside of 19th century houses. [**39A&B**]



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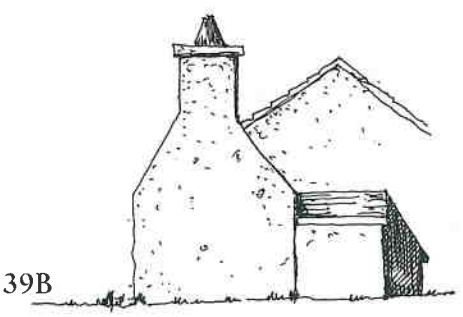

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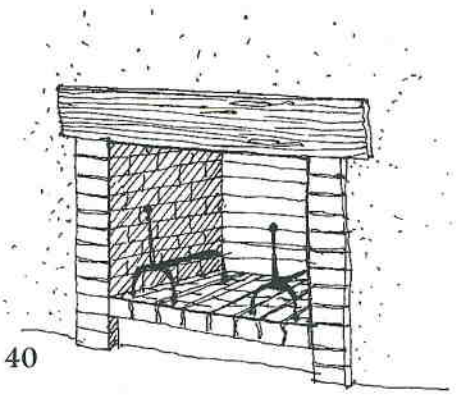
Cooking in Bermuda was done on open wood fires well into the 19th century. Pots and cauldrons were hung from a trammel with a swinging arm, which was suspended in the breast of the chimney. Skillets, flat pans and Dutch ovens were set on iron trivets in the fire. Spits were also suspended over the flames for roasting.

Fuel for Bermuda's cooking fires included cedar logs. Palm fronds and sagebrush were used as tinder. The change from open fire cooking to introduced stoves probably occurred late in the 19th century. Paraffin stoves then became commonplace and there is evidence of their flues being run up the chimney. These were themselves gradually replaced by freestanding stoves using electricity or bottled gas.

Look in the special section, How to build and operate a brick oven, for more detailed information on cooking fireplaces.



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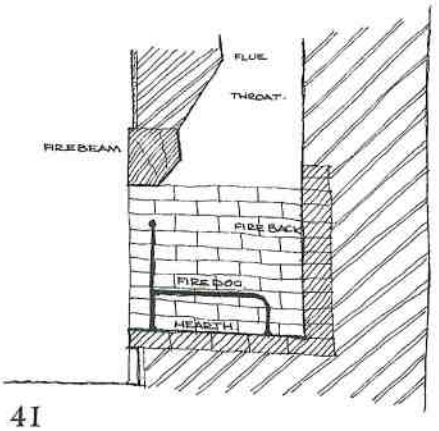

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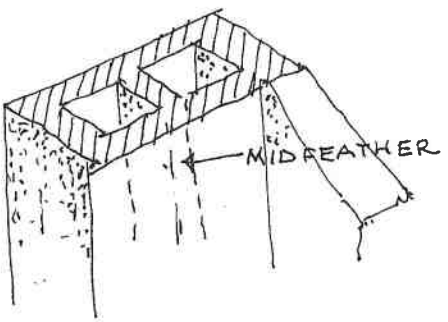

42

Heating fireplaces

Early Bermudian houses had large heating fireplaces with bricked floors and partially bricked sides that conformed to the shape of the chimney. [**40, 41**] Later houses from the 19th century have fewer fireplaces in their reception rooms. These were smaller and were built with backs that rake forward sharply, providing a large smoke chamber. The smoke chamber is the place just above and behind the bricked back wall of the fireplace where smoke expands and heat gathers, ready to be drawn up the flue. In fireplaces from the later 19th century, the bottom of the smoke chamber is generally filled, at least to the level at which the rake begins, with sand or light rubble to prevent suck-back.

Small, efficient coal burning grates and full fireplaces of cast iron were imported into Bermuda in the second half of the 19th century, and this may account for the large number of small chimneys of the time. Coal grates were also sometimes added to earlier houses, with the chimneys adapted accordingly. Coal was brought to Bermuda for fuelling warships and was also available for domestic heating.

Repairing chimneys and fireplaces

An open fire to heat a room and to provide a focal point for hospitality can still be found in use in many Bermudian houses today. Cedar and casuarina are the main woods burned. There is really nothing like the fragrance of cedar smoke on a winter's night.

Most stone chimney breasts were built to last and problems are rare. They may occur where their brick facing has been burned out and where the interior limestone has been oxidized by heat. Hearths and fire backs need to be relined with brick to remedy this, and a more sympathetic visual result will come from using old bricks.

If a fireplace is in use, it needs a sound and well ventilated flue. In a double chimney, the wall between the two flues, known as the midfeather, may have perished after years of being subject to sulphate attack from soot. [**42**] This can further damage both stone and brickwork. Masonry can be repaired in the normal way and those parts of the flue that can be reached can then be lined with a cement and lime render. Only in extremely rare cases will a chimney need to be dismantled.

a full restoration, windows need not be exact copies, but if they relate in size and style the finished addition will look of a piece with the original house.

Planting after additions

Trees, shrubs and vines protect and frame a building in the landscape. Careful planting around a house after additions have been made adds substantially to its value, and is especially important where houses are closely sited.

Large terraces can exaggerate the effect of overcrowding, but small ones, using Bermuda stone and a variety of plantings, give more feeling of privacy and personal space. Bermuda's climate and soil produce lush growth and strong colours in a short time. Many shrubs and trees can be planted close to houses if there is regular garden maintenance. Endemic and naturalised plants will also encourage birds. Water tanks are no longer as vulnerable to tree roots, if they have been built with concrete-filled block walls. Palm trees have a fibrous root ball that is limited in size and they can be planted very near buildings.

Individual care with landscaping helps improve the appearance of the whole Island.

COOKING AND KITCHEN FIREPLACES

The traditional fuel for fires in Bermuda was wood. There were wide hearths to accommodate suspended pots and skillets for cooking. When the Royal Naval Dockyard became a coaling point for the British Navy in about 1850, and coal became locally available for the first time, small cast iron fireplaces with coal grates began to appear occasionally in Bermuda's sitting rooms. Cast iron cooking stoves did not suit the hot climate, however. Instead, paraffin stoves for cooking were introduced and remained in use until the late 1950s. With the widespread use of electricity after the First World War and of propane gas after the Second, new possibilities for cooking changed the design of Bermuda's kitchens.

If you are lucky enough to have an old kitchen today, you will probably want to retain and use the fireplace for warmth in

winter (see the section on chimneys in Chapter 4, and the separate feature, *How to Build and Operate a Brick Oven*, for more information). If a fireplace and oven don't fit in with your ideas of modern kitchen decor, don't tear them out. Try and keep them for the future by covering them with a false wall, or by putting a cupboard in front of them. Modern cooking tops have been successfully installed in old fireplaces, giving them a new lease on life.

AIR CONDITIONING

In many traditionally designed houses that are one room deep, it is not really necessary to have air conditioning. Cross ventilation, taking advantage of southerly breezes, was one of the designs of Bermuda's original builders. But for many people today, air conditioning makes life much more pleasant in the summer months and some people insist on it.

If you decide to use an air conditioner, try to site it discreetly. Sometimes units are bolted into highly visible sash windows at the front of a house. They dribble rusty water and they look unsightly. You can keep them from marring the appearance of your house by putting them in inconspicuous places and by taking them out in the cool months. There are now alternative room air conditioners – portable, standing units that can be wheeled from room to room. These are vented with a six inch hose that can be made to run out of the window almost invisibly.

Split system air conditioning systems are more complex to install but many people find them more efficient and far quieter than room units. Their flow and return pipes need to be buried inside the walls of the house like other service pipes, so think carefully about where they will do the least damage. The remote condenser unit can be hidden out of doors in the planting to minimize its visual impact. Try and put it where it does not hide any important feature of your house. On the inside, the venting units are least conspicuous if they are set close to the floor, and not in the middle of a wall like a picture, though they work optimally if they are set high up, because cool air falls.

CHAPTER 7