Archaeology

Monograph 10

The History of James Bay 1610–1686

A Study in Historical Archaeology

W. A. Kenyon

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Cover illustration: Reconstruction painting, watercolour, Moose Factory.

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Beavers live not upon fish, but rinds of Trees.
Z. Gillam, 1672

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Preface

Although I have worked for many years on what I have always referred to as the James Bay Project, it is unfinished. There are still some bits of archaeological investigation that should be carried out, and with luck—or God Willing, as the fur traders used to say—I may yet complete them. There also remains a rich vein of data in the unpublished records of the Hudson's Bay Company; this, too, I may explore one day with the diligence that the material deserves.

Even if all this were completed, however, the job would still be only half done. The story of the fur trade is a richer and more complicated fabric than I am able to weave with the available threads of European history and James Bay archaeology. What is missing is the story of that trade as seen from the perspective of the Indian peoples—mainly the Cree—who trapped the fur-bearing animals and carried the pelts to the Hudson's Bay Company posts, for that, too, is part of the same story, a part that has not yet been told.

Acknowledgements

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Discovery and Exploration of the Bay

In the summer of 1610, when Henry Hudson sailed his small vessel, the *Discovery*, out through the western end of Hudson Strait, he thought that his search was ended, for the broad waters stretching endlessly before him were surely part of the vast Pacific. The riches of the Orient, then, were finally within the grasp of the merchants of London, the men who had sent him on his search for the western sea. It had not been an easy passage, however, for Hudson Strait is some seven hundred kilometres long, stretching from Cape Chidley in the east to Cape Wolstenholme in the west. Interminable fog banks, particularly towards the western end of the strait, hang like a shroud across the narrow passage, while broad swaths of drifting ice are brought down from the northwest each summer by the current flowing out of the Foxe Basin. Further hazards are presented by snow and freezing rain, as well as by glistening grey icebergs, hard as granite, that wander in from Davis Strait.

Although the passage had been difficult, Hudson must have felt that the worst was over, for he had located and navigated the northwest passage around the barren arctic tip of the Americas. But the weather was still bad, and the men were apprehensive; so

Hudson shaped his course to the south in search of a warmer climate and more congenial surroundings.

As he continued south, he thought he was following the western shore of North America, or the back side of America as it was called at the time. But he never did reach a warmer climate. Some one thousand kilometres south of Cape Wolstenholme, he was trapped in a maze of shoals, reefs, and islands at the bottom of what is now James Bay. There he was forced to spend the winter.

The precise location of Hudson's wintering place is not known. We do know, however, that it was somewhere at the bottom of James Bay (Fig. 1), and probably in the vicinity of Point Comfort. There, on 1 November 1610, the men hauled their vessel ashore. And only nine days later they were solidly frozen in. They apparently spent the winter aboard the *Discovery*, although Philip Staffe, the carpenter, did build a small structure on shore.

When the *Discovery* had sailed from London on 17 April, she carried six months' provisions for the twenty-three people aboard (Asher 1860:93, 110). But the men had been at sea for six months before their arrival at the bottom of the bay; as a result, they were already on short rations, even though they had

Fig. 1 Henry Hudson's map, published by Hessel Gerritz in 1612.
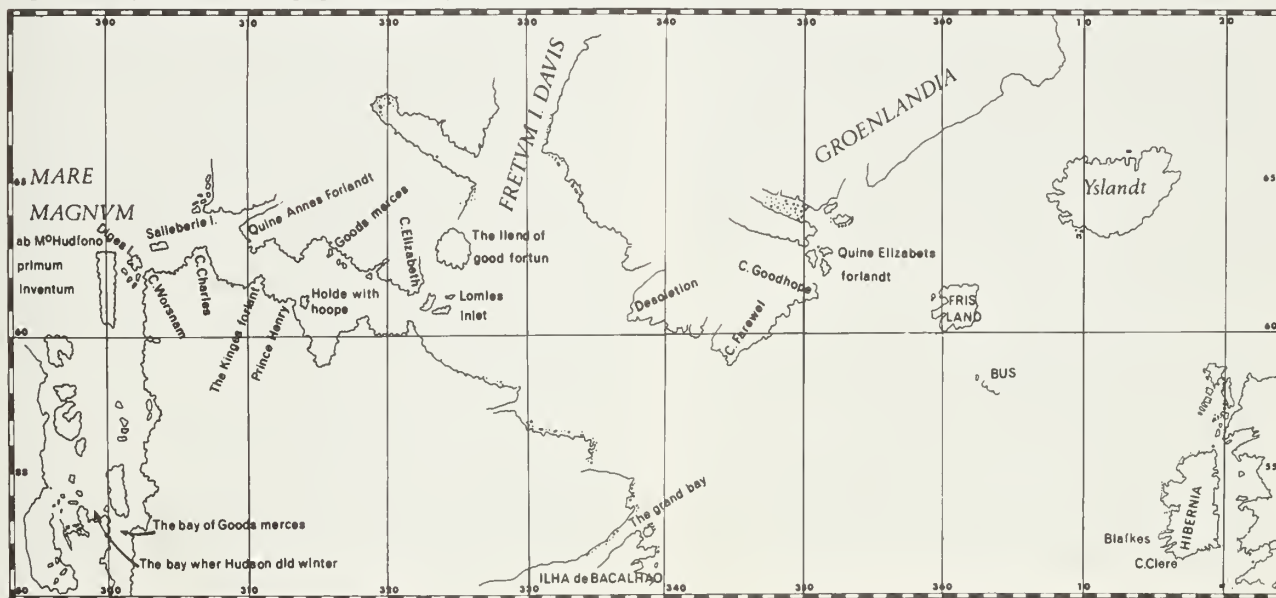
killed and preserved a good quantity of waterfowl, which they found nesting in incredible numbers at the western end of the strait. As soon as the men were settled in their winter quarters, therefore, Hudson inventoried his remaining supplies and offered to reward them for any fish or meat they might contribute to the larder. Fortunately, they were in a rich area, and Abacuk Prickett, who kept a rough journal, comments as follows:

> For the space of three moneths wee had such store of fowle of one kinde (which were partridges as white as milke) that wee killed above an hundred dozen, besides others of sundry sorts; for all was fish that came to the net. The spring coming this fowle left us yet they were with us all the extreame cold. Then in their places came divers sort of other fowle, as swanne, geese, duck, and teale, but hard to come by. (Asher 1860:113)

But these birds, too, finally drifted across the northern horizon, leaving a strangely quiet and empty land. "Then," Prickett continues, "wee went into the woods, hilles, and valleyes, for all things that had any shew of substance in them, how vile soever." Even "the frogge (in his ingendring time as loathsome as a toade) was not spared."

As soon as the ice went out of the bay, Hudson's men set a net and on the first day caught "five hundred fish, as big as good herrings, and some troutes". But the fish, too, soon disappeared. Just before the ship left her wintering place, a boat's crew fished for two and a half days and brought back only eighty small fish, a catch that Prickett describes as "a poore reliefe for so many hungry bellies".

It had been a hard winter. Scurvy had spread through the ship's company, but was apparently kept under reasonable control by the amount of fresh meat or fowl the men were able to procure, mainly ptarmigan, and by a concoction they brewed from the green and yellow leaves of a tree. This tree, we are told, had leaves

> of an aromatical savour, and being boyled yeelded an oyley substance, which proved an excellent salve, and the decoction being drunke proved as wholesome a potion, whereby they were cured of the scorbute, sciaticas, croupes, convulsions, and other diseases, which the coldnesse of the climate bred in them. (Asher 1860:141)

Finally, on 12 June 1611, Hudson and his men sailed for home. But a mutiny that had been smouldering for months finally erupted when Henry Greene and part of the crew seized the vessel. Then, on the night of 23 June, while the *Discovery* was becalmed near what is now Charlton Island, Hudson and eight of his men were cast adrift in a small boat and were never seen again. After a thorough search of the vessel and a careful inventory of the seriously depleted stores, Greene reappointed Robert Bylot mate (a position that he had previously held) and shaped his course for Hudson Strait, where he hoped to lay in a supply of wildfowl for the homeward voyage.

The *Discovery* reached the western end of the strait on 26 July. The following day contrary winds made it impossible for the ship to reach the nesting grounds where so many fowl had been shot the previous year. The only thing to be done was to send off the boat with a few of the men to scour the surrounding area. The men found a "good store of gulls, yet hard to come by, on the rocks and cliffes; but with their peeces they killed some thirtie, and towards night returned." Two days later Greene and his men met a band of Eskimo who were camped near the nesting grounds. There was a brief but intense skirmish during which Henry Greene and two of his men were slain, as were at least two of the natives. However, the battered crew of the *Discovery* finally managed to kill and preserve some three hundred birds before shaping their course for England.

Robert Bylot, now master of the vessel, put the men on short rations immediately, for all they had for the homeward voyage, apart from the wildfowl they had just shot, was a small quantity of oatmeal. Each man's daily ration consisted of half a bird and, while it lasted, a bit of the meal. And nothing was wasted. The bird skins which had been tossed aside during more prosperous times were now eaten. After the feathers had been burned off, the skins were tossed into a pot where they became "a great dish of meate, and as for the garbidge, it was not thrown away." Even the candles were finally eaten. Bennet, the cook, "made a messe of meate of the bones of the fowle, frying them with candle grease till they were crispe, and, with vinegar put to them, made a good dish of meate."

When the *Discovery* finally reached Beer Haven on the southwest coast of Ireland, the men had to pawn their best anchor and cable before they could lay in fresh supplies of bread, meat, and beer. Hiring some local men to help them work the ship, the eight survivors then sailed to Gravesend in England. There

the crew was paid off, and Robert Bylot and Abacuk Prickett went up to London to report to Sir Thomas Smith, one of the chief promoters of the voyage. During the third week of October 1611, the survivors, except for the ship's boy, Nicholas Syms, were examined by the master and wardens of Trinity House, London (Christy, ed., 1894:634). The examiners concluded that Hudson had not reached the Pacific, but had sailed into a broad bay, which was probably connected to the western sea by a passage that would be found somewhere to the northwest. This opinion was based on Hudson's report that there was a strong current flowing southeast from what is now Foxe Basin.

The Trinity House conclusions were apparently accepted without reservation by Sir Thomas Smith and his colleagues, for they immediately set about organizing another expedition to follow up the exploratory work of Hudson. To lead the expedition, they selected Thomas Button, a former naval man. With two vessels, the *Resolution* and Hudson's old *Discovery*, Button sailed for the northwest on 14 April 1612. Because his journal has not survived, our knowledge of Button's exploration and wintering is extremely limited. What we do know is derived almost entirely from the summary that was presented by Luke Foxe in his book *North-west Fox*, published in London in 1635. We know, for example, that Abacuk Prickett and Robert Bylot were among those who sailed, and we know that the expedition was provisioned for eighteen months. But the size of the crew is unknown. The instructions that Button received, however, have survived (Christy, ed., 1894:636–641). Drawn up by Henry, Prince of Wales, on 5 April 1612, they admonished Button to permit no gambling, profanity, or blasphemy, and to hold daily religious services throughout the voyage. He was to pay particular attention to Sundays and other holy days, which were to be "christianlike observed with godlie meditacions". He was to proceed first to Digges Island, and from there was to sail towards the western main in the latitude of some fifty-eight degrees. There he was to anchor off some cape or headland while he carefully measured the tidal stream. If the tidal flood streamed from the north, he was to search for the northwest passage in that direction; but if the rising waters of the tide flowed from the south, then the passage must lie to the south. This method of finding the northwest passage, or any similar passage, was standard procedure at the time. It was based on the fact that when the tide is rising in any bay or sound the water is flowing into that bay or sound from the larger body of water with which it is connected. Button was to follow the tide which would—at least in theory—lead him through the northwest passage and into the larger body of water to the west, that is, into the fabled Pacific.

Button raised the western shore of Hudson Bay at 61°40'N, or about 280 kilometres north of the present town of Churchill, Manitoba (Christy, ed., 1894:165). From there he worked his way slowly down the coast till he reached the mouth of a river, where he anchored around the middle of August. And there he wintered. He named the river the Nelson, after Robert Nelson, master of the *Resolution*, who died and was buried there. The vessels were drawn in close to the bank of the river and shielded behind barricades of timber and earth to protect them from floods and drifting ice. Living aboard the *Resolution*, the men kept three fires burning all winter; they were well supplied with ptarmigan and other fowl, which they killed in incredible numbers. They also killed many wolves and bears, as well as three deer, probably caribou, which they found swimming across the river. Yet many of the crew perished during that long hard winter. We are given no clue as to the number of men who died, nor are we told the cause of their death. We only know that the mortality rate was extremely high. But we can assume with reasonable assurance that they died of trichinosis and scurvy.

Although the ice broke up on the Nelson River on 21 April, it was another two months before the bay was reasonably clear of ice. Only then could Button move continuously northwards with his decimated crew to continue his search for the elusive passage to the Pacific Ocean. By late July he had worked his way into the passage which was later named Sir Thomas Roes Welcome (now Roes Welcome Sound) on the western side of Southampton Island. Believing that he was embayed, Button swung around to the south, headed east towards Hudson Strait, and so to England.

Although he had been unsuccessful in his search for the northwest passage, Button was convinced that such a passage did exist. He was convinced, further, that it would be found if a more thorough search of the northwest reaches of Hudson Bay were to be undertaken. Button's discoveries had proved that the master and wardens of Trinity House were correct in their appraisal of the discoveries that Hudson had made. The Pacific still lay far to the west, far beyond the bay's western shore that Button had discovered and named "New Wales".

The London merchants, led by Sir Thomas Smith,

Sir Dudley Digges, and Sir John Wolstenholme, refitted the indomitable *Discovery* in 1615 and sent her on her third and final voyage into Hudson Bay (Markham 1881:111). With Robert Bylot as master and William Baffin as pilot, the small fifty-five-ton vessel dropped down the Thames on 18 April with a crew of twelve men and two boys. By 6 May she was off the coast of Greenland, feeling her way cautiously through the heavy stream of arctic ice that sweeps down through Denmark Strait, between Iceland and Greenland. Bylot slowly conned his vessel southwards around Cape Farewell at the southern tip of Greenland, and then moved northwest into Davis Strait. But the strait was so choked with ice, and the weather so bad, that he did not raise the entrance to Hudson Strait until 31 May. On the following day, after it had snowed all morning, the weather finally cleared up. Then when a northwest wind opened a narrow channel through the ice, Bylot worked the *Discovery* into a snug harbour on the southwestern corner of Resolution Island and dropped anchor.

Following the north shore of Hudson Strait, Bylot moved steadily westwards, plotting his position so carefully that his course can still be followed today. But it was such a slow process—what with contrary winds, unpredictable currents and eddies, fog, and drifting ice—that he did not raise Salisbury Island at the western end of the strait until 29 June. From there he moved northwest into Foxe Basin, examining and checking the north and east coasts of Southampton Island. But the entire area was packed with drifting ice, the tides were uncertain, and the weather was very bad. Bylot saw little hope of ever finding a passage through these alien seas and so shaped his course for England. He passed Resolution Island on 5 August, and by 7 September the *Discovery* was riding quietly at anchor in Plymouth Sound.

The merchants of London were finally convinced that the northwest passage must lie far to the north, perhaps through the strait that John Davis had discovered in 1585. To investigate that possibility, they fitted out the *Discovery* with a complement of twelve men and two boys for yet another voyage into the Arctic. Bylot and Baffin, her old master and pilot, sailed from Gravesend on 26 March 1616 and again shaped her course for the northwest. In Davis Strait the *Discovery* passed Hope Sanderson, the northernmost point that Davis had reached, and continued for another 480 kilometres. The ship finally reached a latitude of 77°45′N—a record that was to stand for 236 years. During the summer, Bylot and Baffin mapped the entire shoreline of Baffin Bay,

noting Smith Sound, Jones Sound, and Lancaster Sound. The last, as it turned out, was not a sound. Although they failed to recognize it as such, it was in fact the long-sought entrance to the northwest passage. Upon his return to England, Baffin wrote to Sir John Wolstenholme that "there is no passage nor hope of passage in the north of Davis Straights. We having coasted all, or neere all the circumference thereof, and finde it to be no other than a great bay, as the voyage doth truely shew" (Markham 1881:150).

When the English merchants shifted their attention to Davis Strait and the higher northern latitudes in 1616, Hudson Bay again faded into limbo. The English no longer had any reason to visit that ice-encrusted body of water, for they had seen it only as a passage. It had failed to live up to its early promise, and so it was abandoned. It simply had no intrinsic value. While the English had been exploring the bay, however, their comings and goings were watched with considerable interest—and possibly envy—by King Christian IV of Denmark and Norway. That monarch had taken an active personal interest in the expansion of Danish trade and industry, particularly in the whale fishery in Spitzbergen, far to the north of Lapland. And like the Dutch, the French, and the English, he was anxious to share in the incredible wealth that was being generated by the trade in oriental spices. He decided, therefore, to undertake his own search for the northwest passage.

Selected to head the expedition was Captain Jens Munk, probably the best-known and most able seaman in the Danish navy. With two vessels, the *Unicorn* and the *Lamprey,* Munk sailed from Copenhagen on 9 May 1619 with a crew of sixty-four men—forty-eight in the *Unicorn* and sixteen in the *Lamprey* (Gosch 1897:6). Shaping his course to the northwest, he passed between the Orkney Islands and the Shetland Islands, and continued until he sighted the Faeroes. From there he angled off to the west until he raised the coast of Greenland at 61°25′N on 20 June. As usual, the coast was bristling with ice, which forced him to stand some thirty kilometres or more off shore. But he worked his way to the south, passed Cape Farewell on 30 June, and headed northwest into Davis Strait. This too was packed with ice, and before Munk was able to reach the western end of Hudson Strait, he had mistakenly sailed into both Frobisher Bay and Ungava Bay. But he finally arrived at Digges Island, and then continued to Mansel Island. Because the instructions that the court had given him have not survived, we have no clue as to his plans. We know only that he sailed from Mansel

Island in a southwesterly direction until he picked up a low wooded shore on 7 September 1619. And there, in the estuary of what is now the Churchill River, he settled down to spend the winter.

Working his ships across the rock-strewn tidal flats, he moored them as close as possible to the western edge of the river, and then banked them up with wood, earth, and stones to protect them from drifting ice. Taking the heavy brass cannon from the upper decks, he stowed them in the hold of the *Unicorn*. Next he built three large fireplaces, two on the deck and one in the steerage, so that all the men would have places to warm themselves and dry their clothing. A small building on shore completed his arrangements for the wintering.

When the crew had settled in, Munk must have been well pleased with his situation. The vessels were sound, the men were healthy, and food and drink were plentiful. He had a surgeon aboard to see to the physical well-being of the men and a priest to keep them spiritually vigorous. And at 59°N his winter harbour was some 120 kilometres farther south than Bergen, Norway. Since the entire Norwegian coast, even as far north as Lapland, is ice-free all winter, he was not at all worried that the weather was deteriorating rapidly. What he did not know, of course, was that the entire Scandinavian coast was warmed by the gentle currents of the Gulf Stream; at the mouth of the Churchill River, on the other hand, he was exposed to the raw fury of an arctic winter.

During the fall and early winter the men spent much of their time ashore, hunting ptarmigan and trapping small game. Munk encouraged them in these pursuits since this kept them active and also provided the party with the occasional bit of fresh meat. But dropping temperatures and deeply drifting snow finally made hunting impossible. Confined to the ship, the men could do nothing but huddle around the fires. They remained healthy, however, until the beginning of the new year, when a strange and fatal malady spread rapidly throughout the crew. The men had scurvy, which they recognized, but were also suffering from some additional and terrifying ailment which they could not identify. "It was a peculiar malady," Munk wrote in January, "in which the sick men were usually attacked by dysentery about three weeks before they died" (Kenyon, ed., 1980:26).

By the third week in May, most of the crew had perished, while the few survivors were lying helplessly in their bunks. The bodies of the men who had died earlier had been buried with at least a semblance of Christian ritual, but that was no longer

possible. Now the bodies "were simply left in the steerage, for there was no one left who had the strength to bury them, or even to throw them overboard." Elaborating on his earlier comment, Munk then described their malady:

> The illness that had fallen upon us was rare and extraordinary, with most peculiar symptoms. The limbs and joints were miserably joined together, and there were great pains in the loins as though a thousand knives had been thrust there. At the same time the body was discoloured as when someone has a black eye, and all their limbs were powerless. The mouth, too, was in a miserable condition, as all the teeth were loose, so that it was impossible to eat. (Kenyon, ed., 1980:34)

This strange catalogue of infirmities contains some of the well-known symptoms of scurvy, but it probably contains symptoms of trichinosis as well (Young 1973:9–15). In any event, half of the crew were dead by March 1620, and by 4 June only Munk and two of the men were left alive. In spite of their weakened condition, the three survivors of that terrible winter managed to work the small sloop, the *Lamprey*, back to Norway, where they dropped their anchor on 21 September 1620. It had not been a prosperous voyage.

The English, meanwhile, reminded themselves from time to time that there was still a portion of Hudson Bay that had not been explored. No European had ever seen the stretch of coastline to the east of Button's wintering place at the mouth of the Nelson River. Hudson had mapped the bay where he had wintered far to the southeast, but what lay in between these two known points? And even those parts of the bay that had been visited had not been thoroughly explored. There was a distinct possibility, then, that a northwest passage might yet be found if the shores of that vast inland sea were examined more thoroughly.

Philosophers and cosmographers had been arguing for generations about whether or not a northwest passage did in fact exist; generations of merchants had calculated to the nearest farthing the profits that such a passage would surely provide. The discovery of new lands and trade routes was also of interest to the king and court, for such exploits bathed the crown in reflected glory and also made substantial contributions to the royal coffers. And so in 1629, when Luke Foxe, a master mariner of Hull,

petitioned the English court for assistance with yet another voyage to the northwest, King Charles I agreed to provide him with a vessel.

Foxe selected the *Charles*, a vessel of some seventy or eighty tons, and signed on a crew of twenty men and two boys. With the assistance of the London adventurers he provisioned her for eighteen months, and then dropped down the Thames from London on 15 May 1631. Because the discoverers of the northwest passage would be granted a monopoly of the very lucrative trade through that waterway, there was an intense commercial rivalry between the merchants of the different seaports at the time. The merchants of Bristol, therefore, decided that they, too, would send an expedition in search of the northwest passage. First, however, they approached the court, suggesting that the two groups of merchants, those of London and those of Bristol, should share in the rights and privileges that would result from any important discovery. When King Charles agreed, the Bristol Society of Merchant Venturers prepared the seventy-ton *Henrietta Maria*, named after England's queen, for a voyage of eighteen months. Captain Thomas James, a native of Bristol, was placed in command of the vessel, which, like Foxe's *Charles*, had a crew of twenty-two men and boys. James set sail from Bristol on 3 May 1631.

The journal that Foxe published in 1635 (Christy, ed., 1894:261–407) carries the following warning: "Gentle reader, expect not heere any florishing Phrases or Eloquent Tearmes; for this Child of mine, begot in the Northwest's cold Clime (where they breed no Schollers) is not able to digest the sweet milke of Rethorick that's food for them." This is a timely warning, for Foxe, whose formal education was apparently quite limited, presents us with some rather pedantic and convoluted prose. His style, however, does not obscure the fact that he was an excellent seaman, an exceptionally well trained navigator, and an astute observer. He was, for example, one of the first navigators to use logarithms in his computations, a skill learned from his patron, Henry Briggs, the mathematician.

Leaving the Thames, Foxe sailed north along the east coast of England to the Orkneys, before shaping his course for the new world. He apparently stayed south of the usual track, for he failed to pick up the east coast of Greenland, although he did encounter some of the usual ice when he was off Cape Farewell at the southern tip of Greenland. The first land he raised, on 20 May, was the North Foreland at the entrance to Frobisher Bay. The bay, of course, was packed with drifting ice, but Foxe managed to work

his way south to Resolution Island, where he turned west into Hudson Strait.

After coasting the north shore of the strait, he sailed south of Nottingham and Coats islands, and then headed northwest into the channel between Southampton Island and the mainland to the west. Foxe recognized this as the same channel that Thomas Button had explored eighteen years earlier. On 27 July, at 64°10'N, Foxe discovered an island that he named Sir Thomas Roes Welcome and described as follows:

> The Island was a Sepulchre, for that the Salvages had laid their dead (I cannot say interred), for it was all stone, as they cannot dig therein, but lay the Corpses upon the stone, and wall them about with the same, coffining them also by laying the sides of old sleddes above. (Christy, ed., 1894:319)

From there Foxe shaped his course to the south, following the coast, which he searched for a passage that might lead to the west. Although he reported that he was "never without sight of land", he failed to notice the broad entrance to Chesterfield Inlet. By 8 August he was anchored off the shoals at the mouth of the Nelson River. He spent the next two days working his way slowly into the shoal- and rock-strewn mouth of the river. Foxe, at the time, was looking for a convenient spot to assemble a prefabricated pinnace he had brought with him from England. He was also anxious to find a decent piece of timber that he could fashion into a new mainyard for the *Charles*, the old one having been damaged.

Foxe finally found a likely spot on the north bank of the river and dropped anchor in five fathoms.

> The ship being moored [he writes] I went on land and found the Vallie very convenient to set up a tent and to build the Pinnace in; and here wee found some store of Hogsheads and Pipestaves which had been yron-bound, one main top, a top-gallant mast, diverse blocks, and the sides of staved chests, and diverse reliques of some *English* Vessell, which I tooke to have perished, or been left, not farre from hence. And indeed I did assure my selfe it must be that of *Sir Thomas Button*; but as yet I have not found a tree will make a Mayne yard. (Christy, ed., 1894:342–343)

A few days later, while most of the men were helping the carpenter set up the pinnace, Foxe sent the

surgeon—or Chirurgen, as he called him—with Samuel Blades, one of the men, to search for a tree large enough to fashion into a mainyard. When the two returned from searching the river bank to the east of their camp, they reported that all the trees in the area were too small. However, they also reported that on a little creek about two kilometres away, they

> had found on shoare certaine broken anchors and cable rope, with other small ropes, also one broken Gun, with many round and crosse-barre shot of lead and yron, one Grapnel, and store of firewood piled up, with one tent covered with old sailes, and a Crosse, which had been set up, but was puled or fallen down, with the inscription rased out. (Christy, ed., 1894:344)

These, of course, were additional relics of Button's wintering.

By the eighteenth, with the pinnace completed and stowed on the deck of the *Charles* and with a two-weeks' supply of firewood aboard, they were ready to leave. First, however, they raised the fallen cross they had found, and nailed to it a sheet of lead bearing the following inscription:

> I suppose this Crosse was first erected by Sir Thomas Button, 1613. It was againe raised by Luke Foxe, Capt. of the Charles, in the right and possession of my dread Soveraigne Charles the first, King of Great Brittaine, France and Ireland, Defender of the Faith, the 15 of August, 1631.
> This land is called New Wales. (Christy, ed., 1894:348)

Held up by adverse winds, Foxe was not able to clear the river mouth till 20 August, when he continued examining the unexplored coastline stretching away to the southeast. Nine days later, near the mouth of the Winisk River, he met Captain Thomas James in the *Henrietta Maria* of Bristol. The two explorers dined together aboard James's vessel, and then went their separate ways. Foxe continued eastwards to what is now Cape Henrietta Maria at the top of James Bay.

From there, he sailed almost due north until he raised the coast of Coats Island; then, shaping his course to the northeast, he sailed into Foxe Channel and so into Foxe Basin. He was still looking for a strong tidal flood from the west or northwest, a flood that could only come from the western sea. But he

could find no such flood. Finally, at 65°30'N, he made the following entry in his journal:

> The weather had beene for about 3 weekes before, nothing but snowe, frost and sleet at best, our selves, ropes, and sayles froaze, the sun seldome to be seene, or once in five dayes, the nights 13 houres long, the moon wayning. And in conclusion, I was enforced either to seeke for harbour, or freeze to death in the sea. (Christy, ed., 1894:412)

The nearest harbour was at Port Nelson, and even if Foxe could reach that haven, there was the possibility that his provisions would not last through a long arctic winter. These considerations were reinforced by the memory of the terrible mortality that had been suffered by the Hudson and Button expeditions during their winterings. On 12 September, therefore, he sailed for home.

When Thomas James met Foxe off the mouth of the Winisk River on 29 August, James had already been in Hudson Bay for well over a month. Having cleared Hudson Strait on 16 July, he sailed directly across the bay to Hubbarts Hope, at 59°40'N, where he arrived on 11 August. Following the coast to the south, he examined the shoreline and checked the tides, but failed to locate either a passage to the west or any other significant geographical feature. Until he was east of Port Nelson, of course, he was following the coastline that had already been explored by Thomas Button. James arrived at a cape that he named Cape Henrietta Maria on 3 September. Although their paths did not cross, Foxe arrived there on the same day.

James spent the next month—from 3 September to 3 October—in a vain attempt to work his way south to a more congenial climate. Actually, he was hoping to find a passage that would lead him to the "River of Canada", that is, to the St Lawrence. But he was trapped in a maze of small islands, reefs, and shoal water—a maze of such complexity that it has not yet been charted. All hope of reaching a more temperate climate had to be abandoned when constant rain, fog, and snow squalls warned them that time was running out.

Realizing finally that he was trapped, James searched frantically for some protected bay or creek where he could winter his ship. But none could be found. Finally, after a heavy gale that lasted several days, James found himself in a shallow, reef-strewn bay. When the gale moderated on 3 October, he moved deeper into the bay and dropped anchor.

Presently [he tells us] I went ashore to see what comfort I could find. That was the first time I put foot on that island, the island where we were destined to spend the winter. I noticed deer tracks and some fowl: but what excited me most was a break in the coastline that looked like the mouth of a river. We hurried over with great hopes but found the entrance to be solidly blocked by a sand-bar that was covered at high tide by only two feet of water. Yet inside the bar was a most excellent harbour with four fathom of water. In the evening, when I returned aboard, I had nothing but hopes with which to comfort our sick men. (Kenyon, ed., 1975:57)

By that time, with the bay beginning to freeze over and with many of the men weakened by exhaustion and scurvy, James realized that he could no longer move the vessel. All he could do was to lay out a heavy anchor and winch her as close to shore as possible. Then he took in his sails—the very wings of his ship—and settled down for the winter. The crew meanwhile had built a small structure on shore, where the sick could be housed in relative comfort. By 26 October the situation was so desperate that James decided to carry all his provisions ashore, and then winch his vessel out into deeper water and sink her. He was fully aware of the risk he was taking, but felt that he had no choice, for by that time the ship was so heavily coated with ice that some of the ropes were as thick as a man's waist. If a storm should descend upon them—as one surely would—the rising surf would pound the ship against the bottom with such violence that she would be destroyed. It was a hard decision, yet not without precedent; James probably knew that in 1577, only fifty-four years earlier, Martin Frobisher had sunk a pinnace on Baffin Island, "minding to have him againe next year".

Once the decision to sink her had been made, the men started ferrying their gear ashore. As the bay gradually filled up with drifting ice, James and his men prayed that it would freeze solid and relieve them of the terrible extremity of sinking the only vessel that could carry them to safety. But it was not to be. On the twenty-ninth, when a gale from the northwest raised a heavy surf, the *Henrietta Maria* began pounding heavily and rhythmically against the bottom. In desperation James and the carpenter descended into the bowels of the ship with a large auger and drilled a hole through her side. As the vessel slowly filled with water, the pounding grad-

ually subsided. By late afternoon she was bedded deep in the sand, with only her superstructure and naked spars rising above the waves.

The camp where James wintered consisted finally of three small buildings. Their dwelling house was a wattled structure, 20 feet (about 6 m) square, covered with the mainsail from the ship. Apart from the gables, which rose to the ridge-pole, the walls were 6 feet (about 1.8 m) high. A small hole was left at the top of each gable so that smoke from the central fire could escape. After the inside of the house had been lined with strips of canvas, bunk beds were built against three of the walls. Their second structure was a cookhouse and dining room slightly smaller than the first, but built in the same way. The third structure was a simple lean-to used as a storehouse. Because of the danger of fire, the buildings were placed 20 feet (about 6 m) apart. In honour of Charles, Prince of Wales, James named their lonely settlement "Charles Town", which they contracted to "Charlton", and the island, "Charlton Island".

As the snow rose higher and higher around the houses, it became increasingly difficult to trap the foxes that provided the men with an occasional bit of fresh meat. Even collecting dry wood for the fires became a problem. But their main problems throughout that long hard winter were the piercing cold and scurvy. By February two-thirds of the men were under the surgeon's care for scurvy and frostbite. "Some," James tells us, "had sore mouths and loose teeth, and gums so swollen with rotten flesh that the surgeon had to cut it away daily." And shortly after Christmas "many of the men were afflicted with such sore mouths that they could eat neither beef, pork, fish nor porridge. Their diet consisted mainly of bread and oatmeal which they pounded into flour in a mortar, then fried in a frying-pan with a little oil" (Kenyon, ed., 1975:93).

By 15 May most of the snow was gone and the ponds and small lakes were free of ice, but the bay itself was still solidly frozen. Not till the end of the month was there enough open water along the shore for them to reach the ship by boat. At that time they found vetches growing along the shore. These they picked and fed to the sick men, with results that were virtually miraculous. Each day they picked more of the tender green shoots as they appeared through the sand. After they were washed and cooked, "we ate them with oil and vinegar that had been frozen. It was an excellent and refreshing sustenance, and most of us ate nothing else. Sometimes we would crush them and mix the juice with our beverage; sometimes we ate them raw with our bread."

On 22 May the men went out to the vessel at low tide, manned the pumps, and pumped her completely dry. Then they plugged up the holes they had bored through the hull to sink her, so that she could rise with the incoming tide. Removing the ballast to lighten the craft, they gradually winched her out into deeper water and dropped anchor. They spent the next month digging the ice out of the ship, bending on the sails, and hauling their gear aboard. Then, on Monday, 2 July 1632, James made the following entry in his journal:

> We were up early, stowing our gear, putting things in order and weighing our anchor. When the last anchor was raised, we knelt in prayer, beseeching God to continue his mer-

cies to us, and thanking him for having thus restored us. We found that the ship was sound; we still had plenty of the provisions which we had brought out from England and we were in fairly good health and getting stronger by the day. Thus we weighed anchor and came cheerfully to sail.

When James arrived back in Bristol on 22 October 1632, he was convinced that there was no northwest passage below 66°N. And any passage lying in a higher latitude would be so remote and so pestered with ice that it would have no commercial value. The merchants of Bristol, and indeed of all of England, apparently accepted James's verdict. The search for a northwest passage was abandoned.

Fur Traders on the St Lawrence

In 1631, when Thomas James was building Charles Town at the bottom of James Bay, the French were already established on the St Lawrence River far to the southeast. Champlain's Quebec was twenty-three years old at the time, having been founded in 1608. Maisonneuve's settlement at Montreal, on the other hand, was not established till eleven years later, in 1642. It was the search for furs that drew the French farther and farther up the St Lawrence; ultimately, it lured them so far to the west that they would see the snow-clad peaks of the Rocky Mountains shimmering on the western horizon.

The fur trade had started on the eastern seaboard, where it was quite incidental to fishing. It was started by the fishermen who met the local Indians when they put ashore to dry their codfish. These men were in an enviable position. Small items that were of little value to a European could be traded for furs that commanded an excellent price on the home market. This trade was particularly attractive to the fishermen because the items they offered in trade were frequently tools, bits of metal, canvas, rope, and similar items that were part of the ship's gear, and thus the property of the shipowners. In addition, the traders had been spared the inconvenience of paying shipping charges on the trade goods that they brought to the new world; nor were they charged for transporting the furs back to the markets of Europe.

Although the French had first been attracted to the Gulf of St Lawrence by the fishing, the fur trade rapidly assumed a greater significance in the economy of New France. During the second half of the 16th century, "vessels were sent out to an increasing

extent to engage only in the fur trade" (Innis 1962:29). As the trade expanded, two things happened. First, the supply of fur in the coastal regions was rapidly depleted. By 1635, for example, "the beaver were disappearing around Three Rivers and the supply of beaver was obtained to an increasing extent from more remote areas" (Innis 1962:28). Second, provision had to be made for collecting and storing the furs in order that a ship bringing a cargo of trade goods to the new world could return immediately with a full load of furs.

The latter problem was solved by the French government when it established a monopoly under which all furs from a region were to be deposited in a central warehouse; the other problem, the rapid depletion of fur-bearing animals in the coastal areas, was not resolved so readily. Initially, the coastal peoples acted as middlemen, collecting furs from the more remote bands when their own resources were exhausted, and carrying them to the traders in the coastal settlements. The importance of this trade to the natives can hardly be exaggerated. A Gaspésian summed it up graphically when he told the Jesuit Le Clercq (1910:277), "In truth, my brother, the beaver does everything to perfection. He makes us kettles, axes, swords, knives, and gives us drink and food without the trouble of cultivating the ground."

Even though the trade with the upland Indians was largely in the hands of the native middlemen during this period, the French did not confine themselves entirely to their coastal settlements. Independent traders frequently moved inland, as did missionaries and explorers. These independent

traders were a constant threat to the government monopoly and were virtually impossible to control. Many bales of fur that should have been deposited in a government warehouse found their way aboard a passing ship instead. "Complaints were also made that the laborers broke their contracts and deserted to the fishing boats at Ile Percée, paying for a return passage to France with smuggled furs" (Innis 1962:40).

Various schemes were devised over the years in an attempt to control the traders, but their share of the commerce gradually increased. The Indians themselves, however, continued to dominate the trade. Most of the furs that were brought to the French settlements were still being carried there by native middlemen, particularly the Huron, who collected furs from a vast area to the north and west of Huronia. The independent traders were a threat to the government of New France because furs were the only significant export of the colony and the tax on furs was its major source of revenue. But a far greater threat was posed by the Iroquois, who harrassed both the French and their Indian allies in an effort to seize control of the trade with the western tribes. Briefly, the Iroquois were attempting to supplant the Huron as the middlemen in the western trade and to divert the rich stream of furs from the French settlements on the St Lawrence to the Dutch settlements on the Hudson. In 1649 the Iroquois attacked Huronia; they demolished the Huron confederacy and scattered the terrified survivors of their onslaught. And before the trade with the western Indians could be re-established, the French settlements were nearly wiped out as well.

A few of the dispersed Huron, meanwhile, arrived in Montreal during the summer of 1653. They told the French that they had collected a large quantity of furs in their new settlement far to the west, and that they would bring them to Montreal the following summer (*DCB* 1966:223). They said they would come in such large numbers that they could defy the Iroquois. By the time the Huron arrived the following summer, however, the French and the Iroquois had settled their differences. They were at peace.

When the Huron returned to their new settlement, they were accompanied by Médard Chouart, sieur des Groseilliers. After extensive exploration, he returned to Montreal in 1655 with a fortune in furs and tales of a great river, far above Lake Superior, that flowed into a northern sea. Four years later des Groseilliers returned to the high country, *le pays d'en haut*, together with his brother-in-law, Pierre-Esprit Radisson (*DCB* 1969:540). These legendary figures continued exploring the Superior country, including the north shore of the lake, and again they heard of a great northern river and the rich bounty of furs that could be harvested there. On 20 August 1660 the explorers returned to Montreal with three hundred Indians in a flotilla of canoes and with enough furs to ward off the economic disaster that was threatening the colony.

By this time Radisson and des Groseilliers were convinced that the simplest and most profitable method of tapping the huge reservoirs of northern beaver was to sail a ship through Hudson Bay. They tried to interest the government of New France in such a project, but the reaction of the bureaucrats was not enthusiastic. The officials probably realized that there would be nothing to stop the northern furs from being taken directly to the markets of Europe rather than to the government warehouses on the St Lawrence. Payment of an unjust tax to a greedy official would not be a compelling reason for a successful trader to return to Montreal. Radisson and des Groseilliers therefore took their proposal to New England, where it was given a more congenial reception. During the next few years they made at least two abortive attempts to reach Hudson Bay by ship (*DCB* 1969:537). Then in July 1664 they met Sir George Cartwright, an emissary of Charles II, who persuaded them that they could get the necessary backing for their venture in London. They sailed for England on 1 August 1665.

Three years later the men who were to found the Hudson's Bay Company dispatched two small vessels for Hudson Bay—the *Eaglet*, with Radisson aboard, and the *Nonsuch*, with des Groseilliers aboard. The *Eaglet* was so severely damaged in a storm that she had to limp back to England. The *Nonsuch*, however, completed her historic voyage, wintered at the mouth of the Rupert River, and returned to England with a fine cargo of beaver skins in early October 1669. The following spring, on 2 May 1670, the Hudson's Bay Company was granted its charter.

Although the subsequent history of the Hudson's Bay Company was examined in considerable detail over the years, many parts of the story remained obscure. Where, for example, had the first post been built in the Albany estuary, and what did it look like? The early company records that might have answered these and similar questions have not survived. Historical records, however, are not the only source of historical data; the early post itself would yield up invaluable information if the site could be located and excavated by a historical archaeologist.

2

Excavations at Fort Albany

During the summer of 1959 Mr Frank Fogg, who was then with the Department of Travel and Publicity, Province of Ontario, visited a number of settlements in northern Ontario to gather information on historic sites and buildings. When he arrived at the mouth of the Albany, on the west side of James Bay (Fig. 2), he was told of a spot on the south bank of the river where generations of peoples had picked up old cannon balls, broken bottles, kaolin pipes, and stray bits of rusted iron. Visiting the site (Fig. 3) the following morning, Fogg learned that the report was correct. Although the site was covered with a thick spongy mantle of fallen trees and decaying wood fibres, he could still pick up clay pipe stems, bits of iron, and fragments of old wine bottles without disturbing the site itself. Fogg noted too that the deposit of ancient relics was probably derived from a wooden fort which had formerly occupied the site. The fort had consisted, apparently, of a rectangular structure with a flanker or bastion projecting outwards from each of its four corners. And it was surrounded by an old ditch which appeared to have been a moat.

When Fogg returned to Toronto a few days later, his report to the Department of Travel and Publicity aroused a great deal of interest among historians, archaeologists, and archivists, as well as among the general public. The following provincial bodies were particularly interested: Public Records and Archives, the Archaeological and Historic Sites Board, the Department of Lands and Forests, and the Royal Ontario Museum.

Over the next few weeks a series of meetings was held in Toronto to discuss Fogg's report. It was obvious from the beginning that finding the undisturbed site of any early Hudson's Bay Company post would be of major historical and archaeological significance, for we had virtually no information on the architecture of the early posts. Nor did we have examples of the tools and materials used to build the posts, or of the household utensils used by the men who lived in them. And, in addition, we lacked concrete examples of the axes, kettles, knives, blankets, and similar items that were the currency of the fur trade. On the other hand, we did know that the company's first three posts had been built at the mouths of the Rupert, Moose, and Albany rivers. We knew also that the first post built at Albany had been established between 1674 and 1679, but we did not know its exact location. We knew only that it had been built somewhere on the broad, island-studded estuary of the river, and possibly on Bayly Island, the modern Albany Island (Rich 1960:81). We had, however, one further source of information: the records left by Pierre de Troyes, who travelled overland from Quebec in 1686 and captured all three of the Hudson's Bay Company posts in James Bay (Caron, ed., 1918; Kenyon and Turnbull 1971).

De Troyes's records are in two forms: first, he pro-
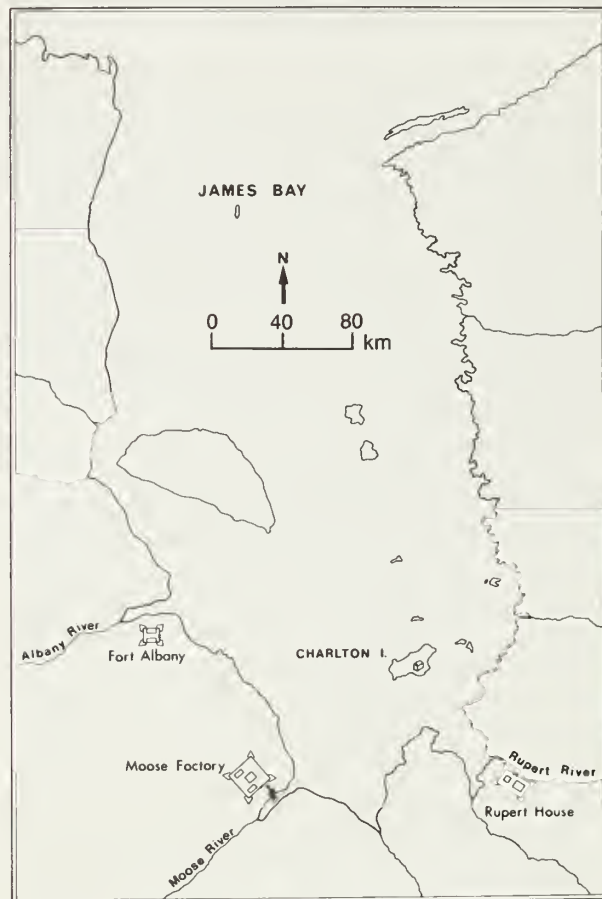
Fig. 2 Map of James Bay, showing locations of Hudson's Bay Company establishments in 1686.
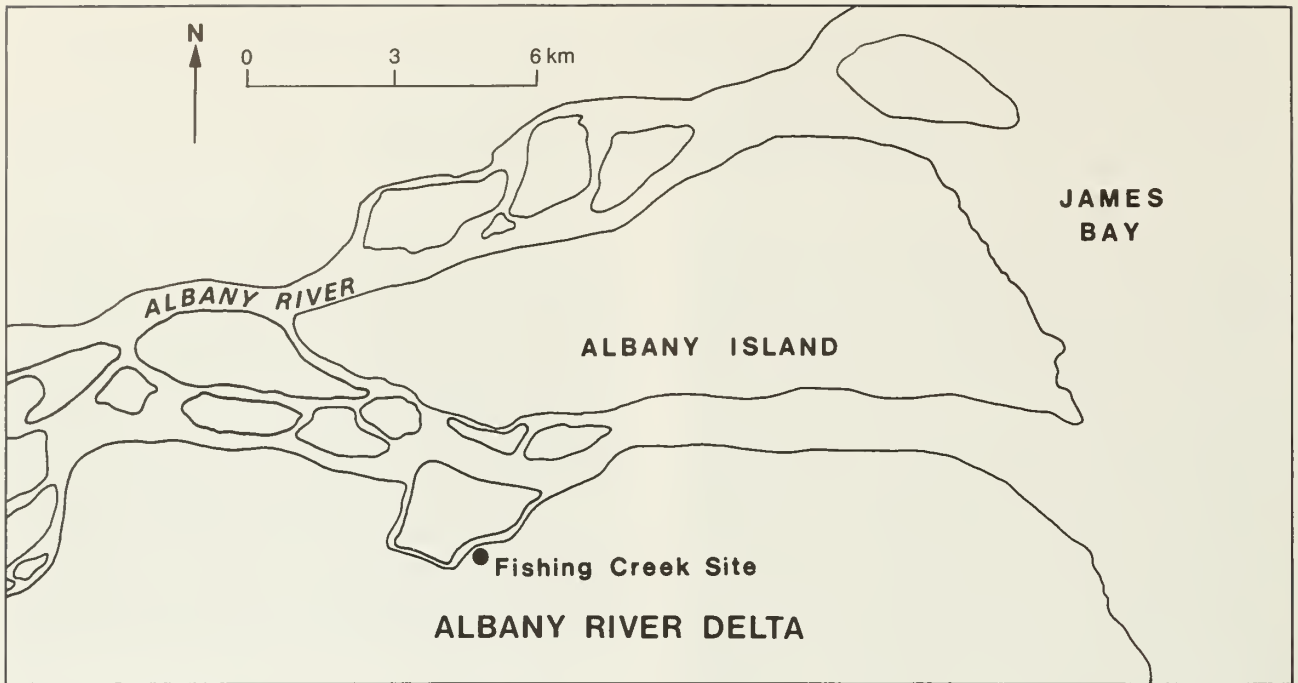
Fig. 3 Mouth of the Albany River, with Fishing Creek site.

vides us with a brief written description of each of the posts, and second, one of his officers, Pierre Allemand, drew a map of James Bay which included a ground plan of each of the forts (Fig. 4). Although no scale was provided, an examination of the de Troyes journal showed that the written descriptions of the forts agreed quite closely with Allemand's sketches, that is, we could presumably accept Allemand's drawings as accurate, subject only to archaeological confirmation. It was decided, therefore, that I should undertake a preliminary archaeological assessment of the Albany site.

My specific objective was to answer three questions: (1) Was the site actually the remains of an old wooden fort? (2) If it was a fort—or any other structure, for that matter—was it sufficiently well preserved that its excavation would enable us to draw an accurate, or reasonably accurate, ground plan of the establishment? (3) Was the artifact content of the site as high as it appeared to be, that is, could the excavation of the site be expected to provide us with a representative sample of the artifacts that the newly formed Hudson's Bay Company had carried to the James Bay posts during its formative years?

I paid my first visit to James Bay early in the following summer, in 1960, travelling by train to Moosonee, and then on to Albany in a small plane on floats. We landed at the mouth of Fishing Creek, in front of a large, white frame house, the home of William

Anderson, a trader. Mr Anderson—or Bill, as he is usually called—kindly provided us with a boat and motor, and a guide to take us to the site. He was quite astonished at my excitement, for he and other residents of Albany had known for years that there was an abandoned fur-trade post on the south bank of Fishing Creek. This knowledge had been handed
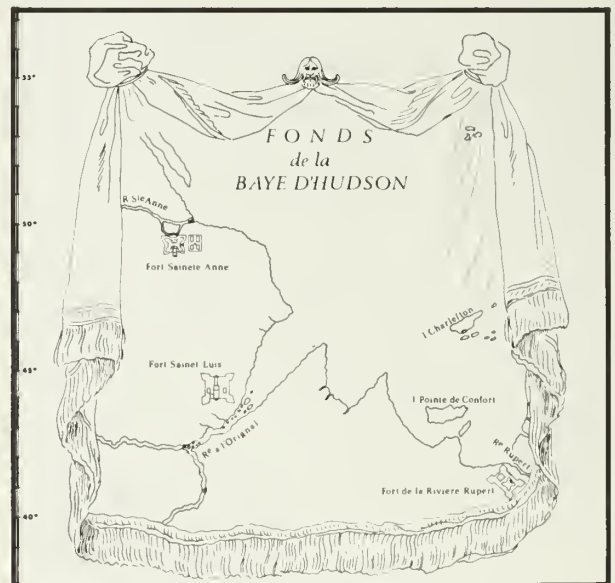
Fig. 4 Pierre Allemand's 1686 map (redrawn).

down from generation to generation for about two and a half centuries. "In fact," Bill told me, "Fishing Creek is called Old House River in Cree."

When I visited the site the next morning, I found that it was just as Fogg had described it. It stood in a clearing, which someone had logged off perhaps ten or fifteen years earlier, in the midst of the dense stand of spruce that lines both banks of the river. Although most of the logs had been hauled away, leaving only the limbs and stumps, two small piles of rotting logs were still lying there. A thick spongy mass of decaying wood fibres covered the entire site. And over this were dense patches of young poplar and spruce trees, particularly along the northern edge of the clearing, and a random scattering of gooseberry and raspberry bushes, as well as horsetails and fireweed.

Because the site was covered with brush, any overall topographic pattern that might have been present was obscured. No matter where one stood, only a small portion of the site could be seen at any one time—a broad deep ditch, a pile of masonry rubble, or a shallow depression. But as we stumbled through the undergrowth, a pattern quickly emerged. For example, when we entered the clearing, we crossed a ditch that was about a metre and a half deep and some four metres wide. As we soon learned, the ditch was part of the moat that Fogg had mentioned, for it surrounded the plateau on which we were standing. The moat appeared quite symmetrical, with smoothly rounded corners and slightly rounded sides when viewed from within.

The general position and shape of the flankers or bastions was established without too much difficulty, for they were outlined by low ridges of earth which pointed outwards towards the corners of the moat. Although the floors of the bastions were relatively flat, they were thirty to forty-five centimetres

Fig. 5 Details of corner construction, Fort Albany. Not drawn to scale.

below the level of the central compound. In the southeast flanker was a low mound that appeared to be composed of masonry rubble—two different kinds of bricks and what seemed to be fragments of English roof tiles. Two other piles of masonry rubble were found inside the compound itself, one just inside the centre of the north moat, the other just inside the centre of the south moat. On the east side of each of the rubble piles within the compound was a broad, shallow depression. There was a third depression just inside the middle of the western moat, but this one was not associated with a rubble pile. It was also much deeper than the others. All the depressions, incidentally, were partially filled with water, as were several parts of the moat.

A preliminary survey at this time showed that the elevation of the central compound of the fort was about the same as that of the surrounding forest floor. The bank of the river, just north of the fort, was about nine metres above the level of Fishing Creek when the tide was approximately in the middle of its range on 1 June 1960. The creek itself was some 145 m wide at that point. And from the horizontal, the steep clay bank sloped downwards at an angle of sixty degrees.

When the salient features of the site had been examined and recorded, we started to remove the overburden from a small area within the compound to examine the actual surface of the fort itself. The spot we selected covered no more than three or four metres square and was chosen because it was relatively level, as well as relatively free of saplings and stumps. As soon as the overburden had been stripped away, we encountered a smooth, hard-packed, gravelly clay that was obviously an old occupation level. It was liberally sprinkled with birdshot, bowls and stems from broken kaolin pipes, rusty hand-wrought nails, small glass beads, bird bones, and bits of broken glass. Then, along the northern edge of the small area we had trowelled smooth, we unearthed the southeastern corner of a wooden building. Our discovery was not nearly as impressive as it sounds. What we actually found were two very badly decayed timbers that formed a right angle. From their intersection, one of the timbers ran north until it disappeared beneath the overburden; the other timber ran west for about thirty centimetres, and then it too disappeared under the overlying mantle of rubble. Both of the timbers were about 18 inches (about 46 cm) wide. Careful sectioning showed that the logs intersected in a half-lap joint (Fig. 5) which was pinned together by three large and one medium-sized wrought-iron spikes.
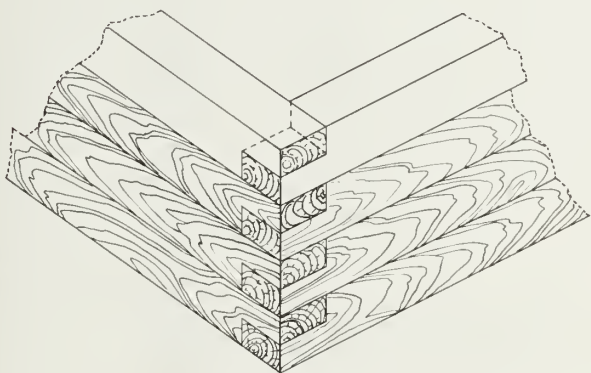
Nestled against the southern edge of the east-west timber were two small cannon balls (Pl. 1).

Following the east wall of the structure, we found that it ended at another corner just inside the northern moat. This too was a half-lap joint pinned together with huge iron spikes. We now had the east wall of a building, as well as the eastern ends of both the north and south walls. Measured from the centres of the clusters of spikes, the east wall was 25 feet (7.6 m) long. Although the east wall had been very easy to follow, the south wall was an entirely different matter. As we moved westwards, the log simply disappeared from time to time. Throughout most of its length, however, we could detect at least some traces of the old timber. And then, at 40 feet (12.2 m) west, we found the end of the log, again marked by a cluster of spikes where it was lapped into the west wall of the structure. Because we were running out of time, we did not attempt to expose the west wall; we simply measured 25 feet (7.6 m) north from the corner we had just located, and 40 feet (12.2 m) west from the northeastern corner, and then peeled back the rubble. And there, projecting from the bottom of our small hole, were the heads of three heavy spikes. We had located and partially mapped a structure that measured 25 feet × 40 feet (7.6 m × 12.2 m).

While we were exposing and mapping the walls of the rectangular structure (Fig. 6), a couple of men had been stripping away the overburden from the interior. By the time we were finished, a clear picture was beginning to emerge. One of the piles of masonry rubble that we noted earlier was found to be exactly in the centre of the structure we were excavating. It consisted entirely of English roof tiles carefully set in mortar, and it appeared to be the base of a stove or fireplace. The depression in the east side of the heap of tiles seemed to have been a cellar. But it was time to return to Toronto. We spread a thin layer of earth over our excavations to protect the exposed areas from the weather, packed the artifacts and records we had collected, and headed south.

My report to the various government officials at Toronto was brief but positive. The Fishing Creek site was indeed an old fort. It was built of horizontal logs that had probably been squared. There was every indication that continued excavation would provide us with a ground plan of the establishment, as well as with a large and varied assortment of artifacts. It was agreed by all concerned that the project should be continued. Because of previous commitments, most of my time was taken up by other matters during the following winter. At odd moments, however, I attended to the conservation and cataloguing of the specimens we had collected and made arrangements to continue the excavation. I also set up a small conservation laboratory to deal with the
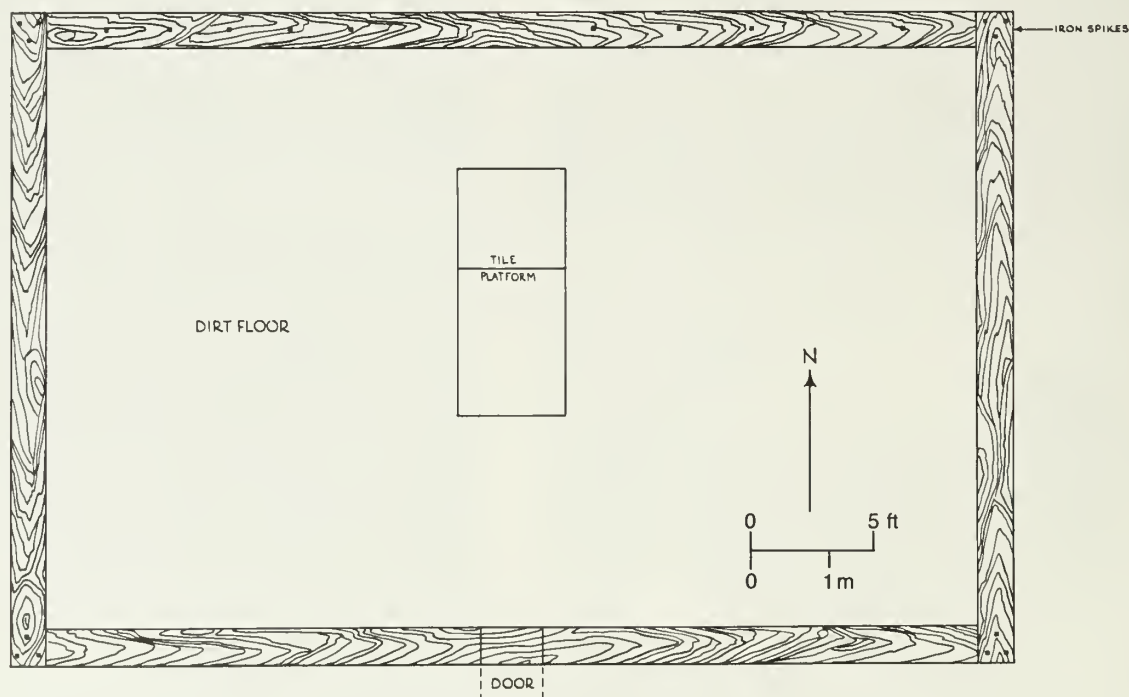
Fig. 6 Ground plan, House No. 1, Fort Albany.

large quantity of rusty iron that such an excavation would produce.

For the next five years—1961 to 1965—I worked at the old fort each summer, with major excavations in 1961 and 1963. During the 1961 season we completed the excavation of the house we had worked on earlier, and exposed and mapped the two northern flankers. First we removed the protective layer of rubble we had strewn across our earlier excavations and laid out an east-west survey line across the site, a line that was parallel to the north wall of the house. On this line we established a grid system that covered the entire site, including the moat. When this was completed, we learned that grid north was nine degrees east of astronomic north.

As we continued the excavation, we found that the north wall of the structure was very well preserved, but the west wall was almost completely disintegrated. The north wall remained in good condition because it had been covered with several centimetres of clay. When we cut a small shallow trench through the wall, we discovered that the ground level just outside the wall was slightly higher than it was inside. On removing the rubble from outside the wall, we uncovered a low ridge of earth which stretched the length of the building. It was obvious, in section, that this ridge was composed of earth that had originally been banked against the north or outside wall of the house, probably when the moat was dug. Then as the building disintegrated, the earth was washed inwards, covering and protecting the bottom of the wall. Because none of the other walls of the house had been banked up with earth, they lacked this protective covering and were therefore much more completely decomposed. As we discovered later, earth had been banked up against all the external walls of the fort; as a consequence, all the external walls were in a much better state of preservation than were the internal walls.

Turning our attention next to the interior of the structure, we found both halves of a broken grindstone (Pl. 2) lying on the floor to the west of the central pile of rubble. In that area in the western half of the structure we found no traces of either joists or floorboards. It is very likely that this portion of the structure was simply left with a dirt floor. We did encounter what appeared to be the western ends of planks as we approached the rubble pile, however. Leaving the planks under a protective mantle of earth and decaying vegetable matter, we then attacked the rubble pile itself.

Composed entirely of broken roof tiles and bits of mortar, the rubble pile was an oval with its major axis running north and south. It measured roughly 10 feet × 12 feet (about 3 m × 3.7 m), with its eastern edge sloping downwards into a broad shallow depression that occupied much of the eastern half of the structure's floor. We dug a few small holes into the edge of the pile, hoping to locate some intact portions of the structure. On the northern edge of the pile we were rewarded with a row of neatly laid tiles, several courses high. We were unable to expose the north wall completely, because a tree about thirteen centimetres in diameter had seriously disturbed the masonry. Most of the wall was intact, however, including the northwestern corner. Moving around the corner, we then exposed the west wall of the structure. This stretched southwards for almost 10 feet (3 m), where it ended at an ancient pothole. Fortunately, we were able to locate a couple of spots where the south wall was reasonably intact. The structure, as it turned out, was about 10 feet (about 3 m) long. We were not quite so fortunate with the east wall, for this, as we noted, had settled into the depression in that end of the house. But we were still able to determine with reasonable accuracy that the masonry structure was 4 feet (1.2 m) wide. While we were working on the rubble pile, we noted that the northern end was much higher than the southern end. We are still unclear as to the nature of the structure, although in all probability it was a fireplace or stove of some sort. We do know however that the structure consisted of two parts—a higher northern pillar that measured 4 feet × 4 feet (1.2 m × 1.2 m) and a lower southern section that measured 4 feet × 6 feet (1.2 m × 1.8 m) (Pl. 3). The entire structure was resting on a pallet of heavy used planks which had simply been laid on the clay floor of the building. Broken pieces of brick and tile had been wedged under some of the planks to level them. Two layers of cross-pieces had then been nailed to the planks to form a solid base on which to build the tile structure.

Although the northern portion of the tile structure was a simple rectangle of coursed tiles, the southern portion exhibited considerable architectural complexity. First, three courses of tile were laid. Then a layer of mortar was trowelled over the tile work. Into this wet mortar small timbers were pressed; they ran north and south, one on each side of the platform and one in the centre. The timbers were 4 inches (1.2 cm) wide and had rounded bottoms, having been crudely shaped from the trunks of small spruce trees. After the channels between the timbers had been filled with mortar and small bits of broken tile, a solid layer of boards was nailed to the timbers. The boards were of various widths, but were all 1¹/₈

inches (2.9 cm) thick. They had been fastened to the timbers with nails that were 3 inches (7.6 cm) long. Although the layer of boards was flush with both the eastern and southern edges of the tile base on which it sat, it extended outwards to the west for at least 3 feet (1 m), supported by odd bits of timber. There it ended in an eroded edge. On the eastern part of the platform, and coterminous with the underlying structure, the coursed tiles continued upwards to an eroded surface.

Almost all of the tiles used in building this structure were broken, that is, the structure was built almost entirely of pieces of tile rather than of whole tiles. Throughout the excavation of this feature we occasionally found small artifacts—rusty nails, glass beads, musket balls, and pieces of kaolin pipe stems—embedded in the mortar. This material must have been mixed with the sandy clay that the builders used to make their mortar; this would suggest that the site had already been in use for some time before the house was built.

When we turned our attention to the eastern half of the house, we first cleared up the floor around the depression, which was the only visible feature in that area. Although we found vague traces of flooring almost immediately, we were unable to determine the dimensions of either the joists or the floorboards. We did learn, however, that the joists ran north and south and were spaced 6 feet (1.8 m) apart, and that the floorboards ran east and west.

As we became increasingly familiar with the site, a more accurate overall picture began to emerge. It became clear that the fort was rectangular rather than square as we had originally assumed. It became clear, too, that the establishment was bilaterally symmetrical, that is, the northern half appeared to be a mirror image of the southern half, and similarly, the eastern half appeared to be a mirror image of the western half. There were only two breaks in this pattern: one was a pile of masonry rubble in the southeast flanker; the other was a small but relatively deep depression just inside the western moat.

Having learned that the pile of rubble near the northern edge of the fort—the one we have just described—was situated in a building and was probably the base of a fireplace or stove, we confidently referred to the adjacent depression as a basement or cellar. When we started to excavate it, however, we learned that it was a much more modest structure. It had apparently been nothing more than a shallow crawl-way about 2 feet (about 0.6 m) deep and 15 feet (4.5 m) square, which seems to have had neither walls nor flooring. As we trowelled through the

debris in the crawl-way, it became obvious we were in an old garbage dump. The deposit seemed to have been laid down in successive layers (Pl. 4). Both the artifact and the organic content were extremely high. The composition of this deposit differed markedly from that of the deposits found on the occupation levels we had examined earlier, both inside and outside the house. In the crawl-way deposit there was a much higher concentration of fish refuse and bones from small mammals. These had both occurred throughout the excavation, of course, but in this deposit their relative frequency was sharply elevated. Examining the mammal bones more closely, we found that the collections from this deposit contained disproportionately large numbers of skulls from small, fur-bearing animals, mainly marten. The rest of the skeletal elements from these specimens were largely absent, however. It seems that some of the men at the post had been trapping. When they found an animal in one of their traps, they would skin it only as far as the neck, which they would then cut off. The skull would be taken back to the fort, where the finer work of skinning out the head could be done in the warmth and comfort of home. When the job was completed they just tossed the skull down the cellar steps, so to speak.

The men had also cleaned fish in the house and had thrown the scales and offal into the crawl-way. On one occasion, possibly by accident, they threw a birch-bark basket filled with fish refuse into the crawl-way. When we found it near the bottom of the deposit, it was nothing but a distorted mass. But lines of stitch holes were visible in a couple of places, giving us a clue to its identity. So it was wrapped in damp newspapers, sealed in a tin to keep it from drying out, and sent back to the Museum for conservation. There it was slowly unfolded (Pl. 5) and then bent back to its original shape (Pl. 6).

As we continued excavating the crawl-way, we encountered a thin, horizontal line of organic material and cultural debris about thirty centimetres below the floor of the house in which we were working. It extended outwards in all directions from the crawl-way excavation and seemed to have no structural relationship with the building above it. This was confirmed when we followed it northwards and found that it disappeared under the wall of the house (Pl. 7). To check its extent, we dug three small test pits, one in the western half of the house, one just outside the east wall, and one just outside the west wall. We encountered the same thin stratum of material in all three places, and always at the same depth. There was clearly an earlier occupational level

below the one we were excavating. But that was a different story and had to be put aside till we had excavated and mapped the fort visible on the surface.

While some of the crew had been working on the house, the others had been clearing the remaining brush and rubble from the northern half of the site. By the time the house was completely excavated, therefore, both the northern flankers had been laid bare. The flankers, we found, were constructed in the same way as the house. Horizontal logs, presumably squared, were pinned together at the corners by huge hand-wrought spikes. And, as with the house, there were no foundations for these structures. The builders had simply removed the organic overburden from the site, carefully levelled the clay, and then laid the bottom courses of their structures directly on the ground.

The joists in the flankers were fashioned from small logs some 6 inches to 8 inches (some 15 cm to 20 cm) in diameter, flattened only in their upper surfaces. They ran roughly east and west, with the spacing of the ends adjusted to the unequal lengths of the flanker walls (Fig. 7). The floorboards were then laid approximately north and south. As with the house, the external walls of the flankers, particularly the north walls, had been banked up with clay. Entrance to the flankers from the central compound of the fort was provided by doors 5 feet (1.5 m) in width set diagonally across their inside corners.

Although the locations of the curtain walls connecting the house with the northern flankers were indicated by shallow V-shaped trenches, no structural details could be determined. Similar trenches running south from the northern flankers marked
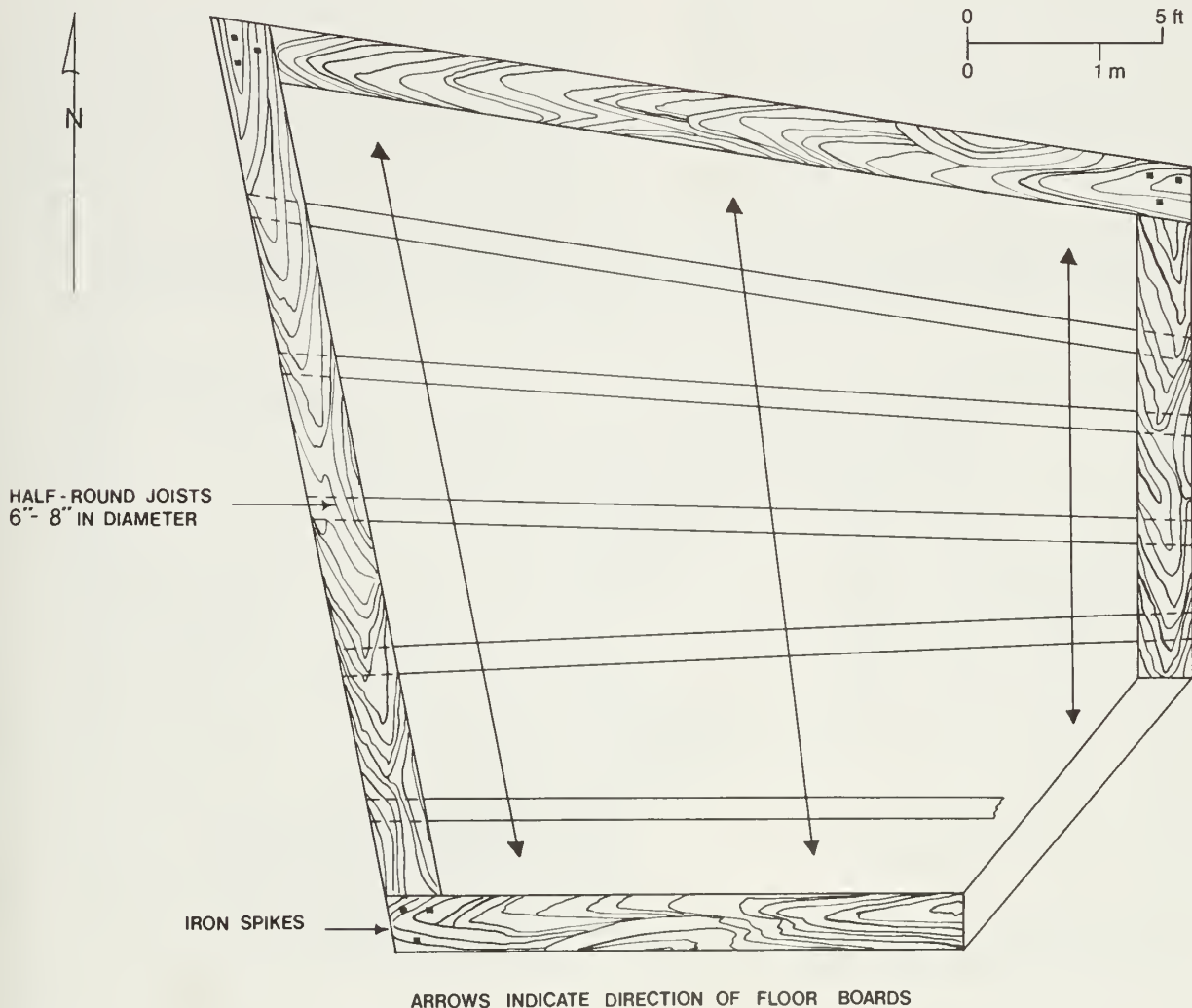
Fig. 7 Ground plan, northwest flanker, Fort Albany.

the localities of the east and west curtains, but again, structural details are not yet available.

Having completed our work on the northern flankers, we turned our attention to what we called the compound, that is, the open or unbuilt area within the fort. Work in these different areas, of course, did not proceed in the orderly fashion that is suggested here. Actually, we tended to work in several different spots at the same time. On any one day, for example, two or three crew members might be recording and mapping architectural features that had already been exposed; a couple more would be preparing a different area for photography and mapping. The rest of the crew, meanwhile, would be cutting brush, chopping out stumps, and peeling back the thick mantle of decaying wood fibres that covered the entire site. But the focus of our attention was the ground plan of the fort. Most of the logs we were exposing and mapping were so seriously decayed that, as they dried out, the individual wood fibres would quite literally blow away. Whenever possible, therefore, we would map a feature as soon as it was exposed and photographed, and then cover it with a thin mantle of back-dirt to protect it. We therefore worked with a small crew—rarely more than six or eight people.

We found no architectural features in the compound, nor had we expected any. It was after all a rather small area measuring only some 75 feet × 20 feet (23 m × 6.1 m). It stretched from the east curtain to the west curtain, and from the south wall of the house we had already excavated to the northern edge of the unexcavated structure at the southern edge of the fort. But the artifact content continued to be extremely high, particularly in the small alcoves between the ends of the house and the adjoining flankers. These had clearly been used as garbage dumps.

We intended to clear up the surface of only the northern half of the compound before closing the site for the season, but were led astray at two spots. First we examined the relatively deep steep-sided depression at the western edge of the compound, and were able to determine that it was not part of any additional building; we concluded that it was possibly a well. Then we moved south of the line at which we intended to stop at the eastern edge of the compound. There we found the entrance to the fort. It consisted of a corduroy road, 8 feet (2.4 m) wide, supported by three stringers; these stringers entered the fort through the middle of the east curtain. About two metres inside the fort, the end of the road abutted a wider area of heavy planking (Fig. 8). Because both the western and southern edges of the planked area were eroded away, no positive identification of this feature was possible. In all probability, how-

0   15   30 ft
0   3   6   9 m
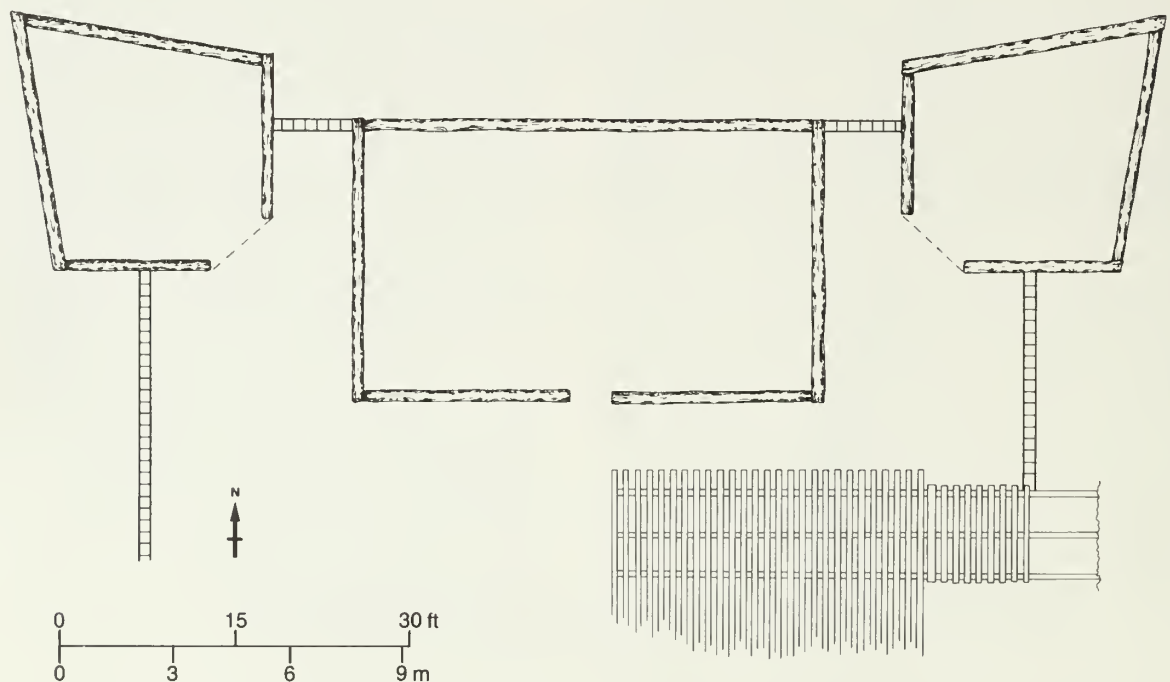
Fig. 8 Ground plan, north half, Fort Albany.

ever, this was a platform for mounting a cannon to protect the entrance to the fort.

By that time, we had a fairly detailed picture of the northern half of the site, enough to enable us to draw up a ground plan. Some of the timbers had probably shifted slightly as the building disintegrated, and there was always the problem of trying to get precise measurements from decaying logs. But essentially we had a fort that stretched 100 feet (30.5 m) along the south bank of Fishing Creek. The centre of the fort was the north wall of a house 40 feet (12.2 m) long; two short curtains, each 7 feet (2.1 m) long, closed off the gaps between the house and the northern flankers; the flankers, in turn, extended out to the east and west for another 23 feet (7.0 m) each. Fashioned from timbers that were probably about 18 inches (45.7 cm) square, banked up externally with clay, and protected by a broad deep moat, the fort must have been an impressive sight.

In 1963 when we started work on the southern half of the fort, we were rather seriously hampered by bad weather. A series of storms swept across the area, interrupting our work and filling all the low spots on the site with standing water. As we gradu-ally stripped away the rubble, however, it became increasingly clear that, as we expected, we were dealing with an establishment that was essentially symmetrical. Knowing where to look, we quickly picked up the western corners of the southern struc-ture, the one directly across the compound from House No. 1. We found the southeastern corner of the structure with equal ease, but a large tree-fall had destroyed all traces of the northeastern corner. Out-side the disturbed area, however, there were a few remaining traces of both the east and the north walls. This structure, which we designated House No. 2, was identical with House No. 1 in that it had been built of timbers that appeared to be about 18 inches (about 46 cm) square, and had half-lap joints at the corners pinned together with huge iron spikes. This house, too (Fig. 9), measured 25 feet × 40 feet (7.6 m × 12.2 m).

When we cleared up the pile of rubble in the centre of the house, we found that this pile was a fireplace with the hearth facing east. It was a rectangular structure 11 feet (3.4 m) long and 5 feet (1.5 m) wide, sitting on a base of flat stones and English roof tiles. The front of the structure had slumped into the
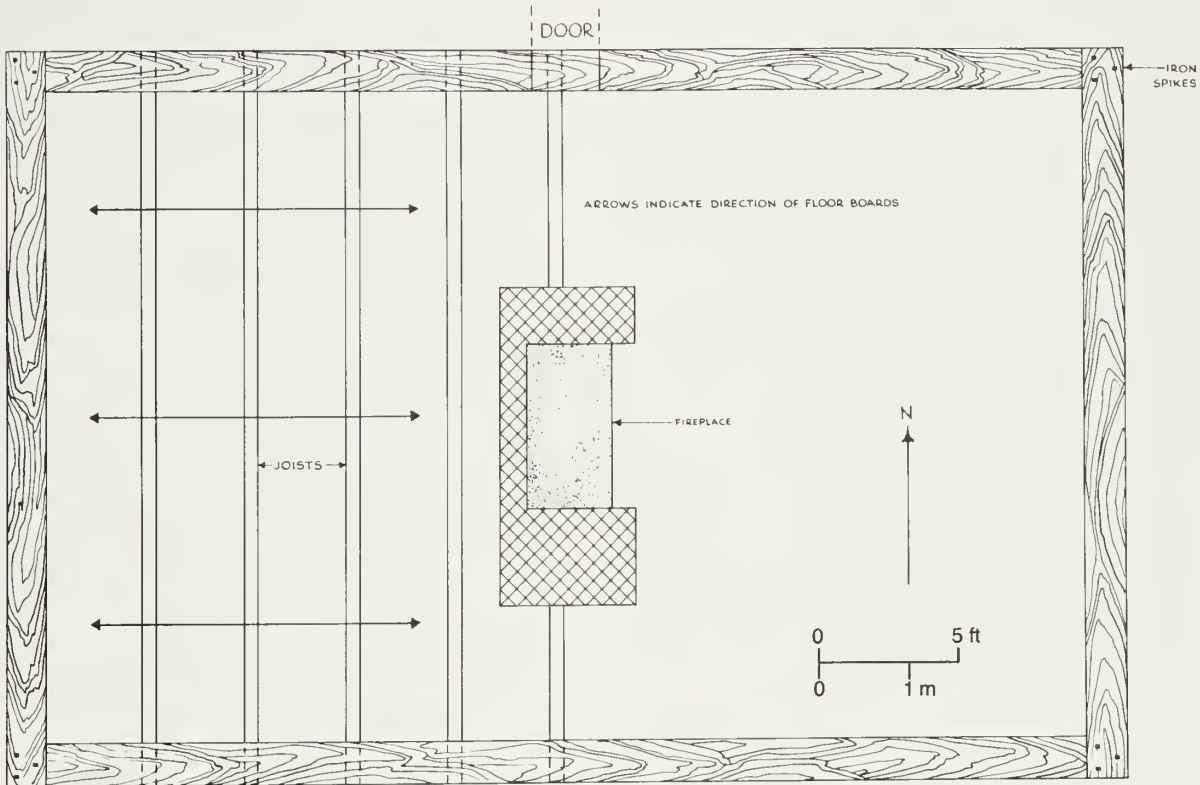
Fig. 9 Ground plan, House No. 2, Fort Albany.

depression that occupied most of the eastern half of the house. Most of it, however—and particularly the back, or western edge—was intact (Pl. 8). Although it was built almost entirely of English bricks, Flemish bricks and cobblestones were also employed. The hearth itself was a shade less than 6 feet (1.8 m) wide and 3¹/2 feet (1.1 m) deep, and was paved with Flemish bricks (Fig. 9). The south wall of the fireplace was so much thicker than the north wall that it probably served some additional function. It may have contained an oven, although no traces of such an item have survived.

The ''cellar'' in the eastern half of the house revealed no structural details, but was probably both smaller and shallower than that in House No. 1. Its contents were markedly different, however, for it lacked the skulls and bones of fur-bearing mammals, as well as the fish refuse—all so plentiful in the northern crawl-way. Broken bottles and pipes were still present in considerable quantity, but their numbers were sharply reduced. This was true of the floor of the house as well. The crew members who were working there at the time commented on the difference in the amount and nature of the refuse on the floor of the two houses: ''The people who lived in House No. 2 were much better housekeepers than the people who lived in House No. 1. They were not nearly so messy.''

The floor of House No. 2 was made of heavy planks, 12 inches (30.5 cm) wide, running east and west; these were nailed to joists running north and south at intervals of approximately 4 feet (1.2 m). The floor of House No. 2 (Pl. 9) was much better preserved than that of House No. 1. It was probably built of heavier materials.

The southwest flanker was not as well preserved as the others. We located the corners without too much difficulty because of the clusters of spikes that had pinned the timbers together at their intersections. But the timbers themselves, for two reasons, were much more difficult to follow than those in the northern flankers had been. The water table lay very close to the surface when we were working in the southeast flanker, and the flanker was covered by an inordinate quantity of decayed and decaying timbers. We were unable, therefore, to record any architectural details of the flooring in the southwest bastion.

The southeast bastion, on the other hand, provided us with a wealth of detail. When we first started working on this feature, we concluded that it was not built to the same proportions as the other bastions, for it appeared to be larger than expected,

that is, the point of this flanker seemed to stick out farther from the curtain walls than the points of the others did. We discovered later, however, that this was an illusion; what had actually happened was that a heavy brick structure had collapsed inside the flanker, pushing both the south and east walls outwards (Pl. 11). This area was the only point on the Fishing Creek site where we found more than two courses of logs still in position. At this point there were four. When we had removed enough of the fallen brick so that we could map in the lower course, we found that this flanker was the same size and shape as the others. We never did find the door to this flanker, however, since it had been destroyed by the same tree-fall, or falls, that had ruined the northeastern corner of House No. 2. Presumably, though, it would have been the same as the others.

The rubble pile that occupied the southern half of the southeast flanker was 2 feet (0.6 m) high. When we had removed the overburden, we were faced with a huge irregular mass of English and Flemish bricks. As we peeled off layer after layer of this rubble, a pattern gradually emerged, particularly in the eastern half where the confusion resolved itself into more or less parallel lines of bricks running east and west. The western end of the heap, meanwhile, remained a jumbled mass. Further work showed, however, that the feature consisted of two different but connected structures, a fireplace at the western end and a low brick platform at the eastern end (Fig. 10). These shared a common wall made of English brick. The entire structure measured 16¹/4 feet × 7¹/2 feet (5.0 m × 2.3 m). The west wall and the north wall of the brick platform, like the common wall in the centre of the structure, were fashioned of English bricks; the platform itself was paved with Flemish bricks.

The fireplace consisted of a hearth 5¹/2 feet (1.7 m) wide and 3³/4 feet (1.2 m) deep, with four large flat stones along its front edge. It had apparently been lined with fire-backs, since one was still in position on its western side and fragments of others were found on the southern and eastern sides. The floor of the hearth was covered with a thick deposit of white ash that contained several hundred badly rusted and burned iron nails. Clearly, the last fire to be built there had been fed with dry, used lumber. The bottom of the hearth was lined with Flemish bricks. Behind the hearth was the stone base of the chimney.

Although the brick platform on the eastern side of the fireplace contained no clue as to its function, there is reason to believe that it might have been a
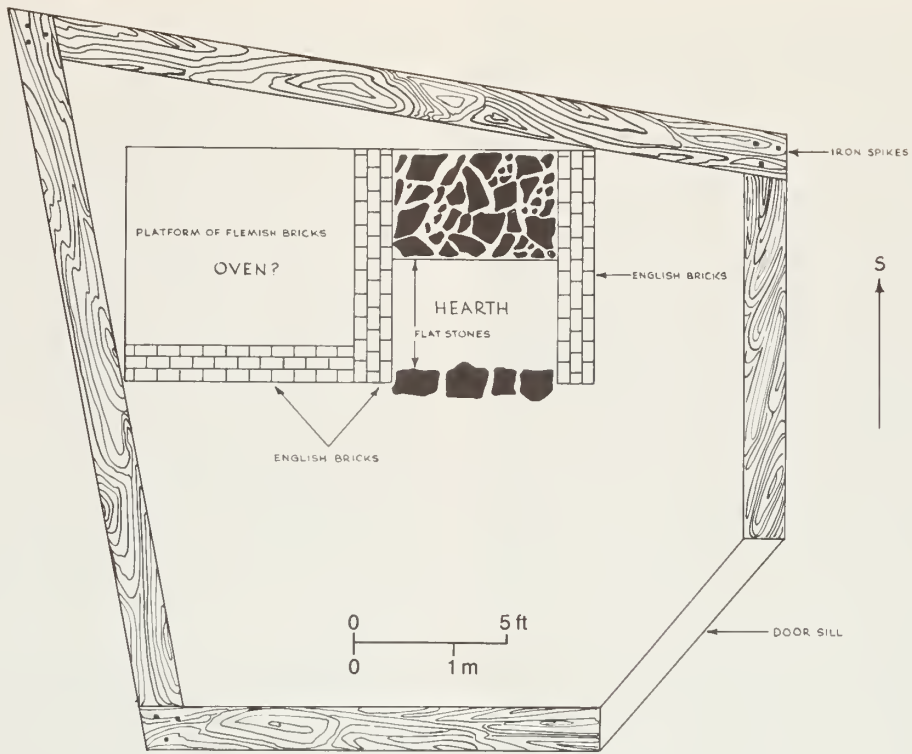
Fig. 10 Ground plan, southeast flanker, Fort Albany.

PLATFORM OF FLEMISH BRICKS

OVEN?

ENGLISH BRICKS

HEARTH

FLAT STONES

ENGLISH BRICKS

IRON SPIKES

S

DOOR SILL

0   5 ft

0   1 m

0   15   30 ft

0   3   6   9 m
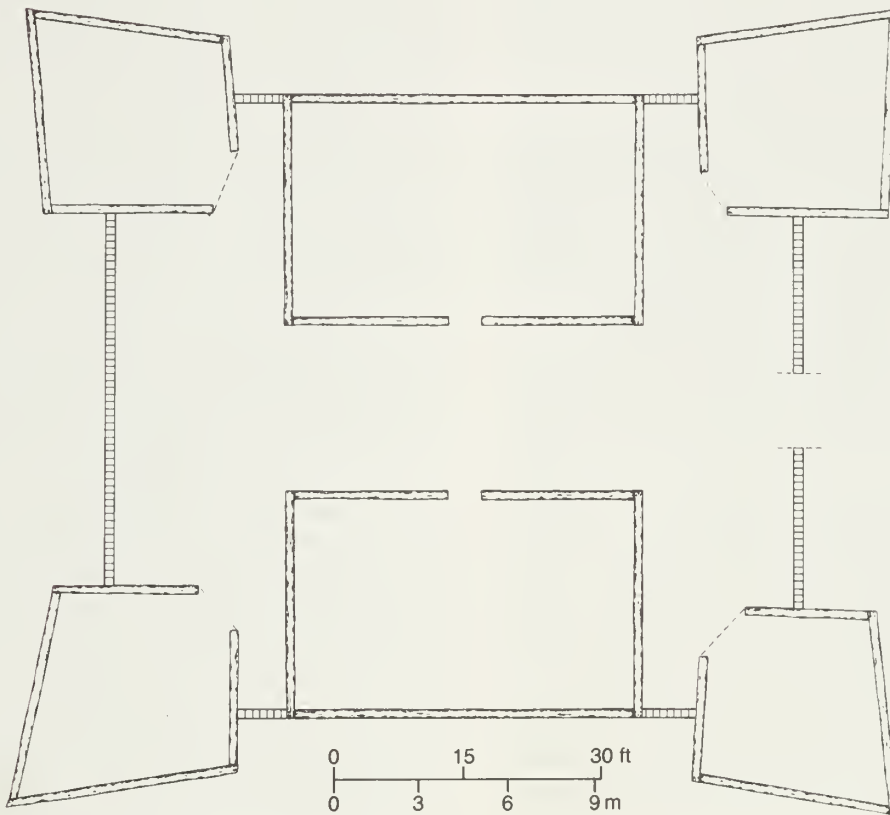
Fig. 11 Ground plan, Fort Albany.

forge. This is suggested by the presence of ash, slag, and burned coal on the floor of the bastion. Although we could not be certain, it appeared as though the joists supporting the floor of this flanker were laid north and south. This pattern was probably adopted here to provide a more rigid footing for the large masonry structure that occupied the southern half of the flanker.

At this point in our research, we were able to draw a fairly detailed ground plan of the fort (Fig. 11). But there were still some problems that kept nagging at the edges of my attention. The main one concerned the old occupational level we had encountered in our test pits in the northern half of the site. To see if this level extended under the southern half of the fort, a series of test pits was put down there as well. And again, an old occupational level was encountered at a depth of 12 inches (30.5 cm). There was clearly an earlier structure below the fort we had just uncovered and mapped.

Another vexing problem had to do with the deep and steep-sided depression near the western edge of the compound. Towards the end of the field season, when the site was relatively dry, we attempted to investigate this feature. At the bottom of the depression we found a small rectangular log cribbing, but before it could be photographed or recorded, the hole filled up with water. And so it remains in our field records as an anomalous feature that was probably a well.

The final problem—that is, of the major ones, for there were many others—concerned the nature of the moat (Pl. 12). I had attempted earlier to cut a trench through the northern section of the moat, but had been stopped by solidly frozen ground. Another attempt was made in 1963, this time through the western section of the moat. But this, too, was unsuccessful; the trench simply filled up with water. Admitting defeat, we covered the excavated areas with a thin protective layer of rubble and returned to Toronto.

Although most of my time was taken up with other matters, I returned to Albany for brief periods in both 1964 and 1965. On neither occasion did I take a crew with me, since I was concerned with specific problems—bits of exploration, mainly—that required the assistance of no more than one or two people. These I hired as needed from the local native village. One of the problems was to see if I could cut a trench across the moat to find out how it had been built. It appeared to be nothing more than a deep ditch surrounding the fort; but archaeological appearances can be just as deceptive as any others, and they frequently are.

Knowing in advance that there would probably be standing water in the moat, I took along a gasoline-driven pump with a 50-foot (15.2-m) discharge hose. When I arrived at Albany, I laid out a line running south from the tip of the northwest flanker to the tip of the southwest flanker. At right angles to this I laid out a corridor three metres wide running from the compound, across the moat, to the forest floor west of the fort. The northern edge of the trench was at fifteen metres south. On the southern edge of the corridor we dug a sump a little less than a metre and a half deep, into which we set an old forty-gallon gas-drum. Before placing the gas-drum in the sump, we cut out both the top and the bottom and perforated the sides. This enabled the water to flow into the drum, but screened out most of the twigs, roots, and bits of wood fibre that would have clogged the pump.

At this point it started to rain, and so we stopped work for the day. The next morning we pumped out the gas-drum and started clearing the rubble from the trench. From time to time, as the sump filled up, we would start the motor and pump out the water. After two days of intermittent pumping we could see no appreciable difference in the water table. The water still rose to the same level although the sump did seem to be filling more slowly. But we were clearly fighting a losing battle. The moat after all was some 400 feet (some 122 m) long with a deep deposit of wood fibres at the bottom. As the ground water drained out very slowly from the thick spongy mass, and as the supply of water was continually replenished by intermittent showers, we had to abandon the project.

It was not a complete failure, however. In the thick grey mud at the bottom of the trench we found two rows of stakes running north and south. These stakes, up to 3 feet (0.9 m) long, and between 3½ inches and 9 inches (8.9 cm and 22.9 cm) in diameter, each had one sharply pointed end; the other end had rotted away. The stakes were lying on their sides with their pointed ends outwards, that is, the pointed ends of the western line faced west, and the pointed ends of the eastern line pointed east (Fig. 12). Below the stakes was a thin mantle of organic material about fifteen centimetres thick. Below that was clean water-deposited sand. The outward ends of the rows of closely spaced stakes were 8 feet to 9 feet (2.4 m to 2.7 m) apart. What had happened here was fairly obvious. When the moat was dug, vertical retaining walls had been placed at the bottom of the
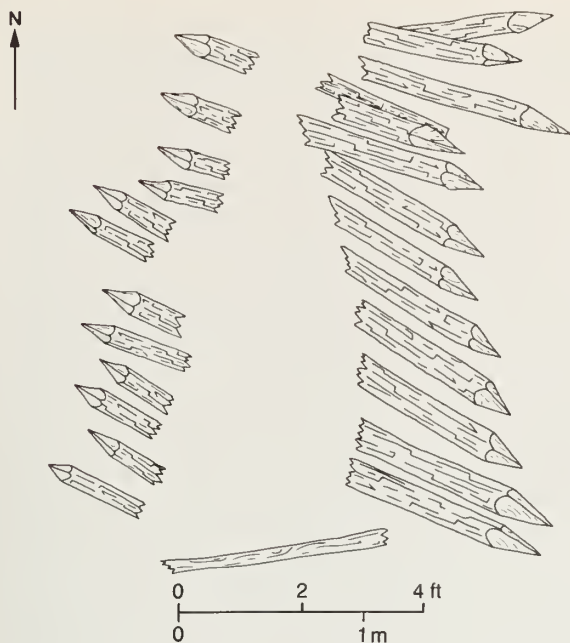
Fig. 12 Pointed stakes at bottom of moat, Fort Albany.

trench, at least 9 feet (2.7 m) apart to keep the steeply sloping sides from collapsing. The retaining walls were made of pointed stakes set side by side. Over the years the upper portion of the stakes had rotted away, and then lateral pressure had forced them inwards, producing the distributional pattern that we observed.

We put a similar test pit in the southwestern corner of the moat the following year, with similar results. Because the water table was much higher on that occasion, we were unable to complete the project, but again we found short, pointed stakes lying on their sides. In both the test pits, the bottom of the moat was found to be 1.9 m below the level of the courtyard, and 2.2 m below the top of the low ridge on the outside of the moat. Although there would appear to be some variation, the moat is probably some 20 feet to 25 feet (some 6 m to 8 m) across.

It was not till the summer of 1970 that I was free to return once more to Albany. On that occasion I returned with a crew of nine people, the largest crew I had ever employed on the site. The purpose of enlarging the crew so dramatically was to enable me to investigate the old occupational level underlying the fort we had already excavated. To do so, we would have to move a lot of dirt and do a lot of mapping as well. There were indications that any such investigations would produce a rich inventory of artifacts, for the test pits we had already dug showed

that the old occupation level was liberally sprinkled with food refuse—mainly goose bones—as well as kaolin pipes, gun parts, broken glass, and similar items.

On Friday, 10 July, when I first visited the site, I was astonished at its appearance. It looked for all the world like a hayfield. As we walked across the site we knew so intimately, not a single feature was visible except the moat. The entire fort was covered with a luxuriant blanket of grass and dotted with clumps of dandelions, raspberries, black currants, and horsetails. In 1963, when we completed the excavation of the fort, we drove a stake into every corner of each of the structures at the site. The stakes were pointed iron rods, 4 feet (1.2 m) long and 1/2 inch (1.3 cm) square. Each one had a notice, prominently stamped into the metal, identifying it as a surveyor's stake and pointing out that to disturb it in any way was a criminal offence. And now, as we wandered across the site, we found that they had been pulled up and scattered about. We found, too, that the site had been rather seriously potted during our absence.

Because we were unable to locate any of our old reference points, we had to establish new ones. And if we hoped to tie in our new survey with the earlier one, and to do so with an acceptable degree of precision, then we would have to pick up a previously established line such as the wall of a building. To do this, we had to clear the site. Borrowing a couple of scythes and a few rakes from Brother Goulet at Ste Anne's Mission just up the river, we attacked the foliage that obscured our old diggings. We started with the fort itself and then brushed out the moat. Finally we cut down and removed all the trees and brush on the low ridge of earth that had been thrown up on the outside of the moat when it was dug. For the first time, we had an unobstructed view of the entire site; we were astonished to note that the sides of the moat were not arcs curving inwards from the rounded corners of the structure, but were distinctly V-shaped, that is, the segment of moat along each side of the fort consisted of two straight lines, angling inwards and meeting at the centre of the curtain wall.

When the middle of the site had been reaped, so to speak, we found that there was a large pothole where the south wall of House No. 1 had formerly stood. Visible in the bottom of the long shallow hole was a large log or timber, running east and west. Leaving most of the crew to finish clearing the site, I put two people at clearing up the pothole. They marked out a rectangular area just large enough to encompass the disturbance, and then started trowelling it down. At that point we had not yet established a new grid

system, and so we had no precise location of the rectangle in which we were working. We did know, however, that it was approximately where the south wall of House No. 1 had stood. Although we did not bother to measure the rectangle, it was approximately a metre wide by two metres long. The long axis of the rectangle ran east and west, with the timber or log running up the centre about thirty centimetres below the surface of the fort we had already excavated.

Then, as we approached the bottom of the log, we found a pavement of smaller logs set side by side and running south from the log that had first drawn our attention to this particular pothole. We had uncovered part of the northern edge of some carefully made structure—either a building or a corduroy road. We widened the trench slightly, so that there was room for one person to work on each side of the timber, and then extended it to the west. At this stage we did not actually expose the north-south logs; we merely established their presence, and then left them covered with a thin protective layer of rubble. Then, as we moved to the west, we encountered a familiar sight. At the end of the timber was a cluster of heavy iron spikes, still in position, and another timber running south.

We had unearthed the corner of a building. It was constructed, in the same way as the fort above it had been, of horizontal logs, presumably squared; and the corners, once again, were half-lap joints pinned together with heavy iron spikes (Pl. 13). The only visible architectural difference at that point was in the nature of the flooring. This building apparently had a puncheon floor, in contrast to the joist-and-plank flooring we had found in the fort. We named the newly discovered structure House No. 3.

While we were working on House No. 3, the rest of the site had finally been cleared of grass and shrubbery. A small spot had also been cleared of rubble on the forest floor to the west of the site. We then ran a series of elevations tying together the various features we had encountered; we found that the four flankers, House No. 3, and the old forest floor were at approximately the same level. When the fur traders first arrived at the site, they simply removed the overburden—stumps, brush, and decaying vegetable matter—from a small clearing, and then built their house directly on the old forest floor. At some later date, presumably when the moat was dug but after the flankers had been built, the house was dismantled, and the whole interior of the fort was raised some thirty to forty-five centimetres. On the same day that I ran the elevations, Thursday, 23 July 1970,

I measured the distance from the northern corners of the moat to the edge of the river bank. Because Fishing Creek flows northeast at that point, the fort was set up at a sharp angle to the river. The distance from the northwestern corner of the fort to the edge of the bank was 27 feet (8.2 m); the corresponding measurement from the northeastern corner was 83 feet (25.3 m). The angle, then, between the fort and the river was about thirty degrees.

It took us another month to complete the excavation of House No. 3. Although we did several other things within the same period, I will discuss the excavation of the house first, and then move on to the other matters. This method will suggest that we proceeded systematically with the job at hand, moving in an orderly fashion from one problem to the next. Such, however, was not the case. What with visitors and volunteers, we had as many as sixteen people in camp at times. These had to be fed and supervised. Twice a day the work force had to be ferried to and from the site, for our camp was about two kilometres away, near the eastern end of Anderson Island. Some of the younger crew members insisted on drinking various fruit crystals dissolved in cold water that they got from the river or one of the shallow stagnant ponds that dotted the muskeg behind the fort. They would come down with gastrointestinal disturbances from time to time, and would have to be driven to the local infirmary in Bill Anderson's truck. And artifacts were being unearthed at an alarming rate. Almost every evening was spent sorting and packing specimens to be shipped back to the Museum. Under the circumstances, it is nothing more than a polite fiction to suggest that we moved in an orderly fashion from A to B to C. The suggestion is perhaps justified, however, because it does simplify the narrative. Let us return, then, to a consideration of House No. 3.

Having located one of the corners of the house, we simply followed the walls until we had gone all the way around the structure, just as we had done with the fort. We found that the structure was remarkably well preserved in comparison with the structures closer to the surface. Two, and sometimes three, courses of logs were still in position in many places. At that point we merely established that the lower courses of the walls were present; we did not expose them for mapping and photography. Rather, we left them embedded, so far as was possible, in the clay that had preserved them for almost three hundred years. We then skimmed off the layer of earth inside the house, carefully approaching the puncheon floor, but not exposing it. During the process, we

were struck by the fact that the deposit on the floor of the house was dotted with lenses of ash and charcoal and had an extremely high artifact content. Just outside the walls of the structure, on the other hand, the deposit was almost pure sterile clay. For some reason, the floor of the house seems to have been used as a garbage dump while the establishment was being rebuilt. We noted, too, that cannon balls, grenades, and bar-shot, which had been so liberally sprinkled throughout the upper levels, were strangely absent in the lower levels.

Very early in our stripping process, we encountered a brick structure near the centre of the house. This, too, was only partially exposed. Finally, when nothing remained but a thin protective mantle of rubble, we turned our attention to the floor itself. We put a line of people along the inside of the north wall, with trowels and grapefruit knives, and started to expose the floor for mapping and photography (Pl. 14). As soon as an area was cleared, it was covered with strips of thin polyethylene sheeting. Weighted down with bits of brick and tile, the plastic prevented the wood from drying out and disintegrating. When the structure was fully exposed, we found that it was a rectangular building with the same orientation as the overlying structures that we had already excavated. It was 33 feet (10.1 m) long and 25 feet (7.6 m) wide. The north wall, which faced the river, was constructed of heavier timbers than the other three walls; widths were respectively 18 inches (45.7 cm) and 12 inches (30.5 cm). The floor (Pl. 15) was composed of fifty-eight small logs or poles that had been laid in the round. Their diameters ranged from 4 inches to 8 inches (10.2 cm to 20.3 cm), with an average of 7 inches (17.8 cm). In several places, but particularly in the western half of the house, the upper surfaces of the poles had been adzed off, creating relatively smooth areas of flooring. Presumably, the men who lived there had smoothed down only the roughest areas of the floor, leaving most of it in its natural state.

The structure in the centre of the house turned out to be a brick stove built on a platform of flat stones. The stove had been built before the floor had been installed, for the floor members abutted the north and south edges of the stove. The platform of flat stones was 4 1/2 feet (1.4 m) wide and 9 3/4 feet (3.0 m) long, with its major axis parallel to that of the house itself (Fig. 13). The firebox was built of English bricks, with the door on the eastern end. Inside measurements were 2 1/2 feet × 4 feet (0.8 m × 1.2 m). No further structural details were preserved.

When the house was finally exposed, we found
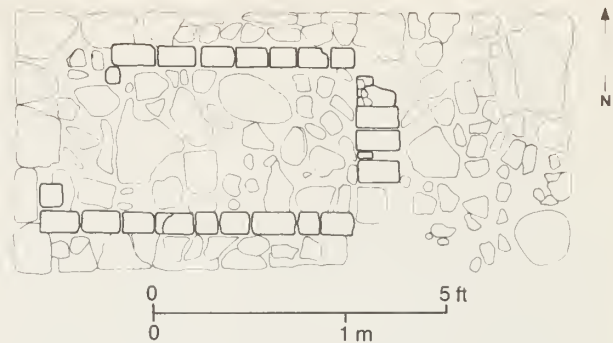
Fig. 13 Stove, House No. 3, Fort Albany.

that there was an unfinished portion in the southeastern corner of the floor (Fig. 14). This area measured 5 3/4 feet × 14 1/2 feet (1.8 m × 4.4 m), and had a small stringer, 2 inches (5.1 cm) wide, tacked onto the logs on its northern and western edges. It may have served either as a vestibule or as a storeroom of some sort, but we found no clue as to its function. The presence of a hinge and a couple of pintles suggests that a door was located centrally on the north wall; if the rectangle in the southeastern corner of the building was in fact a vestibule, then there would have been another door in that area as well.

While we were concentrating on House No. 3, we also cleared much of the sterile clay from the western end of the fort. We did this to expose the old occupation level on which House No. 3 had been built, and to make sure that there were no other buildings on that level. During this process, we cut a trench across the entire compound, from the inner slopes of the northern moat to the inner slopes of the southern moat. Our exploratory trench was 5 feet (1.5 m) wide, 75 feet (22.9 m) long, and 2 feet (0.6 m) deep. The distribution of wood fibre and artifacts at the lower occupation level was coterminous with that of the central compound of the upper fort, that is, it ended at the edges of the moat. The distribution of artifacts at the upper level, on the other hand, continued down to the very bottom of the moat. Across the northern end of the bottom of our trench, we uncovered a line of small upright logs. They were set side by side forming an east-west line, with the upper ends rotted away. I was sorely tempted to follow that line since it appeared to be an old palisade protecting the house we had just finished mapping. But it was late in the season, and several crew members had already returned home. Even the geese and ducks were becoming restless, for they sensed that fall was not too far away. It was time to close the dig.

For some reason, I was very reluctant to rebury
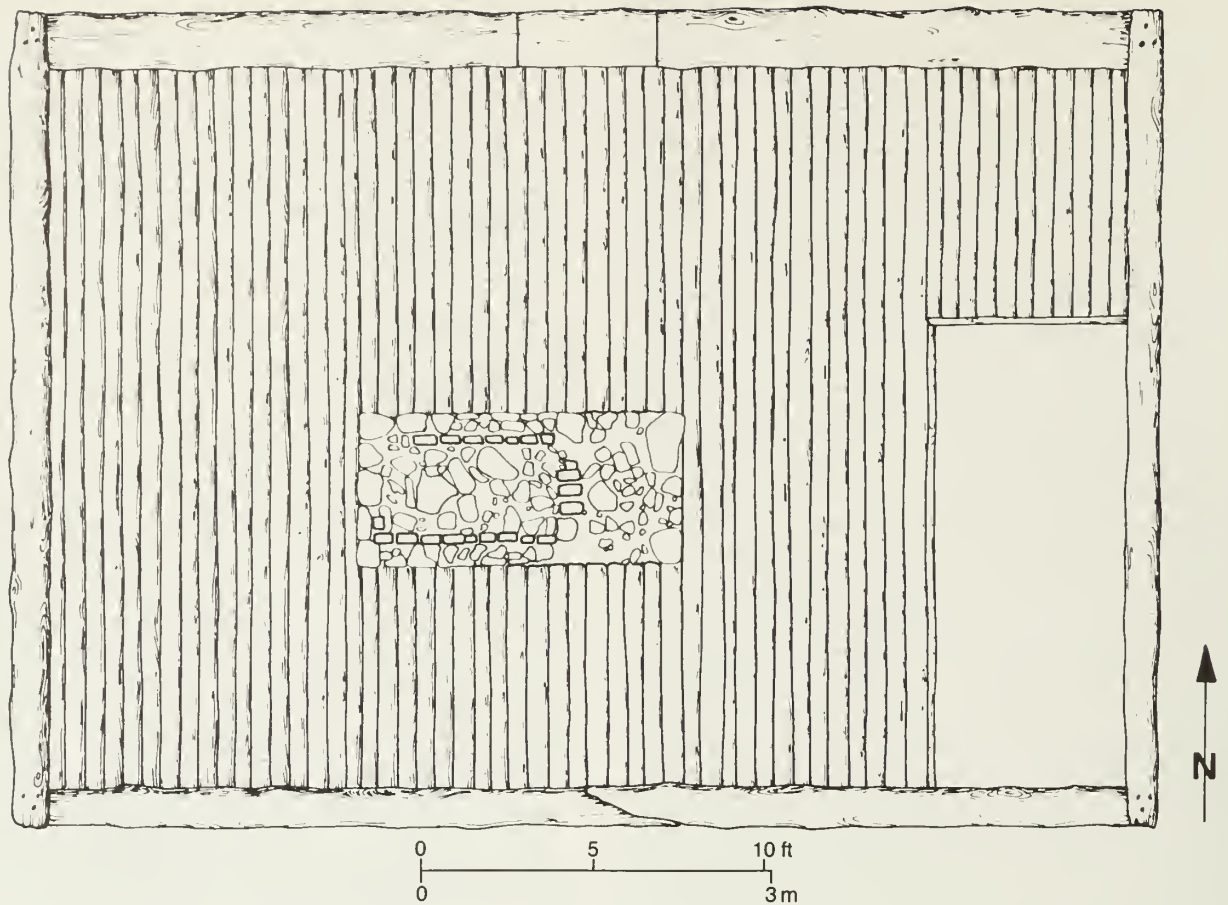
Fig. 14 Ground plan, House No. 3, Fort Albany.

House No. 3. Day after day I had watched as the other excavations were being filled in. But finally, when I could put it off no longer, I gave the order. I took one final picture of the site (Pl. 16), climbed into the canoe for the last time, and headed back to camp. I had been fighting a cold for the past few days, and now suddenly it became worse. Late in the after-noon I packed the final specimens and most of my personal gear, for a plane was to pick me up early the next morning. By 7:30 that night I was running a fever, and so I crawled into my sleeping bag, washed down two aspirin tablets with a monumental draught of brandy, and slept like a baby. It had been a good summer.

3

Albany Artifacts

The collection of artifacts from the Fort Albany site contains trade goods as well as those items that were used in and around the fort by the traders themselves. Some of the specimens—such things as sledge hammers and blacksmith's tools—would have been used only by the Europeans; the Indians, after all, were not engaged in any tasks in which these items would have been helpful. And they were much too heavy to be carried away as curiosities. The same can be said of splitting wedges, bar-shot, building hardware, china, window glass, and similar items. The occasional specimen of this type may have been carried away as a souvenir, but by and large these were associated with European activities. They were used to build the fort, to protect it from political and commercial rivals (for the natives themselves were never a threat), and to feed and house the men who lived there. A few of the items—glass beads, copper bangles, and hatchets, for example—would have served primarily as trade goods. But items such as gun-flints, musket balls, butcher knives, and strike-a-lites would have been used by everyone at the post and also traded with the natives for furs. The same holds true for many other classes of artifacts, for the Indian and the European would start their fire with the same flint and steel, boil their geese in the same brass kettles, and smoke the same tobacco in identical pipes.

In the following descriptions, therefore, I will not attempt to distinguish between those objects that were used by the Europeans and those that were the currency of the fur trade. In most instances the distinction will be obvious; in the others, we may assume pro tem that the items in question were used by both groups of people. We will begin our discussion with a description of the tools that were used to build the fort.

Axes (10)
Of the ten axes in the Albany collection, only three are complete. Four are represented only by blades, and two only by eyes. The final specimen is unfinished; it was partially fashioned from an iron bar that was 6.0 cm wide, 1.1 cm thick, and about 37.0 cm long (Pl. 18C). All the eyes are slightly pear shaped. And, like those of a modern pickaxe, they are

tapered, with the opening being larger on the distal end, that is, on the end that is farthest from the user.

The largest axe (Pl. 18A) is 25.6 cm long and weighs 1.7 kg. The blade length of this specimen, measured from the notch where the eye meets the blade to the proximal or near end of the bit, is 17.0 cm. Another complete specimen (Pl. 18B) is 21.1 cm long and weighs 1.2 kg. Its blade length is 12.5 cm. The largest incomplete specimen (Pl. 18D) has a blade length of 15.0 cm.

The smallest complete specimen (Pl. 19B) is 15.7 cm long and weighs 0.7 kg. It has a blade length of 9.0 cm. On the left side of the blade is a rectangular stamp measuring 1.1 cm × 2.2 cm and enclosing the embossed initials "W B" (Pl. 20).

The three remaining blades (including those illustrated in Pl. 19A, C) range from 9.0 cm to 11.0 cm in length. On the right sides of two of these specimens is a circular stamp 1.3 cm in diameter. One of these stamps is illegible; the other (Pl. 19C and Pl. 21) bears the embossed initials "S B". This is the mark of Samuel Banner, ironmonger (HBRS 1946:7).

Although the collection of axes from Fort Albany is too small to support any definitive statement on the matter, the data do suggest that we are dealing with two varieties or types of axes. One is relatively heavy and long bladed; the other is relatively light and short bladed. This suggestion is supported by the company records. We are told, for example, that in 1684 the company was trading three sizes of axes with the Indians. These weighed "1 lb, 1 1/2 lb, and 2 lb"; they were consistently referred to in the records as hatchets (HBRS 1946:127) and were ordered from the ironmongers by the hundreds (e.g., HBRS 1945:174). The larger, heavier axes illustrated on Plate 18 would have been used by the Europeans themselves and are referred to simply as axes or felling axes in the company records (HBRS 1946:305).

Iron splitting wedges (5)
Four complete wedges, as well as a large fragment of a fifth, were found at Fort Albany (Pl. 22). They are all heavily "eared" as a result of long and hard use. Weights range from 0.9 kg to 1.7 kg. They range in length from 12.8 cm to 17.7 cm and in width from 3.9 cm to 4.9 cm.

Sledge hammers (2)
Both of these specimens are broken. The one illustrated (Pl. 23A) was probably a 6-pound (2.7-kg) sledge.

Blacksmith's punch (1)
This specimen (Pl. 23B) has seen long hard service. It is 13.1 cm long and weighs 0.7 kg.

Blacksmith's parting tool (1)
This battered specimen (No. 970.391.564, Pl. 23C) is 10.0 cm high and weighs 1.03 kg.

Pickaxes (2)
One of the picks is a fairly modern looking, double-pointed tool (Pl. 24A). It weighs an even 1.8 kg. The other specimen (Pl. 24B) is the older European style pick (see Fig. 15) and weighs 2.1 kg.

Fig. 15 Mining scene from *De re metallica* by Georgius Agricola, originally published in 1556.

Crosscut saws (3)
Parts of what appear to be three different crosscut saws were found during the excavations (Pl. 25).

Tenon saw (1)
The proximal end of the small tenon saw (No. 2325) is unusual in that it has teeth cut along both edges of the blade. The blade is 3.4 cm high and has a rat-tail tang that is 4.3 cm long. The entire fragment is 10.0 cm long.

Saw-set (1)
This specimen (Pl. 26) is 16.7 cm long, has a maximum breadth of 4.1 cm, and is 4.0 mm thick. The tang would have been fitted into a round handle.

Augers (7)
Only three of these specimens are complete (Pl. 27). The tips of the flattened shanks of all these specimens are bent over at right angles to the shafts to facilitate hafting. The two shorter specimens (Pl. 27A, C) are 18.0 cm and 20.0 cm long, and both would have drilled holes 1.1 cm in diameter. The other specimen (Pl. 27B) is 27.0 cm long, and would have drilled a hole 1.4 cm in diameter.

Cooper's auger (1)
This specimen (Pl. 28) is 48.4 cm long and, like the smaller augers, has the tip of the flattened shank bent over at a right angle to the shaft. It would have been used to drill or ream tapered holes, such as those found in barrels.

Shovels (12)
Two different but related types of shovels were found at Fort Albany. Both types, incidentally, would be called "spades" today, in that the cutting edge is slightly concave and the outer corners are but slightly rounded. The modern round-mouthed shovel is not represented in the collections.

One of the types is a simple wooden spade with a wrought-iron cutting blade attached (Pl. 29). The blade itself was fashioned by welding two sheets of wrought iron together, leaving a shallow groove, about 1.0 cm to 1.5 cm deep, along the upper edge. A similar groove was formed on the inside of each of the ears, which extend upwards from the sides of the blade. The cutting blade was attached to the spade by a single nail driven through each ear and into the wood. Seven of these spades were found. They range in width from 20.0 cm to 28.0 cm.

The other type of shovel is much more elaborate (Pl. 30). Five of these were found. They were made by facing both surfaces of a short wooden spade with thin sheets of wrought iron that were welded together. Figure 16 illustrates the method of manufacture: 16A is a sectional view through the middle of the left wing of the shovel in Plate 30; 16B is a mid-sectional view of the same specimen. This specimen is unusual in that the back of the blade is reinforced with an additional layer of iron (Fig. 17).

The widths of these specimens are quite uniform at 18.5 cm; lengths range from 33.0 cm to 36.0 cm. One of them (No. 1862) has the initials "S I"

Fig. 16 Shovel (No. 1917), Fort Albany: *A* section through wing; *B* midsection.

Fig. 17 Back of shovel (No. 1917), Fort Albany.

stamped into the metal on the front of the shovel, just below the handle.

Claw hammers (2)

Parts of two different claw hammers were found during the excavations. One (No. 807) is a set of claws, 6.0 cm long; although they are angled slightly back towards the handle, the claws are straight, rather than curved in the modern fashion. The other specimen (No. 383) is represented only by the peen, which is octagonal, 5.0 cm long, and 2.5 cm across the flats.

Files (22)

All of the files in the Albany collection are machine made. Three of them are flat and are stamped with a fleur-de-lis at the base of the tang. One of these also bears the initials ''I C'' stamped into the metal just below the fleur-de-lis. The stamps on the other two cannot be deciphered.

A single rat-tailed file (No. 3766) was found. It has a maximum diameter of 8.5 mm and bears a stamp which again is indecipherable.

The single square file (No. 1064) is 13.9 cm long and 2.5 cm square. The specimen is not stamped.

Of the four triangular files in the collection, only two are complete. One of them (No. 4166) is 15.6 cm long; the other (No. 3757) is 31.0 cm long. These were probably not stamped.

Of the thirteen half-round files, only three are complete. They range in length from 18.5 cm to 30.3 cm. Two are visibly stamped with a fleur-de-lis, as they probably all were originally.

Wood rasp (1)
This is a half-round specimen (No. 32), 30.5 cm long. It is stamped with the initials "I C", surmounted by a fleur-de-lis.

Wood chisel (1)
This specimen (Pl. 31A) is 18.1 cm long and is heavily eared through long and careless use.

Ice chisel (1)
Because the hafted end of this specimen (Pl. 31B) is missing, we have no clue as to its original length. It was fashioned from a bar of wrought iron that was 2.5 cm wide and 1.3 cm thick.

Cold chisels (7)
These specimens (including those illustrated in Pl. 32) range in length from 5.4 cm to 13.7 cm.

Punches (4)
These punches or drift pins (including the three illustrated in Pl. 33) range in length from 7.4 cm to 11.3 cm.

Spikes and nails (1930)
The excavation of Fort Albany produced a vast quantity of spikes and nails. Many of them were so seriously eaten away by rust that they were discarded in the field. Those that were thought to be relatively intact were brought back to the Museum for conservation and analysis. Many more were discarded during the conservation process when it was found that they were not actually rusted nails, but simply eroded iron cores of what had originally been nails or spikes. When the collection was finally conserved and catalogued, it contained 1930 specimens.

We know from the records (e.g., HBRS 1946:291–292) that the Hudson's Bay Company distinguished between nails and spikes, although the difference between the two is not made clear. There is no indication in the literature as to the size of the spikes that were sent to the James Bay posts; they were simply listed as spikes and shipped out by the hundred-

weight. Nails however were sent in at least four sizes—4d, 6d, 10d, and 30d. The "d", as used here, could have referred to the weight of the individual nails. In that case, the "d" would have been the standard abbreviation for "pennyweight", that is, it would stand for 22.5 grains, the actual weight of a silver penny. But the "d" might, with equal validity, have referred to the price of the nails, in which case the "d" would have been the standard abbreviation for "pence". A 10d nail, then, would be the kind of nail that cost ten pence per hundred (Mercer 1960:237).

A seemingly endless series of weights and measurements was taken to see if we could reduce the mass of Fort Albany spikes and nails to specific types. But we were not successful. We found that when the specimens were arranged in an ascending order by either length or weight, they formed a graduated series that exhibited no obvious breaks either visually or statistically. During this process, we rejected a number of incomplete specimens, thus reducing our sample from 1930 to 1859.

These were finally reduced to ten major types by sorting them according to two sets of criteria—tip form and head form. Three forms of tips—pointed, chisel, and splayed—were present, and the heads were of eight different kinds—flat, T, L, square, split, rounded, four-faceted, and nine-faceted (Fig. 18). These attributes, in turn, were clustered in the following manner.

T-headed spikes (3): Two of these (see Fig. 18A) are large specimens measuring 31.7 cm and 38.3 cm in length. They weigh 299.3 g and 305.6 g. The longer specimen, by the way, is not the heavier of the two, but the lighter. So long as we stay within the same general range of specimens, this failure of weight to vary directly with length is characteristic of the entire sample. The largest specimens weigh more than the middle-sized specimens, of course, as these in turn weigh more than the smallest specimens.

The third and final member of the T-headed type is much smaller than the others. It is only 12.3 cm long and weighs only 32.3 g.

One of the spikes has a chisel tip; the other two are splayed.

Gate spikes or studs (5): These short, heavy studs were probably used to decorate and strengthen the gate of the fort (cf. Tyrrell 1931:245). The largest specimen (Pl. 34C) is 140.0 cm long and weighs 330.3 g; the others range in length from 12.3 cm to 13.0 cm and in weight from 69.4 g to 102.7 g.
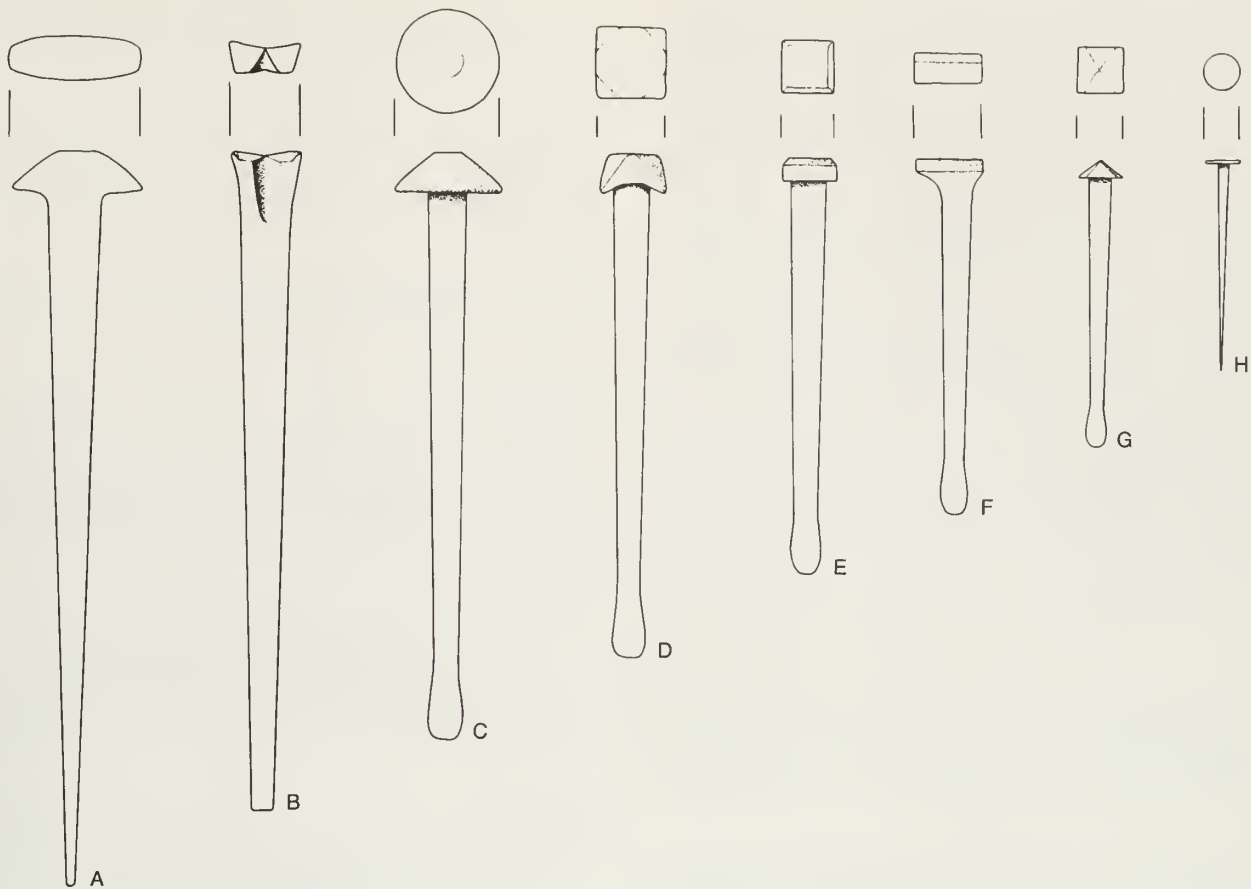
Fig. 18 Types of nail heads and points: *A* T-headed spike; *B* split-headed spike; *C* round-headed spike; *D* square-headed spike; *E* spike with nine-faceted head; *F* L-headed spike; *G* nail with four-faceted head; *H* flat-headed nail.

Split-headed spikes (14): The specimens making up this type (see Fig. 18B) are remarkably uniform. Each of the other groups of spikes and nails consists of a wide-ranging graduated series. This group, in contrast, is tightly clustered around an average length of 30.3 cm; the actual range is from 27.6 cm to 32.1 cm. The average weight of these specimens is 267.8 g, with a range of from 198.2 g to 366.1 g. Eight of these spikes have splayed tips; the other six are pointed.

Half of these spikes were found *in situ*, where they had been used to pin the timbers together at the corners of the buildings. The other seven were scattered about the site, but they had probably served the same function when the fort was still standing.

Square-headed spikes (30): These specimens (see Fig. 18D) range in length from 9.4 cm to 25.5 cm and in weight from 22.4 g to 257.0 g. The tips of three of them are eroded away. Of the remaining twenty-seven, fifteen have chisel ends and twelve have splayed ends.

Round-headed spikes (33): These specimens (see Fig. 18C) form a smoothly graduated series ranging in length from 18.0 cm to 30.0 cm and in weight from 110.1 g to 461.8 g. Ten of the tips are missing—either broken off or eroded away. Of the remaining twenty-three, only one is pointed; the other twenty-two all have splayed tips.

Although these were all tabulated as having rounded heads, thirteen of them actually have a small flattened area on the top of the head.

Flat-headed nails (46): These sharply pointed specimens (see Fig. 18H) can be distinguished from all other nails at Fort Albany by their broad, flat heads. The shorter members of this group—or even all of them—are probably the items listed as ''scupper nails'' in the Hudson's Bay Company records. They would have been used to attach cloth or leather to wood, as in upholstering or bellows making.

These nails fall into three distinct sizes. The nineteen largest ones range in length from 6.5 cm to 9.0

cm and in weight from 9.8 g to 13.4 g; the sixteen specimens in the middle series range in length from 3.0 cm to 4.9 cm and in weight from 2.7 g to 4.0 g. The remaining eleven specimens would be called carpet tacks today; they range in length from 2.0 cm to 2.4 cm and in weight from 0.6 g to 1.8 g.

Spikes with nine-faceted heads (95): Apart from one anomalous specimen that is 34.0 cm long and weighs 344.7 g, these spikes (see Fig. 18E) form a smoothly graduated series. They range in length from 11.7 cm to 27.6 cm and in weight from 34.7 g to 232.6 g. Four of the tips are pointed; ninety-one are splayed.

Pointed nails (755): These specimens, again, form a smoothly graduated series (see Pl. 35). They range in length from 2.9 cm to 12.8 cm and in weight from less than a gram to 27.3 g. Two types of head are present, particularly on the larger specimens; these are the four-faceted and the nine-faceted types (see Fig. 18G, E).

Because rust has eaten away a larger proportion of the smaller nails, the heads of these specimens are more difficult to identify. It proved impossible, therefore, to determine the relative frequency of the two head-types in this group.

Nails with four-faceted heads and splayed tips (776): This was the most common nail found during the excavation at Fort Albany (see Fig. 18G). These specimens, too, form a smoothly graded series (see Pl. 36). They range in length from 4.5 cm to 13.9 cm and in weight from 2.0 g to 41.1 g.

L-headed spikes and nails (102): Although this group does consist of a smoothly graduated series, the extreme ranges of lengths and weights overlap the nail sizes at one end of the scale and the "spike" sizes at the other, that is, if we consider only size and weight, these specimens do not form a discrete series. It is only their head form that sets them apart. In all probability, these, like the split-headed spikes, constitute a separate functional category. They were designed to bear lateral rather than longitudinal stresses and would have been used in situations where a projecting nail head would have been undesirable. Today we would use a finishing nail in such situations. A disproportionate number of these specimens were, in fact, used at Fort Albany to tie the corners of the log structures together. With the projecting "L" and the splayed end in the same plane—as they all were—each course of logs would have been spiked in place with minimal danger of split-

ting; with the head driven in flush with the surface of the wood, there would have been no projections to interfere with the positioning of the next course of logs.

The specimens in this group range in length from 4.8 cm to 39.7 cm and in weight from 2.1 g to 516.6 g. Twelve of the tips are pointed; the remaining ninety are splayed.

Unfinished spike (1): This spike (Pl. 37) is 21.5 cm long and weighs 117.6 g. It has a splayed tip.

Angle-irons (79)

These bi-pointed angle-irons were probably used on wooden structures for the same purpose that clamps were used on masonry structures—to keep abutted members in alignment, as well as to strengthen particularly vulnerable joints (see Kidd 1949:38, pl. XXIV).

The angle-irons were widely scattered across the site, as were most artifacts; the sizes and the proportions of these items (see Pl. 38) are fairly uniform. An average specimen has a short arm of about 4.5 cm and a long arm of about 9.0 cm.

Pintles (27)

The longer, pointed arms of these pintles (see Pl. 39)—the parts that would have been driven into the wood—range in length from 3.7 cm to 23.5 cm; the shorter, cylindrical arms—the parts that would have engaged the hinges or gudgeons—range in height from 3.0 cm to 7.5 cm.

The shorter pintles would have been used to hang light doors or shutters; the longer ones were probably used to hang gates or the rudders of small boats.

Hinges (26)

Although only six of the specimens are complete or essentially complete, the Fort Albany collection consists of twenty-six hinges. Seven of them are single-strap hinges (see Pl. 40E) that would have been hung on pintles. They are relatively long specimens, measuring from 22.5 cm to 30.5 cm in length and having larger eyes than the male part of a double-strap hinge would normally have.

Five butterfly hinges were found, of which only one is complete (Pl. 40A). The four incomplete H-hinges (three of which are illustrated in Fig. 19A–C) probably all ranged between 16.6 cm and 18.0 cm in height. Of the three butt hinges, only one is complete (Pl. 40C).

The two largest hinges in the collection were probably from the gate to the fort. The ends that engaged
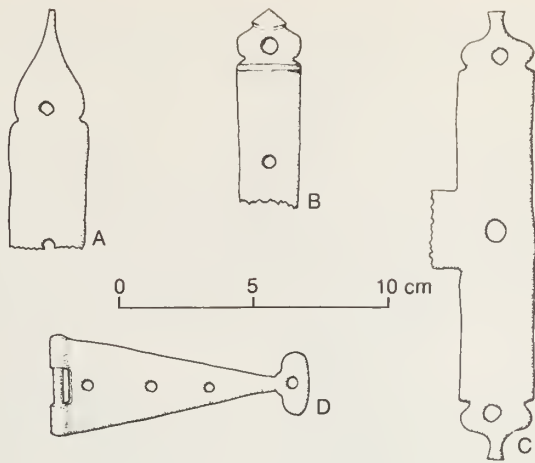
Fig. 19 Hinges, Fort Albany: *A* H-hinge (No. 3854); *B* H-hinge (No. 1127); *C* H-hinge (No. 570); *D* double-strap hinge (No. 1877).
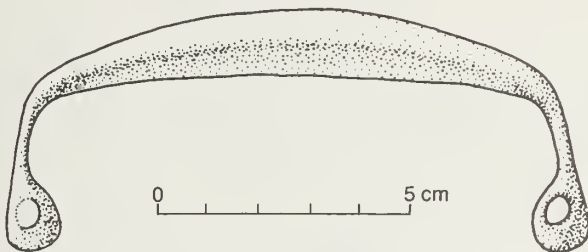
Fig. 20 Iron handle (No. 349), Fort Albany.
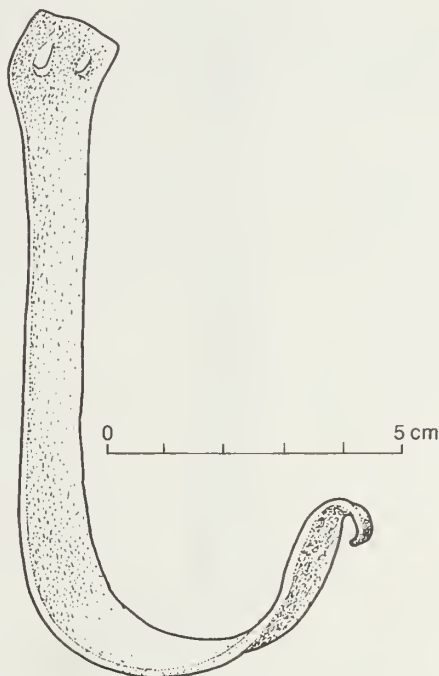
Fig. 21 Wall hook (No. 3857), Fort Albany.

the pintles are both missing, having been broken off. The surviving portions are 49.0 cm and 53.0 cm long.

Two small triangular double-strap hinges are present (see Fig. 19D). The single T-hinge, relatively complete, is illustrated (Pl. 40B). The final two specimens in this series are incomplete (see Pl. 40D).

Several of the hinges, incidentally, had been attached with nails (see Pl. 40F) rather than with the screws that would be used today.

Drawer pulls (12)

Three of these are simple iron rings about 3.0 cm in diameter (Pl. 41). Each of them is fitted with an iron strap, some 8.0 mm wide, that would have gone through the front of the drawer or cupboard door and been clinched on the inside.

Four others are of a similar nature except that they are much larger and the "rings" are pear shaped (see Pl. 42).

The remaining five are illustrated on Plate 43.

Iron handle (1)

This specimen (Fig. 20) may have been a drawer pull, but was more probably the handle from a trunk or some similar item. It is essentially a tube with flattened ends.

Wall hooks (33)

These hooks are of two different types, although they both would have served to hang small items such as clothing, tools, and weapons on interior walls.

Thirty of these specimens were fashioned from wrought-iron strapping and provided with either one or two holes near the end of the shank for nailing them to the wall (see Fig. 21).

The remaining three were fashioned from rectangular stock, probably nail-rod, with the upper ends bent outwards and hammered to a point (see Fig. 22). These would have been driven into the walls.

The shortest wall hook is 6.0 cm high; the longest is 12.9 cm high.

Fig. 22 Wall hook (No. 3109), Fort Albany.

Tackle hooks (9)

Most of these hooks, and possibly all of them, would have been used with a block and tackle to lift heavy objects or to absorb the recoil when a cannon was fired.

The largest and heaviest member of the group (Fig. 23) is unusual in that the tip is blunt and pierced with an 8-mm hole for mousing. It weighs 1.1 kg.

Seven of the others are of the same general shape and proportion except that their tips are bluntly pointed (see Fig. 24). The smallest of these specimens weighs 111.2 g.

The remaining hook is a long-shanked specimen (Fig. 25) and weighs only 29.7 g.

Pulley sheaves (2)

One of these specimens is 11.0 cm in diameter and 2.8 cm thick; the central hole is 2.9 cm in diameter.

0   5 cm

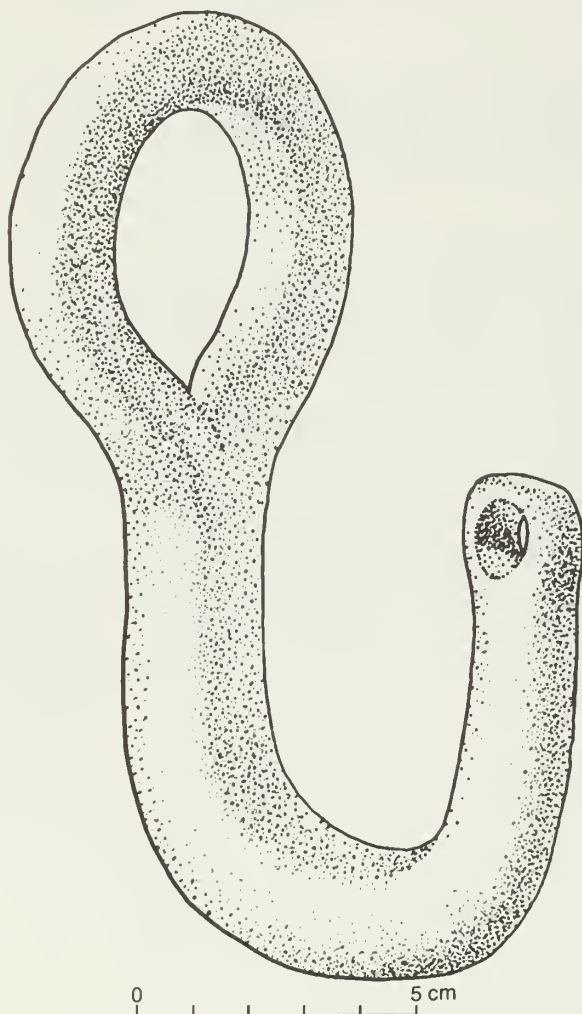Fig. 24 Tackle hook (No. 1072), Fort Albany.
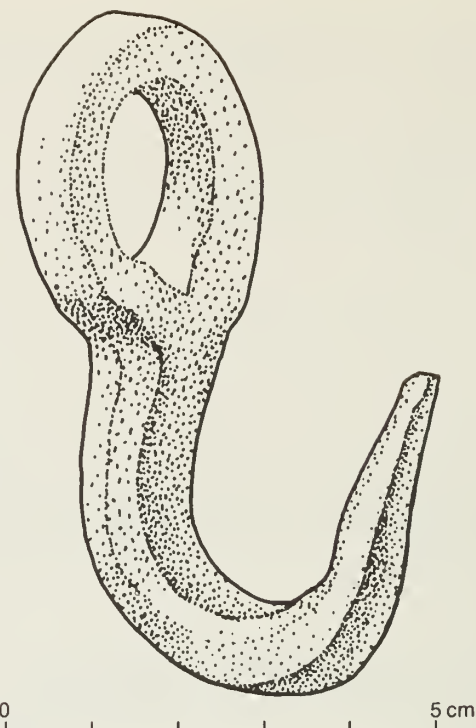

0   5 cm

Fig. 23 Tackle hook (No. 84), Fort Albany.
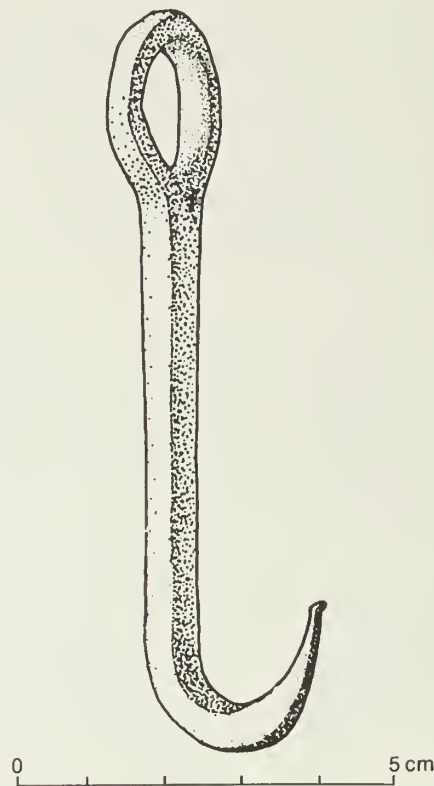

0   5 cm

Fig. 25 Long-shanked hook (No. 3932), Fort Albany.

The other was at least 18.0 cm in diameter, but both the centre and the outer rim are missing; this specimen is 3.2 cm thick. Both are made of oak.

Staples (41)
Eleven of the staples are square headed (see Pl. 44B, D). The remaining thirty are round headed (see Pl. 44A, C, E). In height, the staples range from 4.5 cm to 16.2 cm; in width, the round-headed ones range from 2.2 cm to 5.4 cm and the square-headed ones from 2.2 cm to 10.1 cm.

Roof tiles
Vast quantities of whole and broken roof tiles were scattered across the Fishing Creek site. These were used to cover the houses, as well as to build stoves and fireplaces, as we have seen. Their dimensions are quite uniform at 10½ inches × 6¼ inches × ½ inch (26.7 cm × 15.9 cm × 1.3 cm). Most of these specimens were reburied at the site.

English bricks
Pieces of English brick were also fairly common at the site, although relatively few complete specimens were recovered. Most of these, too, were reburied at the site. Their "ideal" dimensions were probably 8 inches × 4 inches × 2½ inches (20.3 cm × 10.2 cm × 6.4 cm). Appropriately, they are a deep brick red.

Flemish bricks
These were much more common than the English bricks, but not nearly so uniform (see Pl. 45). And again, most of them were reburied at the site.

One hundred Flemish bricks were measured and weighed, with the following results:

Length: 5.6 inches to 6.6 inches (14.2 cm to 16.8 cm); average, 6.2 inches (15.7 cm).
Width: 2.2 inches to 3.1 inches (5.6 cm to 7.9 cm); average, 2.7 inches (6.9 cm).
Height: 1.2 inches to 1.6 inches (3.0 cm to 4.1 cm); average, 1.4 inches (3.5 cm).
Weight: 1.2 pounds to 1.8 pounds (544.3 g to 816.5 g); average, 1.5 pounds (680.4 g).

Window glass and cames
The thickness of the window glass from Fort Albany is remarkably uniform at 1.5 mm. Both rectangular and triangular panes were used at the post, but no complete rectangles were found. The only measurable dimension from a rectangular pane with both corners present was 10.0 cm. The longest edge piece in the collection measures 15.7 cm, but since only one corner was present, its total length is unknown.

Two complete triangular window panes were found, both still mounted in their lead cames. The larger specimen (Pl. 46B) measures 4.7 cm per side; the smaller (Pl. 46A) measures 3.0 cm per side.

Twenty-seven pieces of lead cames were also found. These were formed by a mill that extruded an H-shaped strip of lead. The manufacturer of the Fort Albany cames had engraved his initials and the date of manufacture on the wheels of his mill. Then, when the mill was being operated, each revolution of the wheel would emboss the inscription in the bottom of one of the grooves in the came.

Several of the cames bear the inscription ".WM. W. W. 1673." (Pl. 47); two of them bear the inscription "W*1690*D*P*" (Pl. 48). One of the latter, incidentally, is on the leaded pane illustrated in Plate 46B.

Latch keepers (7)
These specimens (including those illustrated in Pl. 49) probably had a maximum length of about 14.0 cm.

Bolt keeper (1)
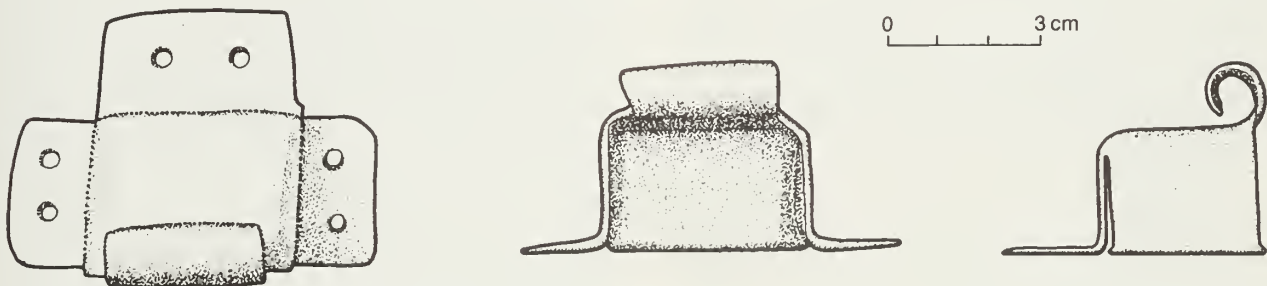This specimen (Fig. 26) was fashioned from a single thin sheet of wrought iron.

Fig. 26 Bolt keeper (No. 3923), Fort Albany.

Door hooks (2)
Both of these specimens are illustrated in Plate 50.

Hasps (8)
Three different types of hasp were excavated at Fort Albany. Five of the hasps had been fashioned from slender iron rods (see Fig. 27); these were hinged and ranged from 13.0 cm to 19.0 cm in length. Two of the hasps were single iron straps (Pl. 51); one was hinged, the other fixed. The remaining hasp (Fig. 28) was a hinged specimen that would have been engaged by one of the case locks.

Padlocks (2)
The body of the large padlock (Pl. 52A) is 7.5 cm long, 7.2 cm wide, and 2.0 cm thick. The body of the smaller specimen, the half-heart lock (Pl. 52B), is 4.0 cm long and 3.0 cm wide. It was fashioned from thin sheets of wrought iron, brazed together (cf. Hume 1970:243–252, figs. 77B, 79).

Case locks (4)
The four case locks are all rather battered, but are clearly typical of the period. Only one of them was sufficiently intact to yield reliable measurements: it was 13.0 cm high and 13.5 cm wide.

Fig. 28 Case-lock hasp (No. 1396), Fort Albany.

Keyhole escutcheons (4)
Three of these unremarkable specimens were fashioned from sheets of wrought iron, the fourth from brass.

Keys (8)
Four of the keys from the Fishing Creek site are large wrought-iron specimens. The largest one (Pl. 53D) is broken, but was probably about 13.0 cm long. Two of them (Pl. 53A, C) are 8.7 cm long; the remaining specimen (Pl. 53B) is 9.5 cm long.

The other keys are much smaller, ranging in length from 3.1 cm to 4.8 cm. The largest in this series (Pl. 54D) is a fancy specimen made of cast brass.

Gilded brass escutcheons (2)
Each of this pair of decorative objects (Pl. 55) is 3.6 cm high, 1.9 cm wide, and 3.0 mm thick. Fashioned from cast brass, each one has two tacks, cast integrally, on its back. The tacks are 1.5 cm long.

Brass belt-loops (2)
These rectangular loops, probably part of a uniform, are both 6.5 cm long and 1.7 cm wide (Pl. 56). Their backs and ends are semicircular in cross-section and are 3.0 mm wide; their fronts are lenticular and swell to a maximum breadth of 7.0 mm.

Engraved copper strap (1)
This strap was probably from a trunk or case of some sort. Its original length is unknown because both ends are broken off, but it is 3.6 cm wide, with tightly rolled edges. The remaining fragment is 9.6 cm long (Pl. 57). The engraved name, "M^r*Thomas←M...", is probably that of Thomas McCliesh who was chief trader at Fort Albany from 1715 to 1722. It was McCliesh, incidentally, who moved the post from the Fishing Creek site to Albany Island in 1720 or 1721.

Fig. 27 Iron hasp (No. 4034), Fort Albany.

Perforated copper straps (3)
These specimens each have an expanded, perforated central portion. If we accept the heavily corroded specimen that is not illustrated as typical, there were originally thin straps at least 4.0 cm long extending from both ends of the illustrated centre pieces (Pl. 58A, B). The straps were 5.0 mm wide (see Pl. 58B). On the two specimens illustrated the straps have been severed from the centre pieces, which were then carefully smoothed. These objects were found quite close together on the floor of House No. 3.

Brass coat of arms (1)
Three holes were punched through this specimen (Pl. 59), suggesting that it may have been nailed up in some prominent place as a symbol of authority. It is 8.0 cm high and 8.5 cm wide.

Hoes (2)
The only evidence of the extensive gardening at Fort Albany, apart from the written records, was the presence of two hoes (Pl. 60). They are both 22.2 cm high and 11.4 cm wide.

Scythe blades (2)
These were used for cutting hay in the marshes. Both blades are relatively complete. They are 60.4 cm and 71.0 cm long, and 5.0 cm and 7.0 cm wide, respectively.

Grindstone (1)
Although both pieces are present, this specimen was broken in half when it was found on the floor of House No. 1 (see Pl. 2). Fashioned from fine sandstone, it is 70.5 cm in diameter and weighs 99.4 kg. The central mounting hole is 6 cm square. The stone is 12.75 cm thick at the centre and tapers to a thickness of 10.5 cm at the edge.

Crank (1)
This specimen (Pl. 61) was probably used to mount a grindstone. It would not have accommodated the specimen we have just discussed, however, because the rectangular portion of the crankshaft—the part that would have engaged the hole in the stone—is only 2.5 cm square.

Whetstone (1)
Because both ends have been broken off, we have no clue as to the original length of this specimen. The remaining fragment, however, is 7.0 cm long. It is 3.2 cm square, with neatly chamfered corners.

Proportional compass (1)
Part of a mathematical instrument, this specimen was fashioned from brass and boxwood (Pl. 62 and Fig. 29). In all probability it was used by the master of one of the ships, as was the set of dividers described below.
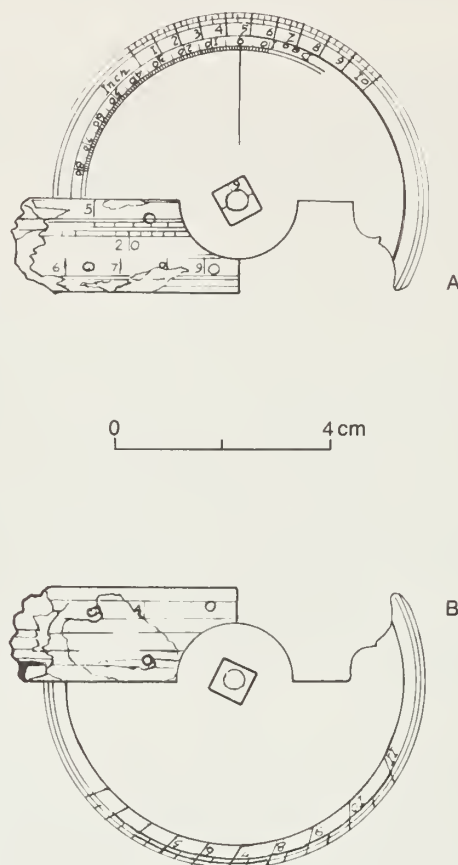
Fig. 29 Proportional compass (No. 443), Fort Albany: *A* obverse; *B* reverse.

Dividers (1)
This plain wrought-iron specimen is 12.5 cm long.

Anchor fluke (1)
This wrought-iron specimen, part of the anchor for a small boat, is 13.0 cm long and 7.0 cm wide at the base. It is welded to a short length of rod which is 2.0 cm in diameter.

Ladle (1)
The overall length of this specimen (Pl. 63) is 42.4 cm. The brass bowl is about 10.5 cm in diameter and 2.0 cm deep. The wrought-iron handle is attached to the bowl with three iron rivets.

Funnels (2)
One of these specimens had been made of extremely thin iron. It was so completely disintegrated that no reliable measurements could be recorded. The other one (Pl. 64) was a simple sheet of used copper—probably part of a worn-out kettle—that was rolled into a tapered tube, with a maximum length of 15.0 cm.

Ivory dice (2)
These are not a matched pair since they are of slightly different sizes. The smaller one (Pl. 65A) is approximately 8.0 mm cubed; the other is about 9.0 mm cubed. Neither one is quite symmetrical.

Threaded ivory rings (2)
Both these objects were designed for attachment to the neck of a bottle or flask of some sort. The smaller ring (Pl. 66A) is 1.6 cm in diameter and 5.0 mm thick. It was designed to fit over the neck of a container with an oral diameter of 1.4 cm. It was apparently attached to the container with a single pin driven through the hole in its rim. The ring is threaded to accommodate a stopper with a diameter of 1.0 cm.

The larger ring (Pl. 66B) is 2.4 cm in diameter and 4.0 mm thick. It is threaded for attachment to a container with an oral diameter of 1.8 cm. The unthreaded hole in the centre of this object is 7.0 mm in diameter.

Pewter cap (1)
This stopping device (Pl. 67A, B), is probably from a leather bottle or a glass or ceramic decanter. The container, whatever it was, had a beaded rim about 4.0 cm in diameter; the lower edge of the pewter cap was rolled around the rim, forming a tight seal. The threaded nipple or stopper has an oral diameter of 2.4 cm. With the cap in place over the stopper, the specimen is 5.0 cm in diameter and 2.2 cm high.

Coins (3)
Three French coins were unearthed during the Fort Albany excavations. These were a silver Louis XIV, dated 1655; a copper écu, dated 1670; and a copper carolus, dated 1675.

Lead figurine (1)
Cut from a sheet of lead that was 2.0 mm thick, this figure (Pl. 68) is 4.5 cm high and 4.0 cm wide.

Hanging lamps (4)
These roughly made hanging oil lamps, all fashioned from sheet lead, were used by placing a wick in each corner (see Secretan, ed., 1982:43). One of the lamps is circular, 6.0 cm in diameter, with vertical sides that are 3.0 cm high. The upper edges of the sides are pierced with six small holes for suspension.

The other three lamps are all rectangular. The smallest is vertical sided (Pl. 69A), measures 5.0 cm by 6.5 cm, and is roughly 2.0 cm high. It, too, is pierced for suspension but only on three sides.

On the largest specimen (Pl. 69B), the sides slope outwards. It measures 10.0 cm by 11.0 cm and is 3.0 cm high. Each of the sides is pierced for suspension; on three sides copper wire is still threaded through the holes and loosely twisted together.

The remaining specimen (Pl. 69C) measures roughly 6.0 cm by 8.0 cm and is 2.0 cm high. It, too, has out-sloping sides.

Lead net-sinkers (16)
These specimens are of two types—eight are tubular and eight are rectangular. The tubular ones were cast; the rectangular ones were cut from odd pieces of metal. As a result, the latter are quite irregular as regards both size and shape (see Pl. 70C–G). For example, their weights range from 88.1 g to 136.6 g, with an average of 110.9 g.

The tubular net-sinkers, on the contrary, are perfectly regular, as one would expect of objects that were mass produced in moulds. Two different sizes are present. The seven larger specimens (see Pl. 70A) are all 4.6 cm long, have major diameters of 2.1 cm, and are pierced longitudinally by 7.0-mm holes; their weights cluster tightly around 106.0 g.

The remaining specimen (Pl. 70B) is 3.4 cm long, has a major diameter of 1.6 cm, and is pierced by a 6.0-mm hole.

Lead discs (37)
These peculiar objects (including those illustrated in Pl. 71A–E) may have served as tokens of some sort, or they may have been used as pieces in a board-game such as draughts. Whatever they were, they are quite irregular as regards both size and weight. Diameters, for example, range from 1.3 cm to 3.6 cm, and weights range from 2.7 g to 28.5 g. Twelve of the discs have either an ''X'' or a cross marked on one side only; the others are plain. One of the plain discs is perforated near the edge, as though for suspension.

Lead squares (22)
Other than in shape, these specimens (including those illustrated in Pl. 71F–J) are identical with the discs described above.

Common pins (2)
These tinned brass specimens (Pl. 72A, B) are 2.5 cm and 3.2 cm long.

Apparel buckles (3)
The oval iron buckle (Pl. 73A) is 3.1 cm long and 2.4 cm wide. It was attached to a strap by the small stud; the tongue is missing, as it is on the other two buckles.

The smaller rectangular specimen (Pl. 73B) is made of brass; it is 2.8 cm long and 2.0 cm wide. The cross-piece, which supported the tongue, is of iron.

The remaining specimen (Pl. 73C) is 3.8 cm long and has a maximum width of 2.5 cm; it is made of iron.

Casket hinge (1)
Made of thin cast brass, this delicate specimen (Pl. 74) was probably used on a small casket, an instrument case, or some similar object. It is 3.2 cm long and 1.2 cm wide.

Barrel hoops (3)
The smallest of the hoops is 17.8 cm in diameter. It was fashioned from a thin wrought-iron strap 3.0 cm wide. The ends of the strap were overlapped and fastened with two iron rivets.

The other hoops are both 30.0 cm in diameter; the ends of the 2.5-cm- and 3.0-cm-wide straps are each fastened by a single rivet.

Wing-nut (1)
This unfinished specimen is 3.2 cm high and 3.9 cm wide. When it was threaded, it would have engaged a bolt with a diameter of $5/16$ inch (0.8 cm).

Iron toggle (1)
This bi-pointed specimen is 9.7 cm long.

Iron stock
Many pieces of the iron that was sent out to James Bay for the use of the blacksmith were scattered about the Fort Albany site. Three sizes of round stock were found—with diameters of $1/4$ inch, $3/8$ inch, and $1 1/4$ inches (0.6 cm, 0.9 cm, and 3.2 cm).

Stock with a square or rectangular cross-section occurred in the following sizes: $1/4$ inch $\times$ $1 1/4$ inches, $1/4$ inch $\times$ $13/16$ inch, $5/8$ inch $\times$ $3/4$ inch, $3/8$ inch $\times$ 1 inch, $5/8$ inch square, and $1/2$ inch $\times$ 2 inches. Metric equivalents are as follows: 0.6 cm $\times$ 3.2 cm, 0.6 cm $\times$ 2.1 cm, 1.6 cm $\times$ 1.9 cm, 0.9 cm $\times$ 2.5 cm, 1.6 cm square, and 1.3 cm $\times$ 5.1 cm.

Wine bottles (47)
Although vast quantities of bottle sherds were unearthed at the site, most of them were reburied. The catalogued collection includes forty-two complete bases, thirty-seven complete necks, two complete bottles, two reconstructed bottles, and one partially reconstructed bottle.

One complete bottle (Pl. 75) was found on the floor of House No. 2, just west of the fireplace. It is 14.3 cm high and 13.5 cm in diameter, and holds 0.7 L.

The other complete bottle (Pl. 76) was found on the bottom of a test pit in the centre of the western moat. It is 18.0 cm high and 1.2 cm in diameter, and holds 0.9 L.

One of the reconstructed bottles (Fig. 30) is 15.0 cm high and 13.2 cm in diameter. Another (Fig. 31) is 16.1 cm high and 14.2 cm in diameter. The third reconstructed bottle (Fig. 32) is 15.5 cm high and 14.0 cm in diameter.
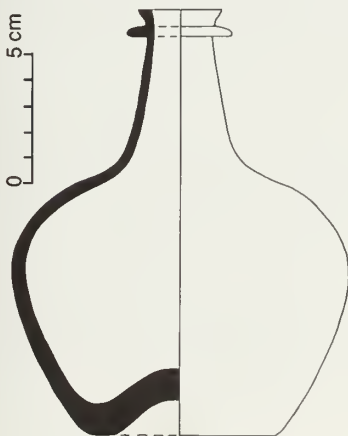
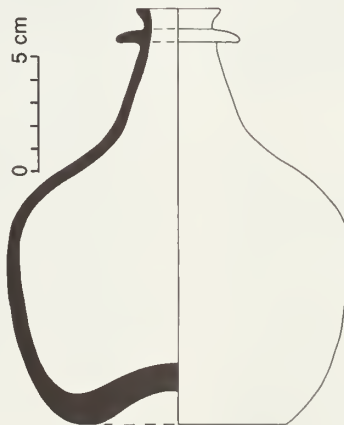Fig. 30 Wine bottle (No. 3222), Fort Albany.
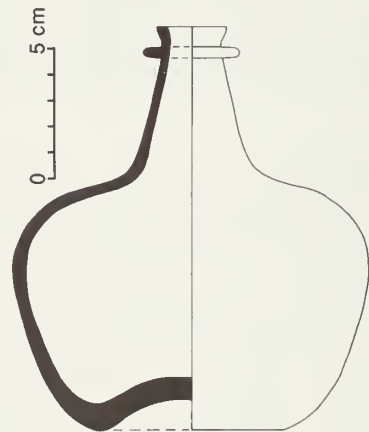
Fig. 31 Wine bottle (No. 3221), Fort Albany.

Fig. 32 Wine bottle (No. 3218), Fort Albany.

Bottle seal (1)

The only bottle seal found during the excavations at Fort Albany bears the initial "H" (Pl. 77), the monogram of someone whom we have been unable to identify.

Case bottles (18)

Only two of these specimens could be restored to the point where it was possible to take reliable measurements. But all of them had relatively flat rectangular bases and thin sides that sloped gently outwards.

One complete specimen (Pl. 78) is 19.1 cm high and has a base that is 5.2 cm square. The other (Pl. 79) is 17.9 cm high and has a base that is 5.6 cm square.

In addition to the two bottles that were reconstructed, ten bottoms and sixteen necks from case bottles were found during the excavations. Although several of the necks were larger than the ones on the illustrated specimens, they were all of the same type. Of the ten bottoms, nine are square, ranging from 4.6 cm square to 10.0 cm square; the remaining specimen measures 8.4 cm × 9.2 cm.

Medicine bottles (16)

In contrast with the wine and case bottles, which were made of dark green glass, these specimens were made of various shades of very light green glass. A couple of them are almost clear.

Our only complete specimen (Pl. 80) is a globular bottle with slightly compressed sides. It is 3.3 cm high and measures 2.9 cm across the flats. Its volume is 7.0 mL.

Of the fifteen bases in this group, only four would yield reliable bottle diameters. These range from 3.8 cm to 4.4 cm, with an average figure of 4.2 cm.

Only four necks were found. One of these (Pl. 81A) is cylindrical; it has an outside diameter of 1.5 cm and is 4.0 cm high. The other three necks all have such sharply everted rims that they are flat across the top (see Pl. 81B); two of these flat tops have diameters of 2.5 cm and 3.2 cm.

Silver wire

A short piece of silver wire was found. It is 9.5 cm long and less than 1.0 mm in diameter. It is a two-strand wire with an S-twist. Each strand is 0.4 mm in diameter.

Copper wire

A great many small pieces of thin copper wire were found throughout the excavations. Much of this had apparently been used to secure the corks in wine bottles, for a number of pieces were still attached to bottle necks. Coarser pieces of wire were also found, either as single strands or twisted together—always with an S-twist—to form a two-strand wire. These single strands have diameters of 1.0 mm and 1.5 mm.

Silver-plated copper wire

One roll of this very fine wire was found (Pl. 82). It is a two-strand wire with an S-twist, and has a diameter of 0.4 mm. The individual wires were silver plated prior to being twisted together. The wire is wound around a rolled-up piece of white felt 30.0 cm long and 1.3 cm in diameter. This wire would have been used for making or repairing tinsel braid, an item used to decorate articles of clothing.

Silver-wound thread

This specimen (Pl. 83), 0.03 mm in diameter, is all that remains of what was probably a plaited piece of silver braid. Very little of the thread itself has survived, just enough to show that it was a loosely spun filament, probably silk, with a Z-twist.

Tinsel braid

In addition to the two items mentioned above, several more pieces of the same decorative material were found. All of these were made of copper-wound linen thread (see Pl. 84). And some of these had thin strips of copper woven through them as well (see Pl. 85).

Cloth

The Albany collection contains several small pieces of cloth that were probably from wearing apparel, though none of these could be identified. Except for one piece of silk netting, which was probably from a stocking, and one piece of tabby that had a linen warp and silk weft, all the material was wool. Both weaving and felting were present, as were bits of wool tabby that had been fulled and sheared.

Shoes (5)

Several pieces of shoe leather were found at Fort Albany, including five heels, each from a different pair of shoes. Both nailed and pegged heels are present.

Copper chain (1)

Made up of ten links, the chain (Pl. 86) is 11.0 cm long. The individual links are 1.4 cm to 1.6 cm in diameter.

Iron chains (2)

The pieces of iron chain are 24.0 cm and 26.0 cm long.

Neither is complete. One of them has a swivel at one end, suggesting that it is probably the chain from a small iron trap. Both the chains are made up of individual S-shaped links that range from 2.5 cm to 3.5 cm long.

Copper bells (2)

Only one of the bells is complete (Pl. 87). It is 2.0 cm in diameter and 1.5 cm high. The bell was made from two hemispheres with everted lips that were soldered together after a small iron ball had been placed inside. The suspension loop, rising 6.0 mm above the top of the bell, was fashioned from a thin strap of copper 1.5 mm wide. The ends of the looped strap were inserted into the top of the bell, and then soldered in place.

The incomplete bell is represented only by the distorted upper half. This specimen is somewhat larger than the complete bell, probably about 2.3 cm in diameter. The suspension loop was made and attached in the same way as on the previous specimen. It is different, however, in that the strap was 3.5 mm wide.

Lump of beeswax (1)

This blob of wax (Pl. 88) was used by a tailor or shoemaker to wax his thread.

Brass kettle-lugs (3)

One complete lug and two partial lugs were found. The complete specimen (Pl. 89B) is 8.1 cm high and 6.2 cm wide. Fashioned from cast brass, it was attached to the kettle by two brass rivets inserted from the inside.

One of the partial lugs, not illustrated, is identical with the complete specimen. The remaining specimen (Pl. 89A) was fashioned from a strip of brass 4.2 cm wide. The hole for the bail is 1.0 cm in diameter and punched from the inside. As is usual with these specimens, the upper corners of the lugs were bent outwards and hammered flat.

Ivory handle (1)

This finely finished specimen (Pl. 90) was possibly the handle from a piece of cutlery. It is 6.8 cm long and tapers in thickness from 9.0 mm at the wide end to 7.0 mm at the narrow end. In width, it tapers from 1.5 cm to 1.0 cm. It has a hole 4.0 mm in diameter in each end; the hole in the narrow end is 3.5 cm deep, and that in the other end is 1.1 cm deep.

Vermilion

This pigment, which appears from time to time in the

Hudson's Bay Company records, is cinnabar; it probably came from the famous mercury mines at Almaden, in Spain.

Fish hooks (12)

These specimens lack the eye of the modern fish hook. To attach the hooks to the line, the tops of the shanks were slightly everted and then widened by being hammered flat. Fish hooks in three lengths are present (Pl. 91): 4.8 cm, 5.9 cm, and 8.0 cm.

Strike-a-lites (5)

Only one complete specimen was found (Pl. 92D). It is 8.4 cm long and has a striking edge 3.5 mm thick.

Finger rings (5)

Three of the rings (Pl. 93A–C) were made by rolling up strips of brass and soldering the ends together. At least one was tinned, as the other two probably were. Two of them are size 7; the other is size 8½.

Another ring (Pl. 93F) has a bezel decorated with a portrait of St Peter in low relief. The final ring has a decorated octagonal bezel (Pl. 93E).

Brass seal (1)

This specimen (Pl. 93D) was used to seal letters with the initials ''R A''. This would probably have belonged to Richard Alderage, who left the bay in 1682 aboard the *Diligence* (HBRS 1945:299).

Combs (5)

The single wooden specimen is a coarse, single-sided comb (Pl. 94B). The others, of boxwood or ivory, are double sided and usually referred to in the literature as ''cootie'' combs (see Pl. 94A).

Tar

Several lumps of this material were scattered about the site.

Mica

Many small irregular pieces of muscovite, or white mica, were found.

Corks

A number of whole and broken corks were found, many still in the necks of broken bottles.

Tile pins

These bits of lead, about 4.5 cm long and 3.0 mm square, were probably used for hanging roof tiles.

Fig. 33 Bale seal (No. 3551), Fort Albany.

Fig. 34 Bale seal (No. 3555), Fort Albany.

Fig. 35 Bale seal (No. 3603), Fort Albany.

Fig. 36 Bale seal (No. 3556), Fort Albany.

Slate pencils

These were probably used by the blacksmith in laying out his work. The modern iron-worker would use a piece of steatite for the same purpose.

Bale seals (10)

None of the Fort Albany bale seals are inscribed with a person's name. Nor are there any symbols present that have been identified to date. The stamps that closed the seals left impressions that range from 1.3 cm to 3.5 cm in diameter. All the complete specimens are illustrated (Figs. 33–36). The others cannot be deciphered.

Buttons (38)

The most common type of button found at Fort Albany is circular with a flat back and a rounded face (Fig. 37). Seventeen of this type were cast in white metal—essentially lead—in an open mould. Eyes are of copper wire, looped and set into the mould before the metal was poured. Some, but not all, have a small nipple in the centre of the face, such as is illustrated. These specimens have diameters that range from 1.3 cm to 1.8 cm. A similar specimen (Fig. 38) is fashioned from a copper alloy.

Eleven of the buttons are plain spheres ranging from 1.2 cm to 1.8 cm in diameter (see Fig. 39). Most of them—and probably all—were cast, in either white metal or a copper alloy, in two pieces. These were soldered together, and then tinned. The eyes were loops of wire, presumably all copper. Each end of the wire loop was inserted through a separate hole in the back of the button and soldered in place.

Two of the buttons are solid castings in white metal, with mould marks across their back surfaces. Both have eyes that were cast integrally and both are 2.8 cm in diameter. Only one of them, however, is decorated (Fig. 40).

Two of the buttons are of spun copper or brass (Fig. 41). Oval in section, they are 1.4 cm in diameter and 8.0 mm thick. Before the front and the back of these specimens were soldered together, two holes were punched through each of the backs from the inside. The ends of the copper wires that formed the eyes were then inserted through the holes and soldered in place.

One specimen in white metal (Fig. 42C) is 1.6 cm in diameter and 1.2 cm thick. In spite of the fact that this button is very heavily corroded, the sharpness of its decoration is still evident. Presumably the two portions were soldered together, and it is probable that the button was fitted with an eye of copper wire; however, details of these features are no longer available.

The remaining four metal buttons in the Albany collection are all made of a copper alloy. One of them (Fig. 42A) is 2.7 cm in diameter and 8.0 mm thick. The two halves, as usual, are soldered together. Because part of the back has been eroded away, we have no data regarding the eye. Another specimen (Fig. 42B) is also 2.7 cm in diameter, but is only 6.0 mm thick. The two halves are soldered together, and the ends of the eye are inserted through a hole in the back and soldered in place. The other two specimens in the group are made in the same way. One of them (Fig. 43) is 1.4 cm in diameter and 6.0 mm thick; the other (Fig. 44) is 1.6 cm in diameter and 6.0 mm thick. This last specimen is unique in that the eye was fashioned from iron wire.

The two final buttons in the Albany collection are made of wood. Both have rounded faces, flat backs, and a single perforation. The larger one is 1.5 cm in diameter and 4.0 mm thick; the smaller one is 1.4 cm in diameter and 5.0 mm thick.
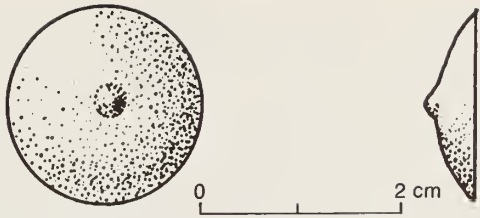
Fig. 37 Button (No. 3542), Fort Albany.

Fig. 38 Button (No. 1998), Fort Albany.

Fig. 39 Button (No. 2002), Fort Albany.
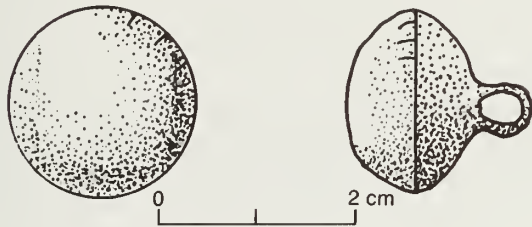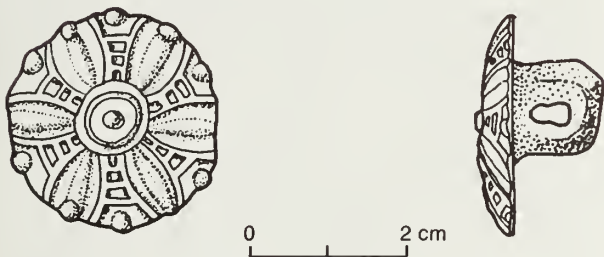
Fig. 40 Button (No. 3538), Fort Albany.

Fig. 41 Button (No. 3653), Fort Albany.

Fig. 42 Buttons, Fort Albany: *A* No. 1665; *B* No. 3638; *C* No. 2106.

Fig. 43 Button (No. 1707), Fort Albany.

Fig. 44 Button (No. 1703), Fort Albany.

Scissors (6)

The Albany scissors are of two types—a long pointed variety (Pl. 95A, C–E), and a short, blunted variety (Pl. 95B). Four of the longer variety are present, and two of the shorter. The short specimen illustrated (Pl. 95B) has the initial "S" stamped on both blades, just below the rivet.

Iron awls (14)

Although only fourteen of these items are listed in the Albany collection, a great many more were almost certainly present. The problem with arriving at an accurate count is that broken or seriously eroded awls are impossible to distinguish from heavily corroded, headless nails. The specimens illustrated on Plate 96 range in length from 10.5 cm to 16.0 cm; at the centre, they are all about 3.0 cm square.

Jew's harps (4)

Three of these are identical at 5.5 cm long and 3.3 cm wide (see Pl. 97). All are diamond shaped in section. No accurate dimensions of the fourth specimen could be determined because of corrosion. It is slightly smaller than the others, however, probably about 3.0 cm wide.

Smoker's companions (2)

These tongs were used by pipe smokers of the period to keep their pipes in good working order and to pick up embers for lighting them. Plate 98 shows these specimens as they came out of the ground. Plate 99 shows the same specimens after conservation: 99A is 10.0 cm long and 5.0 mm thick; 99B is 12.2 cm long and 4.0 mm thick.

Copper bangles (44)

These items were evidently made from stray bits of copper since they are quite variable (see Pl. 100). Lengths range from 1.8 cm to 5.3 cm.

Crooked knife (1)

Only one was found. It is 19.0 cm long, with a blade that is 3.6 cm wide.

Jack-knives (13)

Two types of jack-knife blade are present—the "eared" variety (see Pl. 101A, B, D, E) and the "notched" type (see Pl. 101C), which is similar to a modern blade. The collection includes eleven of the former and two of the latter type.

The "notched" specimen illustrated (Pl. 101C) is ca 11.7 cm long; on the left of the blade is stamped a capital "B", possibly the initial of S. Banner, the ironmonger whom we encountered earlier. Beneath the initial is a small faint stamp that appears to be an inverted heart. The other "notched" blade is about 9.0 cm long and has a lowercase "b" inset in copper on the left side of the blade.

The "eared" blades range in length from 10.0 cm to 13.0 cm. Three of these are stamped. One of the stamps is the capital "B" already noted; the other two are stamped with the symbol illustrated in Figure 45.

Table knives (10)

Because of extensive corrosion, we are unable to determine the lengths of the blades or the shapes of the tips on these specimens. Blades during the period in question, however, would have been parallel sided with both pointed (see Pl. 102C) and rounded (see Pl. 102B) tips (Hume 1970:177–184).

Three of them are stamped—one with the mark of the London Cutlers' Company (Pl. 102A), one with a capital "H" surmounted by a small heart, and one with what appears to be a capital "V".

Butcher knives (20)

These specimens, again, are of two types—those with curved cutting edges and rounded tips (see Pl. 103A–C), and those with relatively straight edges and pointed tips (see Pl. 103D–F). These occur in the ratio of fourteen to six. The handles are flat and also fall into two types: the blades with the curved cutting edges have handles with rounded ends; those with straight cutting edges have handles with square ends. Handles, so far as we know, were of wood and were attached with iron rivets.

The knife blades were probably all stamped when they were made, though most of the stamps have been eaten away by rust. Those that can be identified—more or less—include a small heart, the symbol illustrated on Figure 45, the initials "T C" surmounted by a crown, and a small four-lobed rosette. All these stamps are on the left side of the blade.

Unfinished knives (4)

Two of the unfinished knives have already been described under the previous heading. Both have curved cutting edges, and one is illustrated (Pl. 103C). The other two cannot be identified as to type.

Table forks (4)

One of these is a small two-tined specimen only 6.6 cm long (Pl. 104A); the top of the shank is threaded
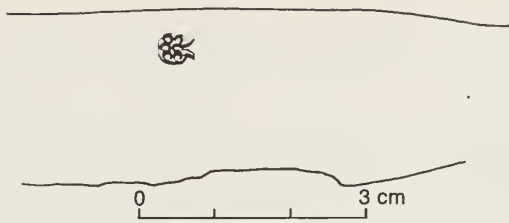
Fig. 45 Maker's mark on knife blade (No. 3738), Fort Albany.

for attachment to a handle. A three-tined, ivory-handled fork, the only complete specimen found, is 18.5 cm long (Pl. 104B). A third fork is represented by a small ivory handle (Pl. 104C); it is 6.8 cm long.

All that remains of the fourth fork is part of the shank and the tang that would have fitted into a handle. This specimen, incidentally, is too long to be accommodated by the spare handle that is illustrated.

Spoons (2)
Both spoons are represented only by their trifid latten handles (Pl. 105). On the back of the larger specimen (Pl. 105A) are the initials "I D B"; the front of this handle is plain. On the back of the smaller specimen (Pl. 105B) are the initials "A B". I would like to think that the "B" stands for Bridgar, the man who established the Albany post, but this cannot be verified.

Cleavers (3)
One large and two small cleavers were found. The large specimen (Pl. 106) is 33.3 cm long, with a curved blade that is 12.5 cm high and 3 mm thick. The back of the blade is heavily eared as a result of pounding.

The two small cleavers are illustrated on Plate 107. The smaller specimen (Pl. 107A) is complete, apart from some minor corrosion, with an overall length of 22.0 cm; the other (Pl. 107B) has had the end broken off its blade.

Fire-backs (3)
At least three heavy cast-iron fire-backs were in use at the fort. One, represented only by a number of small fragments, was presumably plain. The other two are both decorated with figures in low relief rising from slabs that are up to 1.27 cm thick. One of these (Pl. 108) bears the legend "SCIPIO" at the bottom of each decorated panel; the other (Pl. 109) also bears the raised figure of an armed man and the numerals "69", presumably part of a date.

Marlinspike (1)
Only one was found at the site. Fashioned from wrought iron, it is 17.5 cm long and has a rounded head 2.5 cm in diameter.

Metal arrow-points (6)
Three of these specimens are fashioned from wrought iron and have long, round tangs (Pl. 110). They range in length from 9.0 cm to 13.5 cm.

The other three have short, flat tangs and range in length from 3.7 cm to 4.3 cm (Pl. 111). One of these (Pl. 111A) is of iron; the other two were cut from thin sheets of brass, probably from burnt-out kettles.

Swivels (4)
Three complete swivels were excavated. One of them (Pl. 112A) is 15.0 cm long. The other two are bent and broken, but were approximately the same length. Only one half of the fourth specimen was found (Pl. 112B). It is 10.0 cm long.

Stone arrow-points (3)
These items, together with several of the following artifact classes, are of native manufacture and were either collected by the fur traders (possibly as souvenirs) or left in the fort by native visitors.

The three stone points (Pl. 113C–E) are thin, isosceles triangles fashioned from a pale bluish grey chert. They are 2.4 cm, 3.1 cm, and 3.5 cm long; corresponding basal widths are 1.9 cm, 2.0 cm, and 2.1 cm.

Native gun-flints (2)
These specimens (Pl. 113A, B) are roughly rectangular pieces of the same chert that was used to make the arrow-points listed above. Approximately 2.0 cm square, they were fashioned from basal fragments of heavy arrow- or spear-points. Although I have listed them as gun-flints, they might, with equal probability, have been intended for use with a strike-a-lite.

Stone pipes (3)
One of these is an unfinished sandstone pipe (Pl. 114A) 7.6 cm long and 4.6 cm high. Bowl and stem are rectangular in section with chamfered corners.

Another is a broken limestone specimen (Pl. 114B). The surviving fragment is 6.0 cm high. Originally the bowl would have been roughly 1.9 cm square. The stem hole is perfectly circular, parallel sided, and 6.0 mm in diameter. At right angles to the stem hole, and just visible on the broken base of the pipe, is a tapered hole that was drilled from both sides.

The final specimen (Pl. 114C) is part of the basal

section of a catlinite pipe. The surviving fragment is 6.8 cm long; it is rectangular in cross-section, with a slightly rounded upper surface. The diameter of the stem hole tapers from 1.3 cm at the stem end to 6.0 mm at the bowl end.

Slate gorgets (2)
Both these specimens are broken. One (Pl. 115A) is 9.5 cm long, 3.4 cm wide, and 6.0 mm thick. The single suspension hole is 4.0 mm in diameter. The other (Pl. 115B) is part of an unfinished specimen. The surviving fragment is 6.9 cm long, 1.9 cm wide, and 5.0 mm thick. The single suspension hole is 2.0 mm in diameter.

Antler chisel (1)
Fashioned from an antler tine, this chisel (Pl. 116A) is 15.2 cm long. The cutting edge is 8.0 mm wide.

Antler netting needle (1)
Used for lacing snowshoes, this specimen (Pl. 116B) is 12.5 cm long, has a maximum width of 1.0 cm, and is 4.0 mm thick. The centrally located eye is 5.0 mm in diameter.

Barbed antler spear (1)
Technically, this is a spear because there is no provision for the attachment of a line (Pl. 116C). It could, however, be an unfinished harpoon. It is 19.0 cm long and 2.9 cm wide at the base, and has a maximum thickness of 9.0 mm.

Bone awl (1)
This awl (Pl. 117A) was fashioned from the splint bone of a large cervid; the distal end has been extensively modified and the proximal end has been ground to a sharp point. It is 15.5 cm long.

Bone bead (1)
Fashioned from a long bone of a large bird, the bead (Pl. 117B) is 4.3 cm long and 8.0 mm in diameter.

Antler object (1)
This antler tine (Pl. 117C) has been extensively modified to serve some unknown purpose.

Bone pin (1)
This specimen (Pl. 117D) was crudely whittled from a splinter of mammalian long bone; the end was then ground to a needle point.

Bone lances (10)
According to the local Cree who were working with me at the site, these specimens (including those illustrated in Pl. 118) were traditionally fashioned from the cannon bone of a caribou and were in use until fairly recently. Several middle-aged and elderly people told me that their fathers and grandfathers had used them to dispatch game.

These specimens range in length from 23.3 cm to 29.0 cm; they are all triangular in cross-section except the specimen in Plate 118C, which is diamond shaped.

Foreshafts (2)
These antler specimens (Pl. 119) were almost certainly made by the Eskimo. They would have been collected by some member of the ship's company, probably far to the north of Fort Albany. One (Pl. 119A) is 18.4 cm long; the other (Pl. 119B) is 18.0 cm long.

Cannon (2)
Although neither was excavated at the Fishing Creek site, the two cannon in the collection are included here because they are of the same period and were both found in the Albany estuary.

One of them (Pl. 120) was found many years ago at the Shears, the anchorage at the mouth of the river. In spite of some rather serious corrosion, sufficient details were preserved to permit of an accurate reconstruction drawing (Fig. 46). This was a typical British three-pounder of the 1690–1730 period. It was
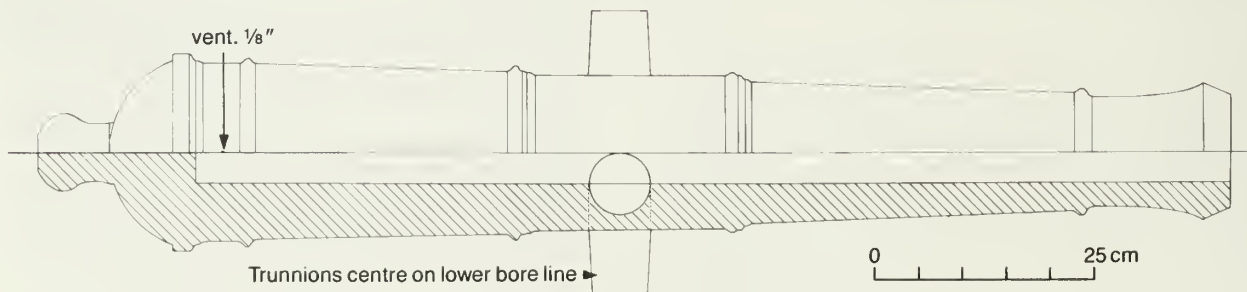

vent. 1/8"

Trunnions centre on lower bore line ▶

0   25 cm

Fig. 46 Three-pound cannon (No. 1962), Fort Albany.
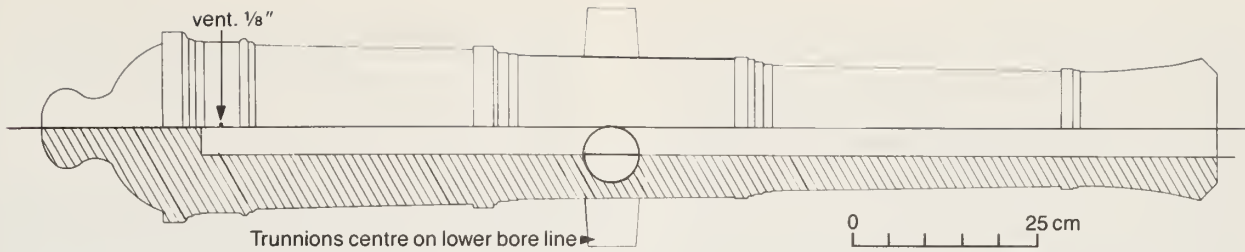
vent. ⅛"

Trunnions centre on lower bore line

0   25 cm

Fig. 47 Four-pound cannon (No. 1963), Fort Albany.

4 feet 6½ inches long, with a bore diameter of 2¾ inches.

The other cannon (Pl. 121) was also found many years ago when it was laid bare by erosion from the shore of Albany Island, just in front of the old trading post. This was a typical British iron four-pounder of the same 1690–1730 period (Fig. 47). It was 5 feet 6⅞ inches long, with a bore diameter of 3¹/₁₀ inches.

Cannon worms (3)
One of these would have been used to draw the charge from a cannon with a 2-inch bore; the others would have fitted a cannon with a 2¾-inch bore.

Cannon balls (38)
Although cannon balls (see Pl. 122A) and grenades, as well as bar-shot, were widely scattered across the upper levels of the Fishing Creek site, not one of them was found in House No. 3.

The thirty-eight balls are tabulated in Table 1.

Table 1. Cannon balls, Fort Albany

Number	Diameter	Weight
1	1⁹/₁₆ in	0.50 lb
1	1¹²/₁₆ in	0.75 lb
18	1¹⁴/₁₆ in	1.00 lb
9	2⁸/₁₆ in	2.50 lb
2	2¹⁴/₁₆ in	3.25 lb
4	2¹⁵/₁₆ in	4.00 lb
1	3²/₁₆ in	5.00 lb
1	3⁶/₁₆ in	5.50 lb
1	3¹⁵/₁₆ in	10.00 lb

38 Total

Plain grenades (13)
See Plate 122C and Table 2.

Table 2. Grenades, Fort Albany

Number	Diameter
1	2¹⁰/₁₆ in
2	2¹⁴/₁₆ in
1	3¹/₁₆ in
2	3³/₁₆ in
1	3⁴/₁₆ in
1	3⁵/₁₆ in
1	3⁶/₁₆ in
1	3⁷/₁₆ in
1	3¹²/₁₆ in
2	3¹⁴/₁₆ in

13 Total

Spiked grenades (2)
The two spiked grenades (see Pl. 122B) are both 2⁷/₈ inches in diameter.

Bar-shot (10)
These specimens (see Pl. 123) are very poorly made in that the ends are but roughly circular. With end diameters falling between 2 inches and 4 inches (5.1 cm and 10.2 cm), they would have fitted cannon ranging from a two-pounder to a ten-pounder. The shot range in weight from 2 pounds 7 ounces to 8 pounds 12 ounces (1.1 kg to 4.0 kg). Lengths range from 22.5 cm to 40.5 cm.

Grape-shot (77)
These stray scraps of iron for charging a cannon (see Pl. 124) weigh from 18.2 g to 103.9 g. Most of these appear to be chopped-up spikes.

Musket barrels (4)
Three of the muskets are represented by breech segments, the fourth by a mid-barrel section. This last specimen, in .59 calibre, could not be associated with

any of the breech segments and must therefore represent a different gun.

The shortest barrel (Pl. 125A) is 25.4 cm long and measures 1¹/₈ inches (2.8 cm) across the flats; it is .669 calibre. The next longest specimen (Pl. 125B) is 43.2 cm long and 1 inch (2.5 cm) across the flats; it is .511 calibre.

The largest barrel fragment (Pl. 125C) was examined by James Gooding who identified it as a pre-1680-model musket. He also provided the following comments:

> The pre-1680 trade gun was a full stocked musket with a barrel of four to five feet in length....They were of sturdy construction, measuring 1.25 inches across the flats of the octagonal breech. They were fastened to the stock by pins along the forearm and by a bolt passing up through the stock into the tang.
>
> The specimen illustrated is only the rear 19.25 inches of a .625-calibre barrel but it weighs three pounds, 10 ounces. When complete it was 48 to 60 inches long and would probably have weighed between six and eight pounds. The first nine inches at the breech is octagonal on the top and rounded slightly on the bottom where it would be hidden by the stock. At the nine inch mark it rounds out completely and at the 12.875" mark there is a double ring. There is another double ring at the 16 inch mark combined with an ogee molding of the type found on cannon barrels. From this point to the muzzle the barrel would have been round. There is no allowance for a rear sight.
>
> There are a number of marks on the barrel, some of which can be identified. The left flat is marked with the "View" and "Proof" marks of the London Gunmakers Company consisting respectively of a Crown over "V" and "GP." In front of these and partially covered by the "V" mark, is a mark consisting of a coronet over the initials "IS" or "LS." This is undoubtedly the private mark of Joseph Stacey who made trade guns for the Company between 1674 and 1690 or Lawrence Sanderson, a Company Gunmaker between 1680 and 1682. On the top flat is the number "82." The meaning of this is not certain but it could signify the date of manufacture.
>
> On the underside of the barrel are two marks, or one mark stamped twice, which most certainly must have been put there by the Company Gun Viewer. Unfortunately the design which must have been in the centre has been obliterated by rust but the shape is quite clearly a half oval with a flat, or perhaps concave base. (Gooding 1975:80–82)

Lock plates (10)

With the exception of one specimen that is still fitted with a frizzen spring (Pl. 126C), all the lock plates were stripped, presumably by the resident gunsmith. Two of the lock plates have the flat outer surface characteristic of the earliest English muskets; the remaining eight have the rounded outer surface of the style proposed to the company by Samuel Oakes in 1681 (Gooding 1975:85). Only two of the lock plates have surviving decoration (Pl. 126A, B; Figs. 48, 49).
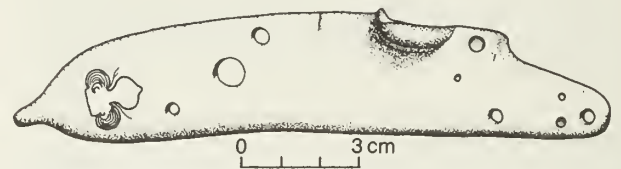

Fig. 48 Lock plate (No. 35), Fort Albany.

Fig. 49 Lock plate (No. 76), Fort Albany.

Side plates (3)

Parts of the three brass side plates were found during the excavations (see Pl. 127). These were fastened to the stock by thin, square brass nails.

Triggers (7)

Some of these specimens are illustrated in Plate 128.

Dog (1)

This specimen (Pl. 128C) is the only part of a dog lock that could be identified in the Albany collection.

Cocks (10)

Four of these are early-model flat cocks (see Pl. 129A); the other six are Oakes-model rounded cocks (see Pl. 129B). It is probably significant that all of the early flat cocks, and none of the rounded cocks, were found on the floor of House No. 3, the earliest structure at Fort Albany.

Main springs (9)
One of these is illustrated in Plate 130C.

Frizzen springs (5)
One of these is illustrated in Plate 130A.

Breech plugs (2)
As far as could be determined, one of the breech plugs (Pl. 130B) is from a .69-calibre musket; the other is from a .59-calibre weapon.

Frizzens (8)
Although the frizzens are essentially similar, the upper ends are finished in three different ways: three are rounded (see Pl. 131A); one is square (Pl. 131B); four are pointed and slightly thickened at the end (see Pl. 131C).

Sear (1)
A single sear was found.

Tumbler (1)
A single tumbler was found.

Butt plates (6)
One of the butt plates is made of iron and curved to fit the butt of a musketoon or blunderbuss.

The other five are all of brass. One of them (Pl. 132A) would have fitted a stock with a maximum width of 5.0 cm and with a butt that was 11.5 cm high. It was attached to the stock with three square nails. The long, narrow tang that would have curved over the comb of the stock was attached by at least one square nail driven in 8.0 cm from the butt itself. Another specimen (Pl. 132E) is almost identical. It differs only in that, at a width of 4.5 cm, it is slightly narrower than the previous specimen, and in that it was attached to the butt with four square nails.

Except for the nailing pattern, two other specimens (Pl. 132B, D) are again almost identical; each would have fitted a musket with a butt that was 13.0 cm high and 5.0 cm wide.

The bottom of the final specimen (Pl. 132C) has the same size and shape as those of three other specimens (Pl. 132A, B, D). It is illustrated here because the head of the rectangular iron nail has been preserved.

Trigger guards (11)
One of the trigger guards (Fig. 50) is unique amongst the Fort Albany specimens in that it is fashioned from heavier metal than the others, has a rounded outer surface, and is attached to the stock in a differ-ent manner. The others were each attached to the stock of the musket by two wood screws; this specimen was attached by a wood screw through the rear tang only. The front was attached by a bolt 4.0 mm in diameter, which went through the stock and into a threaded hole in the trigger guard.

The most common variety at the site (see Fig. 51) is represented by five specimens. They are all fashioned from thin strips of iron no more than 4.0 mm thick.

Two specimens of the type illustrated in Figure 52 were found. The remaining three trigger guards were represented by fragments that we are unable to describe beyond the fact that they, like most of the specimens, had been fashioned from thin iron strips.
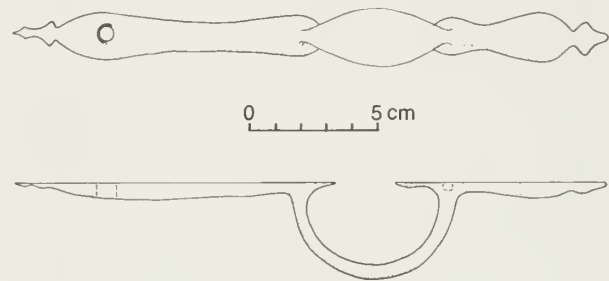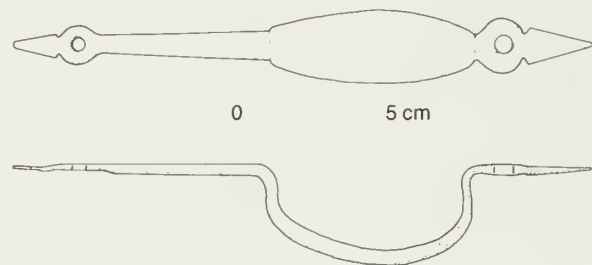
Fig. 50 Iron trigger guard (No. 440), Fort Albany.

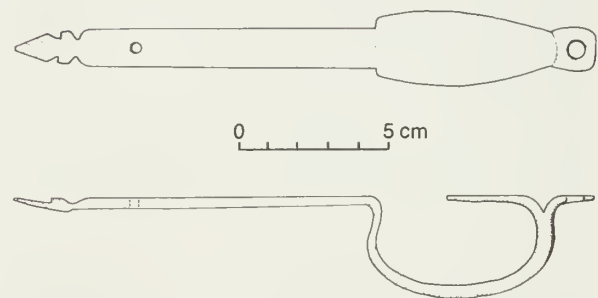Fig. 51 Iron trigger guard (No. 3789), Fort Albany.

Fig. 52 Iron trigger guard (No. 3792), Fort Albany.

Ramrods (2)

Ramrods for the Fort Albany muskets were wooden dowels tipped with brass tacks. The latter have rounded heads such as are found on upholstery tacks today. On both the recovered specimens, the diameter of the tack head is slightly larger than the short segment of wood that was preserved by the copper salts. With tack diameters of 18/32 inch and 19/32 inch, these rods would have fitted muskets of .57 and .60 calibre respectively.

Ramrod guides (19)

The terminal or rear guide on English muskets of the period was usually fitted with a tang that projected towards the rear of the stock; this appears to be a purely decorative feature. Two of these guides were found at Fort Albany, both made of iron; one is shown in Figure 53.

Three other guides are simple iron tubes. One of them is a ribbed specimen that is heavily corroded. It is probable, but by no means certain, that these iron tubes were derived from musketoons or blunderbusses, for at least one such weapon was fitted with an iron butt plate, as was noted earlier.

Of the remaining fourteen guides, all copper, nine are plain and five are ribbed. They would all have been attached to the underside of the full stock by a single pin through the flange at the top of the guide. The nine plain specimens are all imperforate and were probably the stock of the resident gunsmith, stock that he cut from sheets of thin copper to repair damaged muskets.

The ribbed specimens were probably the original furnishings on muskets that were made and assembled in England. The guides—both plain and ribbed—range in length from 1.9 cm (Fig. 54) to 2.8 cm (Fig. 55).

Gun worms (4)

The worms are in two sizes—7/16 inch and 8/16 inch. These would have been suitable for drawing the charges from muskets of .46 and .52 calibre respectively.

Dropped lead shot (1.67 kg)

The diameters of the dropped shot at Fort Albany range from 0.3 mm to 3.5 mm, with most of the sample lying in the upper range.

Gang-moulded shot (36)

Lead strips from gang moulds (see Pl. 133) indicate that up to fifteen shot were cast at a time. These specimens all had the same diameter, 4.8 mm, and could
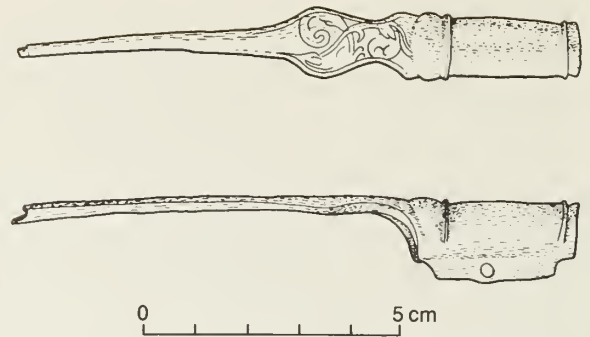

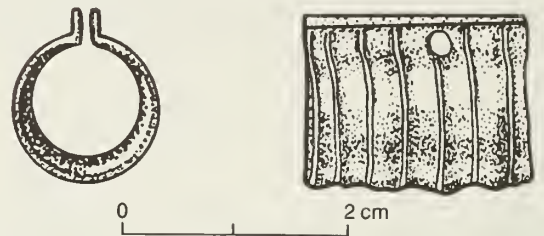Fig. 53 Terminal ramrod guide (No. 3809), Fort Albany.

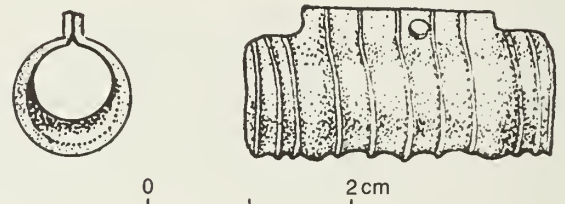Fig. 54 Ramrod guide (No. 4164), Fort Albany.

Fig. 55 Ramrod guide (No. 2110), Fort Albany.

have been produced from a single mould. In fact, this is quite probable since most of the shot at Fort Albany was dropped shot and was brought from England. The moulded shot, incidentally, at 4.8 mm, is just slightly larger than a modern BB, at 4.6 mm.

Musket balls (1472)

Before measuring and tabulating the Fort Albany musket balls, we rejected any that were obviously distorted. The remaining specimens were measured to three decimal places with a micrometer. During this process, any that were as much as 0.01 inch out of round (apart from sprues and mould marks) were also rejected.

On the off chance that the introduction of the Oakes pattern might have changed the calibre of the muskets as well as the form, I decided to tabulate the musket balls from House No. 3 separately. The

musket balls found on, or very close to, the floor of House No. 3 were put in one group, and those from Houses Nos. 1 and 2, as well as from the courtyard, were put in a separate group. As the second group was stratigraphically superior to the first group, it would represent a later time period. Because the flankers were associated with both the earlier and the later structures, the 150 musket balls found in those structures are not included in the present tabulation, although they exhibit the same range and distribution.

The upper fort—the two houses and the enclosed courtyard—produced a total of 443 musket balls distributed as shown on Table 3.

House No. 3 produced 879 musket balls with the distribution as shown on Table 4.

When these totals were combined, the distribution was as shown on Table 5.

It is apparent from these data that the introduction of the Oakes pattern did not influence the calibre of the musket used and traded at Fort Albany. It is apparent too that muskets in at least four calibres were used. These fired balls with diameters of 0.29 inch, 0.37 inch, 0.52 inch, and 0.60 inch.

The total weight of the tabulated musket balls, incidentally, is 10.58 kg.

Die-plate (1)
This specimen (Pl. 134) was used by the gunsmith to cut threads on metal screws.

Gun-flints (450)
Nine of the gun-flints are fashioned from a light, translucent honey-coloured flint or chalcedony that is probably of local origin (see Pl. 135). These are rectangular in outline and very poorly made. They appear to be copies (or prototypes) of British gun-flints.

The remaining 441 are all spalls (see Pl. 136) and are unquestionably of French origin (HBRS 1957:xxxix). They are fashioned from a mottled flint that ranges in colour from a pale yellowish grey to a dark grey. Almost invariably these specimens are wider than they are long. The largest spall in the collection is 33.0 mm wide and 30.0 mm long; corresponding measurements from the smallest spall are 20.0 mm and 18.0 mm.

Almost all the Fort Albany flints had been used. When I first sorted them, I segregated only forty-seven specimens that I took to be new. Even these may have been used, however, for when I examined the backs of these spalls—the sides opposite the bulbs of percussion—I found that each one had a line of very small flake scars along its very edge. Unless these scars resulted from the process of manufacture, which I doubt very much, they would suggest that these spalls had been used at least once. They would suggest, too, that the spalls were placed in the jaws of the cocks with the smooth side upwards.

Many of the used spalls were recycled, so to speak, and used with a strike-a-lite (see Pl. 137) when they would no longer work in a musket.

Kaolin pipes (291)
The most common pipe in the Albany collection is the one illustrated in Plate 138D (cf. Hume 1969:303, fig. 13). One hundred and eighty-four of these were found, which is just over sixty-three per cent of the total. Apart from the faint line of rouletting that appears just below the rim on many of the bowls, only one of these specimens is decorated. It bears the initials "I T" set in a cartouche 7.0 mm square,

Table 3. Musket ball calibres, Houses Nos. 1 and 2, Fort Albany. Sample: 443.
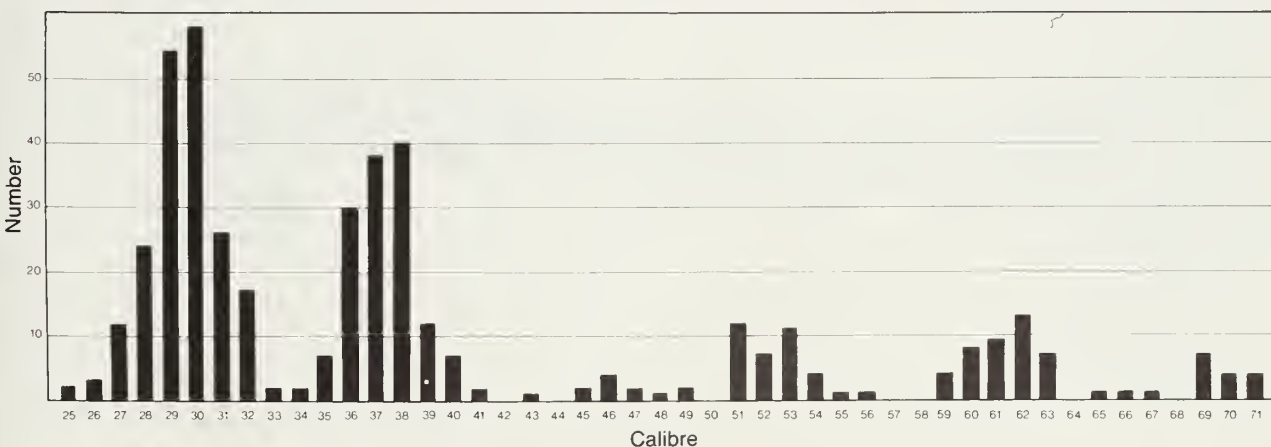
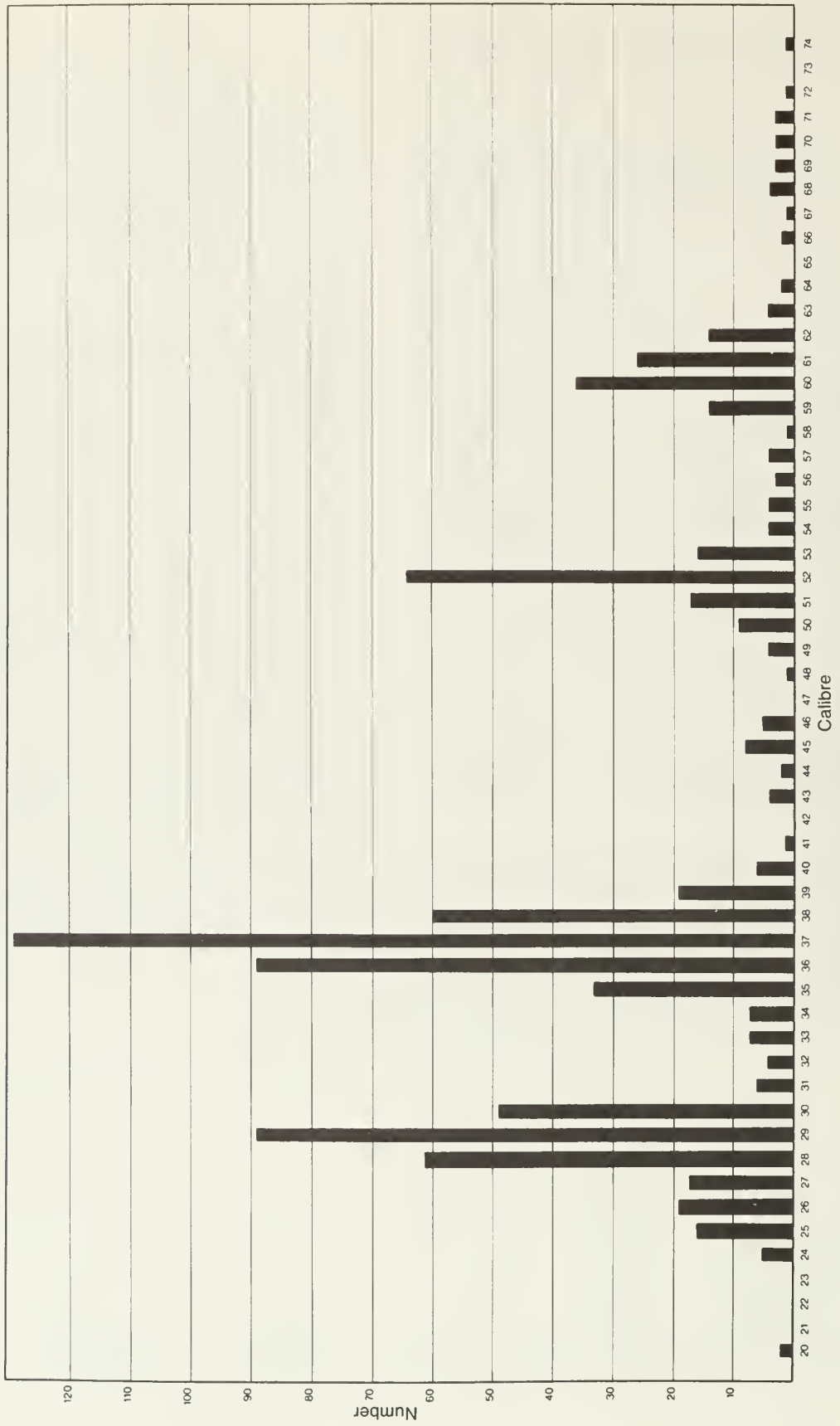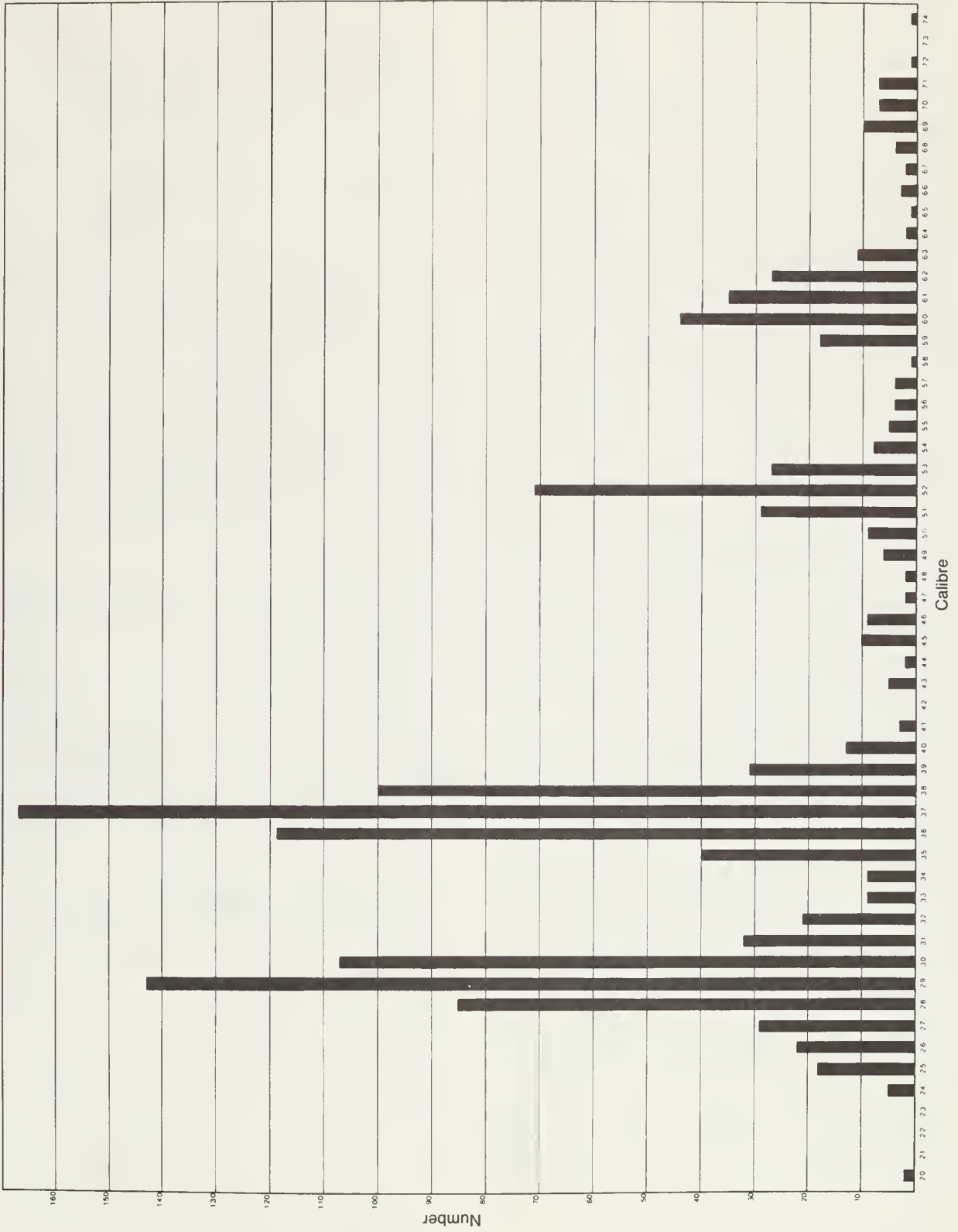Table 4. Musket ball calibres, House No. 3, Fort Albany. Sample: 879.

Table 5. Musket ball calibres, Houses Nos. 1, 2, and 3, Fort Albany. Sample: 1322.

impressed into the back of the bowl, that is, the side facing the smoker (Pl. 139).

Forty of the Fort Albany pipes (fourteen per cent) differ from the previous group in that the heel is a tubular projection, the angle between the bowl and the stem is less obtuse, and the top of the bowl is parallel to the stem (see Pl. 138B). Twenty of these have either the maker's initials or his logo stamped on the sides of the heels. From the standpoint of the smoker, the first initial is on the left side of the heel and the last initial is on the right. The initials on two of the pipes are blurred beyond recognition; the initials on a few specimens are legible on one side only; two pipes have a crown on each side, surmounting a symbol which is illegible at three locations and is the numeral "5" at the other. Eight specimens bear the initials "W P". According to Oswald (1960:88), six men with those initials were manufacturing pipes in England between 1680 and 1700. Our pipes were probably manufactured by one or more of these men. The remaining three pipes in this group are marked "W C" or possibly "W G". Oswald lists three manufacturers with the initials "W C" (1960:66) and two with the initials "W G" (1960:73) during the appropriate period.

Thirty-eight of the Fort Albany pipes (thirteen per cent) are fairly similar to the first group of pipes. They differ, however, in that the heel is circular rather than oval and is much more prominent. They differ, too, in that the bowls are rather more slender, particularly towards the base (see Pl. 138C). One of this group is decorated. On the sides of the spur are the initials "W M", each surmounted by a crown. Oswald lists four possible makers.

Eighteen of the Fort Albany pipes (six per cent) are Dutch (see Pl. 138A). These have much smaller bowls and, as a rule, a smaller heel than the English pipes of the same period. Six of these pipes are plain. The other twelve each have a circular stamp, 5.0 mm in diameter, on the heel. Inside seven of the circles are crossed tobacco pipes, with the bowls pointing down rather than up (cf. Walker 1971:75); above the crossed pipes is a crown. Inside the other five circles are inverted, crossed U's below the same crown.

The eleven remaining Fort Albany pipes (four per cent) are of various shapes and styles. Four are similar in size and shape to the second group we discussed, except that they lack the heel that is characteristic of most pipes of the period (see Pl. 140B). None of them is marked. Three pipes (see Fig. 56) were made by Thomas Smithfield, a pipemaker who was working either in Bath or Salisbury about 1700 (Oswald 1960:94). Two pipes have spurs instead
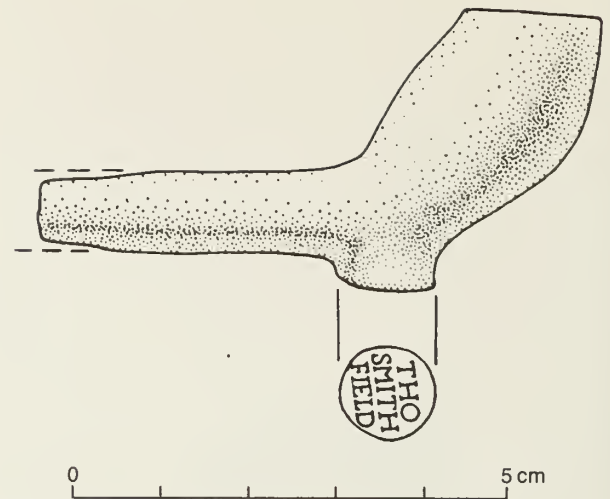

Fig. 56 Kaolin pipe (No. 2500), Fort Albany.

of heels (see Pl. 140A), but are otherwise unremarkable. One pipe (Pl. 141A) is similar to the one illustrated in Plate 138B, except that the heel is much larger. The final specimen (Pl. 141B) is similar to the one illustrated in Plate 138D, except that the heel is decorated with a rosette of what appears to be leaves.

Pipe stems (6061)

Except for a few examples of rouletting, all the stem fragments are plain. We measured the diameter of the stem holes in sixty-fourths of an inch with the results as shown on Table 6.

These data produced an average bore diameter of 6.051, or just over 6/64 inch. When we applied the Binford formula (Hume 1970:298–299) to this average—6.051—we got a date of A.D. 1700.34 for the site. Since the Fishing Creek post was established between 1675 and 1679 and was abandoned in either 1720 or 1721, the Binford formula worked perfectly.

Table 6. Pipe stem bore diameters, Fort Albany

Size	Number
4/64	14
5/64	930
6/64	3913
7/64	1151
8/64	51
9/64	2
	6061 Total

Ceramics

The ceramic sample from the site consists largely of small fragments. It is significant, perhaps, that not one of the pieces can be identified as coming from a plate; the men, including even the governor, almost certainly ate from wooden trenchers.

Thirteen white tin-glazed apothecary jars are present (see Figs. 57, 58). The smallest specimen (Fig. 58C) has a basal diameter of 3.6 cm and is 3.5 cm high. The largest complete jar (Fig. 58A) has a basal diameter of 6.0 cm and is 6.3 cm high. Three larger jars were also present, but they could not be reconstructed. We know only that the largest had a basal diameter of 9.2 cm.

Two unglazed earthenware pitchers are represented by rim fragments that have pouring lips. The handle of a delftware tankard was found; this was fitted with the hinge of a pewter cover. One very large French water jug in red earthenware was present (Pl. 142). The outside oral diameter of this vessel is 32.5 cm.

None of the other specimens in this group could be identified beyond the fact that they were derived from tin-glazed, lead-glazed, and red earthenware and stoneware bowls of some sort.
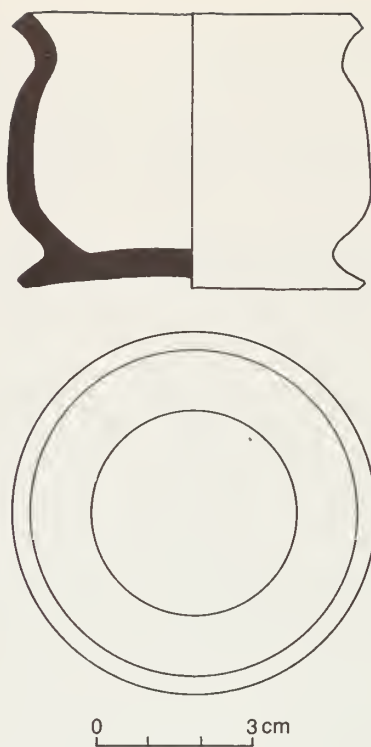

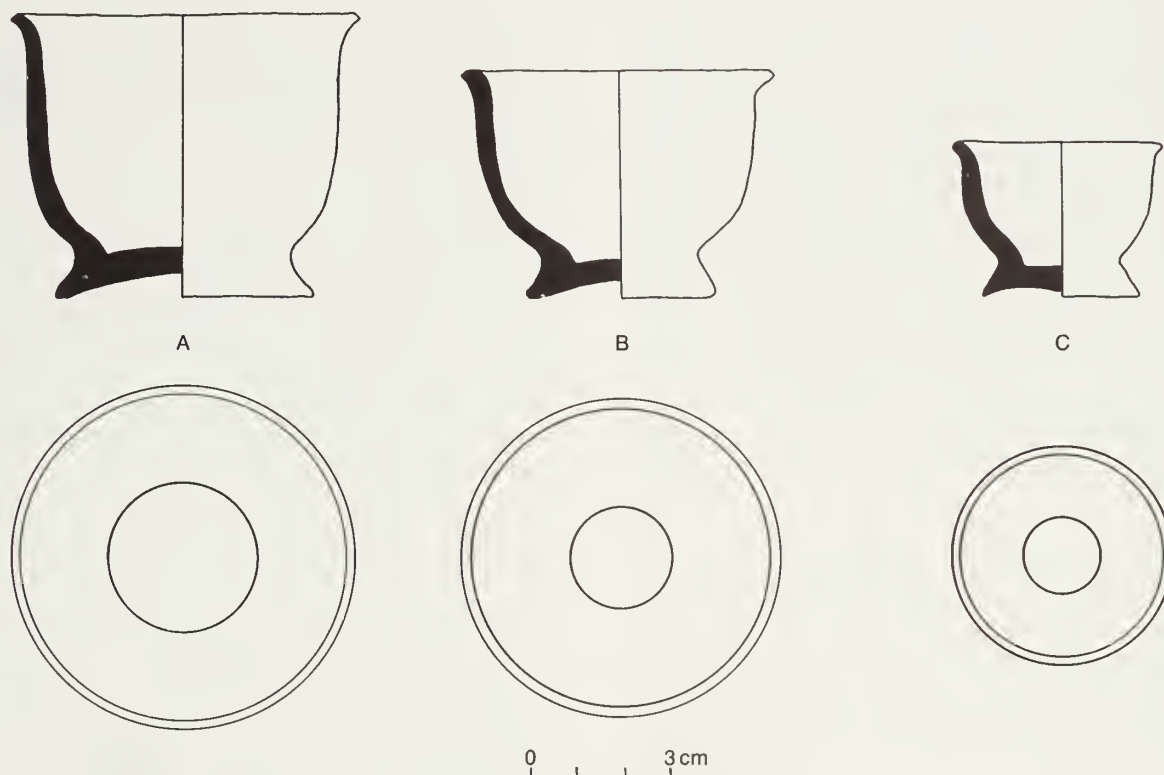Fig. 57 Apothecary jar (No. 871), Fort Albany.

Fig. 58 Apothecary jars, Fort Albany: *A* No. 1182; *B* No. 1183; *C* No. 1620.

Ceramic button (1)

The single ceramic button from the Fishing Creek site (Pl. 143) is 13.0 mm in diameter and 8.0 mm thick. It was fitted with a U-shaped iron eye. It is covered with a black glaze and decorated in orange and white with a flower design, probably a daisy.

Sword blades (3)

Three small blade fragments from light swords were found.

Bayonets (3)

These are all slender triangular-bladed plug bayonets. Two of them have complete blades that are 21.0 cm and 24.0 cm long.

Porringer (1)

The handle from a single pewter porringer was found. It is touched with the mark of Henry Hammerton, London, and is dated 1707. In Cotterell (1963), Hammerton's is Touch No. 642.

Shell beads (88)

These are the small cylindrical purple specimens that are usually referred to as wampum beads.

Glass beads (1884)

Except for nine specimens that could not be precisely identified, all the Fort Albany beads (see Pl. 144) fitted neatly into the typological categories established by Kenneth and Martha Kidd (1970). During our analysis, we were not always able to make the finer distinctions that the system demands. For example, our specimens classified as type IVa11 in Table 7 probably include some specimens that Kidd and Kidd would have classified as IVa13 or IVa14. Similarly, those listed as type WIb6 probably include a few of type WIb7 as well. With these exceptions, the system presented no problems.

Heating device (framed cannon ball) (1)

This peculiar object (Pl. 145) was heated in a stove or

Table 7. Types and numbers of glass beads, Fort Albany

Type	Number
Ib5	3
IIa1	25
IIa2	3
IIa6	2
IIa7	181
IIa9	3
IIa13	168
IIa14	85
IIa15	6
IIa26	4
IIb32	60
IIb34	12
IIb52	20
IIbb27	1
IIj2	7
IVa1	2
IVa2	11
IVa5	11
IVa6	2
IVa11	1257
WIb6	12

fireplace, and then lifted by one of the loops, carried to the place where heat was required—a bedside, perhaps—and suspended by the free loop (HBRS 1949:173).

Stray iron objects

A wide assortment of odd bits and pieces of worked iron was unearthed at Fort Albany. Many of these had obviously been shaped to some purpose. For example, several small rings were fashioned from thin iron rods. These, I believe, are half-finished washers, but I cannot be sure of this. Another item was probably part of a cant-hook, a tool used in moving heavy logs, but again I am not sure.

4

Developments in the Bay

When I first visited James Bay, my attention was focused sharply on the Fishing Creek site because I had been sent there for a specific purpose. Over the years my horizons gradually broadened. Initially I had consulted the indices of *The Fur-Trade in Canada* by Harold Innis (1962) and *Hudson's Bay Company* by E. E. Rich (1960), for example, and read only those portions that pertained to Albany. But these led in turn to other publications and other problems. Finally I was led to the realization that the history and architecture of the establishment at Albany could only be understood as part of a broader picture. I would return, then, to the late summer of 1668 when the *Nonsuch*, with Zachariah Gillam and des Groseilliers aboard, dropped her anchor in the broad mouth of the Rupert River.

We know very little about the first wintering (see, for example, Rich 1960:36–42). The men hauled the *Nonsuch* ashore, built a house, established friendly relationships with the Indians, and traded a fine cargo of furs. Beyond that we know nothing, except that they arrived back in England in early October 1669.

Gillam's financial backers in London, meanwhile, had been active on both the financial and the political fronts. They had assembled some working capital and were beginning to set up the business procedures necessary for developing the northern trade. They had prepared a charter that would give them exclusive rights to the northern trade, and they had presented that charter for royal approval under the Great Seal of England. By the time the charter was granted, on 2 May 1670, the committee had even built their own vessel, the *Prince Rupert*. And preparations for the first voyage under the charter were so far advanced that the expedition was able to depart within the month. The outfit consisted of two vessels, the newly launched *Prince Rupert*, and the *Wivenhoe*, a naval pink. Aboard the *Prince Rupert* with Captain Zachariah Gillam were des Groseilliers and Thomas Gorst. The latter, who had sailed aboard the *Nonsuch* as clerk the previous year, was secretary to Charles Bayly, the newly appointed governor at the "Bottom of the Bay". Bayly himself, as well as Radisson, sailed aboard the *Wivenhoe* with Captain Richard Newland.

The committee had decided to establish two trading posts, one at the mouth of the Rupert River and the other at the mouth of the Nelson River, where Thomas Button had wintered in 1612–1613. The two vessels therefore separated at the western end of Hudson Strait: the *Wivenhoe* headed southwest across Hudson Bay towards the Nelson estuary; the *Prince Rupert* headed south to the old wintering place at the mouth of the Rupert River. When Gillam arrived there on 8 September, he found the structure he had named Charles Fort still standing.

The journal of Thomas Gorst (Nute 1943:286–292) offers us our first glimpse of a Hudson's Bay Company trading post on James Bay. On 12 September, Gorst tells us, "all hands goe to worke to make a Dock for Ye ship over against our house. The Carpenter in ye mean time goes to ye wood and cutts Timber to build the Captain a new house." A week later he noted, "the dock being finished wee get in ye ship with a high tide." With the ship safely berthed for the winter, the men could turn their full attention to the new house they were building. We are told that by 20 September "all hands are every day at worke about the new house some getting Osier or thatch, others thatching the house (at which the Capt and Mr Foster were Principall Artists), Some fetching clay for mortar, others bricks from ye ship for a chimney, and no one exempled or backward in carrying on the worke."

When Gorst moves on to a description of the house they were building (Nute 1943:288), he suddenly shifts from the singular to the plural, extending his description to include the earlier house as well. In other words, the two structures were essentially the same:

> Our English houses consisted of three roomes a peece and as many severall floors. The Cellar held ye beer wee brwed there for our dayly drinking, together with the Beefe Pork and Butter. The Chamber held our dry Provisions as bread, flower, peas and Oatmeal and on the ground floore was our kitchen, Dyning roome and Lodgings—which were Standing Cabbins such as are used in his Maties shipps. The houses themselves are built of Timber cut into

Spars set quite close to one another and calked with Mosse instead of Okam to keep out ye wind and ye weather. Thatched with a ranke sort of grasse growing in ye marshes much like ye Sagge wch are every where in our English brookes. We had a large Chimney built of bricks which were carryed along with us, and we spared not ye wood, that Country affording enough to keep always Summer within, while nothing but Ice and Snow are without doores. We had also erected a good Oven and feasted our selves at pleasure with venison pasty.

Then on 12 October, while they were still working on the house, a longboat carrying Radisson and three other men suddenly appeared at the mouth of the river. They reported that the *Wivenhoe* was lying off Point Comfort. It seems that they had run aground on a low reef to the east of Mansell Island shortly after the two ships had separated at the western end of Hudson Strait. She managed to work herself off the reef, however, only to take the ground a second time at the mouth of the Nelson River. By the time she was safely at anchor, it was already late in the season; many of the men, including the captain, were sick, and two of them had already died. The following morning Captain Gillam rowed out to the *Wivenhoe* and arranged for the boatswain to bring her to Charles Fort. The weather was so bad by that time that the oars became coated with ice even while the men were rowing. And the ground was already blanketed with more than a metre of snow.

It was a frantic period in the life of the growing settlement. Captain Newland died on the fourteenth and was buried four days later with full military honours. A dock was built for the *Wivenhoe*; some of the provisions and trade goods were taken ashore and stored in the houses. There was not enough room for the crew of the *Wivenhoe*, however, and it was too late in the season to build another house; so they were forced to spend the winter in a wigwam covered with old sails.

In spite of some obvious hardships in dealing with the strange subarctic environment, the men at Charles Fort appear to have spent a relatively pleasant winter. Des Groseilliers, the old fur trader, had established amicable relationships with the local Cree, who supplied the camp with fresh meat from time to time. The trading went well, and even some amenities were available. For example, Gorst tells us that on Christmas Day "wee made merry remembering our Freinds in England, having for Liquor Brandy and strong beer and for Food plenty of Par-

tridges and Venison besides what ye shipps provisions afforded." Early in the new year Captain Gillam and some of the men came down with "ye Scurvy, which is there the onely dangerous disease, but quickly recovered".

On two occasions they visited the Moose River estuary, where they traded an impressive quantity of beaver. And in the spring, Gorst tells us, "wee sowd Peas and Mustardseed which came up well enough for ye time wee stayd there and no doubt but all sorts of rootes would have grown very well if Wee had been furnished with seed. Wee kept theire some hens and hoggs which lived and did well enough." With a rich cargo of furs stowed safely aboard, the party left Charles Fort at the end of June 1671.

News of the English settlement on the bay had filtered down to the French on the St Lawrence as early as the previous November. The intendant, Jean Talon, was disturbed by the report that the English were encroaching on what he considered to be French territory, for he knew that the northern traders would drain off much of the fur from the interior, the fur that had traditionally found its way down the Saguenay to the St Lawrence. To investigate the report, Talon sent a Jesuit, Father Albanel, and a young Canadian, Paul Denys, sieur de Saint-Simon, on an overland trip to the bay. With a party of eight Indians, they reached the mouth of the Rupert River around the end of June 1672. They found the settlement deserted, of course, because the English outfit for that year had not yet arrived. Albanel and Saint-Simon explored the area, baptized a few Indians, and took formal possession of the country for the French king, Louis XIV. They started their homeward voyage on 6 July. For Talon, their report could not have been very satisfactory. An abandoned trading post, after all, would give him no clue as to the future plans of the English. For us, on the other hand, the report is significant in that it confirms the description of the settlement that Gorst provided in his journal. Saint-Simon reported that they found two thatched houses built of upright logs (HBRS 1948:350).

The second trading post that the company built was on Factory Island in the estuary of the Moose River (Kenyon 1975:17–18). This was built by Governor Bayly in the summer of 1673 (Cooke and Holland 1978:35). It was intended only as a summer outpost, although Bayly had recommmended to the London committee on 16 January 1672 that if a permanent settlement were to be built in the bay, it should be at the mouth of the Moose River (HBRS 1942:19). There was still some question, apparently,

as to whether or not they should establish permanent settlements in the bay. Bayly recommmended, too, that if a permanent settlement was decided on, "thirty men at least…bee imployed for Stayeing in the Countrey in respecte to mortality." A decision was soon reached, however, for two weeks later the committee decided that a fort would be built there.

The *Wivenhoe* [they said] is agreed to bee Sent thither with Some brickes & nayles to Serve for erecteing the forte, & a small vessell of about thirty tonnes to goe with hir both of them to carry fourty men whereof five & twenty to bee agreed with to Stay in the Countrey, and the Small vessell alsoe to Stay in the Countrey, & but fiftene men to returne in the *Wivenhoe*. (HBRS 1942:22–23)

For some reason, the *Wivenhoe* did not sail that year, and the vessels that did go—the *Prince Rupert*, the *Employ*, and the *Messenger*—presumably sailed directly to Charles Fort. After a successful winter's trading, the *Prince Rupert* and the *Messenger* returned to England with the furs. Bayly apparently spent the winter of 1674–1675 at Moose Factory and may have used it as a more or less permanent settlement from that time onwards. Although no architectural details have survived, there is no reason to believe that the establishment at Moose Factory was any more elaborate than that at Rupert House. This is suggested, too, by the equipment the company proposed sending on the *Wivenhoe* to build the "fort" at Moose Factory—"some brickes and nayles". Surely the word "fort" in this context was chosen to impress the business community at home; it was certainly not chosen to describe their modest establishments in the bay.

The company's next trading post was built at the mouth of the Albany River. We are unsure as to the date of its founding, but we know that it could not have been earlier than 1675. For during an exploratory voyage to the north in 1674, Governor Bayly stopped at Albany, where, according to the historian Oldmixon, "no Englishman had been before" (Tyrrell 1931:391). Bayly promised the natives of Albany that he would return the following summer to trade. Since Bayly was a very pious Quaker, he no

doubt kept his promise, although history fails to verify this point. We do know, however, that a post was established at Albany by 1679, for in that year Bayly returned to England where he reported to the committee that he had built a "house of some strength" at Albany. It is significant, probably, that Bayly refers to the newly founded post as a "house" rather than a "fort". There is nothing in the literature, certainly, to suggest the presence of more complex architectural forms at that date.

An additional clue as to the nature of the early trading posts of the Hudson's Bay Company is provided by Louis Jolliet, who visited the bay in 1679. He had been sent by Louis de Buade, comte de Frontenac, who had been appointed governor general of New France in 1672. Frontenac, like Talon before him, looked upon the English presence in the bay as a direct and serious threat to the economy of New France. Louis Jolliet, with his brother Zacharie and a small party of men, left Quebec on 13 May 1679. He visited Charles Fort where he was welcomed by Governor Bayly, who apparently entertained no suspicions as to his reasons for being there.

Jolliet left the bay after spending only two days with Bayly, "and having learned all I wished to know" (Burgesse 1947:14). He reported to Frontenac that the English had three posts on the bay, at Rupert, Moose, and Albany, that the coast was guarded by "a ship of twelve pieces of Cannon", and that there were sixty Englishmen in the bay, both afloat and ashore. "There is no doubt," he continued, "that if they are left in the Bay they will render themselves Masters of all the trade of Canada inside six years." But "whenever it shall please His Majesty to wish to expel the English from this Bay in order to be Master of all the country and the Beaver trade, it will by Easy to provide the means and put them into Execution." Should Frontenac wish to employ less drastic measures, this, too, was possible: "It will be easy, when it shall please his Majesty to order it, to prevent them establishing themselves further, without driving them out or breaking with them." And finally, he confirms the picture we have already drawn of the architectural history of the bay up to that time. "The forts at present have but the name of fort," he said. "They are small squares of pickets which enclose their houses."

5

Discoveries on Charlton Island

Archaeology

During the summer of 1972, I was camped for a few days at House Point on Charlton Island, the site of a Hudson's Bay Company depot that was built around 1900. It was used as a staging post or transfer point for the ships that brought supplies and trade goods into James Bay and carried the bales of furs to the markets of Europe. Such a depot was required because a vessel that was large enough to survive the gales of the north Atlantic and the fog-bound rocks of Hudson Strait would sit deep in the water, and such a vessel would be too big to enter the mouths of the rivers where the company posts were located. There was a good anchorage for a deep-sea vessel, however, close to shore at Charlton Island (Fig. 2). The company solved its problem in logistics by building a wharf and depot at the anchorage, and by having the ships tie up there. The furs from the various posts would be assembled at Charlton Island by the small boats that the company kept in the bay for coastal shipping. The supply ship would be loaded with the year's catch of furs, and the small boats would distribute the ''outfit'', as the supplies were called, to the different posts. This system was in use till 1931 when the railroad reached Moosonee at the bottom of James Bay. At that time, the Charlton Island depot was abandoned.

The company had done exactly the same thing in the 17th century, for even then sea-going vessels were usually too large to enter the river mouths on James Bay. Governor Bayly must have raised this problem with the London commmittee before his return to England in 1679. The following instructions were drafted on 29 May 1680 and sent to Governor Nixon, Bayly's successor:

> Wee doe judge by the situation of Charlton Island, that no place is so convenient for the Rendezvous from our severall Factories to attend the arrival of our Ships from hence, And wee hope before this comes to you a good large dry substantiall Warehouse will be there erected to receive the Cargo we send you, as it was agreed to be, before Mr. Baily left you. (HBRS 1948:8)

Long before I arrived at Charlton, I knew that there had been an early Hudson's Bay Company depot there, as well as the later one. But I had no idea as to its exact location. As soon as I landed on Charlton, however, I concluded that the earlier post must have been built precisely where the abandoned buildings of the second depot were still standing (Pl. 146). Had it been located southwest of House Point, shoal water would have made it impossible for a ship to get anywhere near the shore. To the north of House Point was a steep sandy bluff; surely a ship would not have landed there. There was, then, only one spot where a party could get ashore, and the first depot in that spot would have been covered over by the later depot, part of which was still standing. Having decided that the remains of the earlier depot would have been destroyed during the building of the second depot, I turned my attention to other matters. After all, I had come to Charlton Island to search for the wintering place of Captain Thomas James, not to look for old Hudson's Bay Company depots. James had wintered near the eastern point of the island in 1631–1632 (Kenyon, ed., 1975:58), and I was at House Point because that was the only place I could get ashore from a small plane on floats. I had brought a five-metre, square-sterned canoe with me, as well as a small outboard motor, and I was waiting for the weather to clear so that I could move my camp. But the weather remained so bad, with rain, fog, and high winds, that I never did get across the bay to the eastern point of the island. The canoe was simply too small to launch into those reef-infested waters except on very clear, calm days. And so we waited.

One morning, when we were walking up the beach to the north of the landing, we noticed what looked like a Flemish brick near the top of the bank, just under the sod. The bank at that point was some three to four and a half metres high, and much too steep to climb. We piled up a few small stones to mark the spot on the beach, returned to the landing, and followed the top of the bluff northwards till we were directly above our marker. Peering over the edge, we saw that the object that had caught our

attention was indeed an old Flemish brick. We had seen hundreds of them during the excavations at Fort Albany, and there was no doubt whatever as to its significance. It could have come only from Nixon's warehouse, the depot that was built in the 1680s. A further search along the top of the bluff turned up a number of other items from the same period—bits of English roof tile, ancient musket balls, and fragments from early kaolin pipes. Since all the material was at least ninety metres north of the later depot, it raised the possibility that the remains of the earlier establishment might still be found. Before we left the island, we had picked up enough clues to justify our returning to Charlton with a larger crew. The search for James's wintering place was not abandoned; it was only postponed to some more auspicious occasion.

I returned to Charlton Island the following summer, arriving on 16 July 1973. In addition to myself, the party consisted of a cameraman and a crew of six people. Throughout most of the month we spent on the island, we were also assisted by James Jolly and his nephew from Rupert House, and David Lightwood from the Educational Centre in Moosonee. We spent the first day and a half setting up tents, organizing a kitchen and dining room in one of the abandoned buildings, and performing similar domestic chores. When these tasks were completed, we opened two small test squares along the edge of the bank; while they were being excavated, a couple of us started to explore the area in detail.

Behind the old buildings at House Point was a series of raised beaches, running roughly east and west. Like most of the island, they were composed of fine white sand. The area we were investigating was at the eastern end of the raised beaches, along the top of a steep bluff. To establish a baseline, we proceeded as follows. First we measured the distance between the top of the bluff and the northwestern corner of the old district manager's house, a distance of 12.8 m. We then laid off the same distance westwards from the top of the bluff along the highest of the raised beaches north of the house. When we surveyed in the line connecting these two points, we found that it was 121.9 m long and bore eleven degrees east of magnetic north. A series of elevations then showed that the floor of the manager's house was 8.6 m above the high-tide mark; the northern end of our line was 13.8 m above the high-tide mark.

While we were surveying, we stumbled across a low mound of bricks at 79.2 m north and 4.6 m east. By that time it had been established that there were no structural remains in the test pits we were working on. They revealed nothing but a very thin mantle of refuse just below the sod. I decided therefore to move the crew to the brick pile. But first we had to clear the entire area, for it was obscured by a dense stand of brush—young poplar and spruce trees, as well as large clumps of juniper and saskatoon berries. As we chewed our way through the underbrush, we discovered that the rubble pile was inside a rectangle formed by low faint ridges of sand. These enclosed an area that measured 20 feet × 30 feet (6.1 m × 9.1 m), with the minor axis running some thirty-four degrees west of magnetic north. To simplify the recording and mapping procedures, I established this direction as grid north and set up a grid system on this line to cover the entire site.

When we had removed the humus from the rubble pile, we found that the pile was an irregular oval mass made up of English bricks and roof tiles, Flemish bricks, and another type of tile that I could not then identify. Whatever this last type was, it was the same colour as the roof tiles, but was perfectly flat and more than twice as thick. I had dug up several pieces of the same material at Fort Albany, but had not yet seen a whole one. Scattered through the rubble pile was the usual assortment of artifacts, mostly pipe fragments, musket balls, and bits of rusty iron. We noted almost immediately that the iron at Charlton was much more heavily corroded than that at Fort Albany. At Charlton the specimens were buried in sand, which is readily penetrated by oxygen; this, of course, would have accelerated the rusting process. At Fort Albany, however, most of the artifacts were buried in clays that were relatively impervious to water. There may have been a difference in the salt content of the precipitation at the two sites as well. The site at Charlton was just above the beach; the site at Fort Albany was on the upper reaches of the estuary, some eleven to thirteen kilometres from the coast.

While we were working on the rubble pile, hoping to find some coursed masonry under the scattered bricks and tiles, we also stripped the sod from the interior of the structure. We did not expose the ridges of sand that formed the rectangle, however, because our experience at Fort Albany warned us that any logs that were close to the surface—and particularly when they were covered with sand, rather than clay—would be very poorly preserved. The layer of sod within the house was very thin, particularly in the eastern half. And beneath the sod was clear sand, sparsely dotted with the same sort of artifacts we had found at Fort Albany. Although we did

encounter the occasional bit of decayed wood, there was no indication of a floor except in the eastern third of the house. The distribution of artifacts, as well as the presence of flooring in the eastern end of the structure, suggested that the building consisted of two rooms. The western room was 20 feet (6.1 m) square, with what appeared to be a stove or fireplace approximately in the centre of the floor; the eastern room measured 10 feet × 20 feet (3.0 m × 6.1 m). As we continued working on the building, we found that English roof tiles were widely scattered across the area. This scattering of tiles did not seem to be related to the masonry structure in the centre of the house because the bricks were not scattered at all. We concluded, therefore, that the widely dispersed tiles had come from some other source, probably from the roof of the building. But there were almost no surviving traces of any such building. If the building had been burned, we would have found thick lenses of ash and charred wood. The bits of ash and charcoal we did find could be adequately explained by the presence of the stove or fireplace in the centre of the room. And if the building had simply fallen into decay, where were the rotted wood fibres that should have been present?

Leaving these questions in abeyance, we turned our attention to the masonry structure, where coursed brickwork had at last been encountered (Pl. 147). When the structure was finally exposed for mapping and photography, we had what was obviously the base of a brick stove (Pl. 148). It was 9 feet (2.7 m) long and 4 feet 4 inches (1.3 m) wide. Its long axis was parallel to the long axis of the house, and the door to the firebox was at the eastern end of the stove. The stove was resting on a platform of whole English roof tiles with their concave surfaces downwards and with their major axes in line with the major axis of the stove. This level platform was then covered with a layer of English bricks, again with their major axes running east and west. This, in turn, was covered with a layer of floor tiles. These tiles were the same colour as the roof tiles; they were 10 inches (25.4 cm) square and 1 1/8 inches (2.9 cm) thick, with bevelled edges. They were laid with the bevelled edges downwards. These tiles were of the same type as those I had found pieces of at Fort Albany and had been unable to identify at the time.

The tiles and bricks up to this level had been set in mortar. Both the stove and the chimney that were built on this solid foundation, however, were fashioned from bricks that were set in clay. The chimney was built of English bricks, the stove itself of Flemish bricks. Both were laid in English bond, that is, with

alternate courses of headers and stretchers. The entire structure, however, was not nearly as precisely built as the description would suggest. There was considerable variation in the size of the bricks, particularly the Flemish ones, and this introduced irregularities both within and between the courses. These irregularities were evened out with broken bits of roof tiles and additional clay. In spite of this, however, it was a well-built stove. It had seen intensive use; the firebox still contained a thick layer of ash and charcoal, and beneath that there was evidence of extensive repairs. At some time the front part of the floor of the firebox had been destroyed. After the damaged portions had been removed, the hole had been filled with broken roof tiles, carefully set in clay.

Inside the firebox, both upon and among the layers of ash and charcoal that it contained, were pieces of thin iron straps. In all probability, these were pieces of barrel hoops that had been used to support the roof of the stove. None were found in the chimney.

In front of the stove was a line of six floor tiles (Fig. 59); in front of this, and separated by a small gap, were two more of the same tiles.

Only when the stove had been completely exposed, mapped, and photographed did we attempt a detailed examination of the house itself. By that time we had already removed the sod from the entire floor and had learned that it was a two-room structure. The western room—the one containing the stove—was 20 feet (6.1 m) square; the eastern room was 20 feet (6.1 m) long and 10 feet (3.0 m) wide. When we had cleared up the floor of the western room we found that there were planks running north and south at 5-foot (1.5-m) intervals. There was no indication, however, that these had ever supported a floor; they probably served only as ties to make the structure more rigid. The planks were 15.2 cm to 20.3 cm wide, with their ends nailed to the small, badly decomposed logs that were the only surviving traces of the walls. The eastern room contained no visible features. We did note that the levels of the eastern room were different than those of the western room: the northeastern corner was higher and the southeastern corner was lower. When we removed the sod from the southeastern corner of the building, we found that it consisted of an extremely thin mantle, just enough to stabilize the sand beneath and keep it from blowing away. The lower level we noted had been formed at some earlier date by wind erosion.

When we started to expose the northeastern corner of the house we encountered charred wood
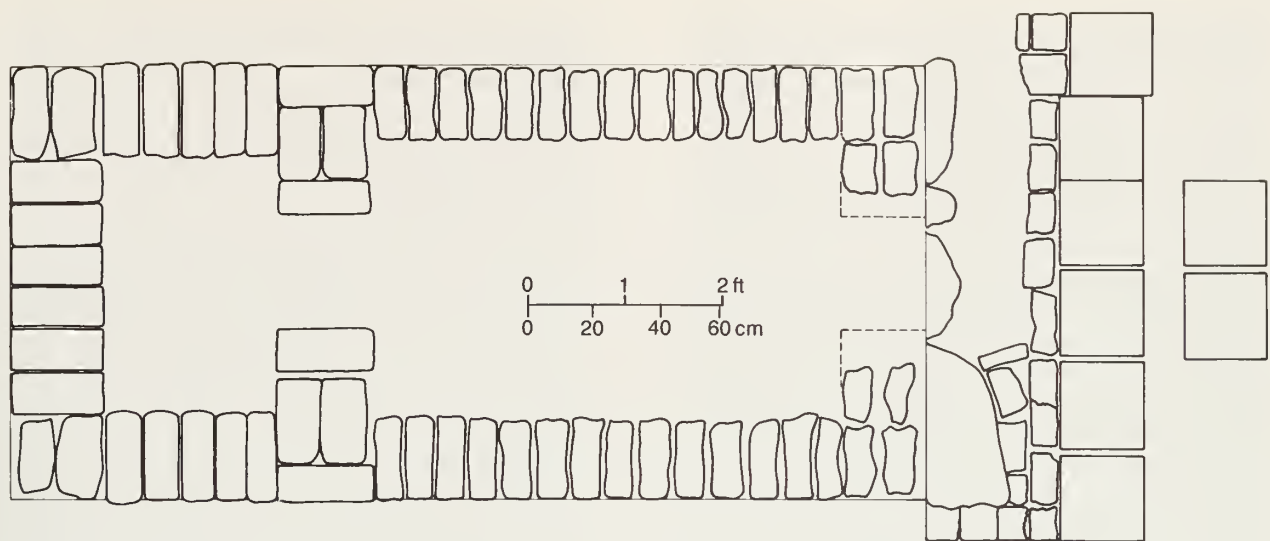
Fig. 59 Stove, Charlton Island.

almost immediately. As we extended our excavation laterally, we found that under some randomly scattered pieces of burned wood was a heavily charred wooden floor (Pl. 149). The floor was made of small poles or saplings, 7.6 cm to 10.2 cm in diameter and running north and south. Only the northern ends of the poles were present, since the other parts had been eroded away by the wind which had swept out the depression mentioned earlier. And the poles that we examined were burned on the upper surface only, the portions that were in contact with the ground having been untouched by the fire. This, of course, was to be expected since they had clearly been burned *in situ*.

Scattered throughout the layer of charred wood in this northeastern corner were a great many fragments of burned roof tiles, as well as several pieces of glass that had been melted by the intense heat of the fire. This was in marked contrast with the tiles scattered across the western end of the structure, where the very few tiles that had been burned were closely associated with the stove. We were faced, then, with a perplexing situation. One end of the building had clearly burned down; the other end had not burned down, nor was there any appreciable amount of decaying wood fibre present, which there should have been had that end of the building simply been abandoned. At the time, I decided that the western end of the building must have been dismantled prior to the fire. This was consistent with the archaeological data we had just recorded, but it raised a troubling question. Why would anyone bother to dismantle part of a log building at that time

and place? There were, after all, endless supplies of logs and firewood at each of the trading posts on the mainland.

But to return to the problem at hand. When the northern and eastern edges of the burned flooring were exposed, we found that the bottom portions of both walls were still intact in this area, although they were completely charred. We then exposed the outsides of the walls, which we found had not been touched by the fire that had raged so furiously within the structure. Of the east wall, only the bottom log remained; of the north wall, the two bottom logs were still in position. The third log of this wall had fallen inwards and was completely charred. Because so much of the charred surfaces of the logs had been exfoliated, no accurate measurements were possible, but they were at least 15.2 cm in diameter.

Shortly after we started working on Nixon's warehouse, we noticed a peculiar indentation in the raised beach—the most northerly beach in the series—just north of our excavation. The indentation was a bowl-shaped depression that had been scooped out of the southern slope of the beach and did not look at all natural. When we removed the underbrush from the area we could see that it was clearly man-made. Whatever it was, it had smoothly rounded contours, and a pile of what looked like broken English roof tiles near the back of the indentation. To investigate further, we marked out a rectangular area that extended about halfway up the sloping sides of the depression, and then we removed the turf, a thick spongy mantle of caribou moss. Immediately below the moss was clear white

sand over the entire area, except in the lowest spot, which was at the southern edge of the indentation. There we found that the sand was stained a dark brown and was flecked with bits of ash and charcoal. Broken roof tiles were scattered thinly across the entire exposed area and were in a dense concentration in the sand pile towards the rear of the area being excavated.

The depression looked as though it had originally been rectangular; after the sides had collapsed, they had been rounded by the elements into the smoothly flowing contours we saw before us. To test this hypothesis, we cut a narrow trench into both the eastern and the western slopes. On the walls of each of these trenches we found horizontal layers of sand that sloped downwards into the depression. The strata on the ends of the trenches, however, were parallel to the southward-sloping surface of the old beach. There could be little doubt, therefore, that our impression was correct; the indentation had originally had a rectangular floor—presumably level—with vertical or nearly vertical sides. We decided, then, that we would simply shovel out the sand that had collapsed into the rectangle until we came to the original floor. The level of the old floor was indicated, of course, by the dark patch of charcoal-flecked sand that we noted earlier along the front of the indentation.

We began the excavation of this feature by cutting a north-south trench through the sand along the eastern and western edges of the rectangle. In the northern ends of both these trenches we encountered a thick compact layer of clinkers, the sort of refuse that comes from a blacksmith's forge or a coal-fired boiler. As the vitrified mass was flecked with bits of rusted iron, there could be little doubt that it came from a forge. I was quite sure at the time that Governor Nixon had not mentioned building a blacksmith shop on the island, but the evidence before me was conclusive. And in addition, a few pipe fragments that we found on the floor of the structure showed that it was contemporaneous with Nixon's warehouse. What had been referred to in our records as "House No. 2" was henceforth called "the blacksmith shop". By that time most of the sand from the collapsed walls had been removed. The only remaining deposit was along the centre of the north wall, behind the heap of sand and roof tiles. As soon as we started to shovel out that area, however, we encountered a solid deposit of tiles, each of which was sitting on edge. And along the southern edge of that deposit we found the base of a short wall, made of the same tiles set in clay rather than mortar (Pl. 150). When the entire area was exposed, it was quite obvious that the mass of tiles lying on their sides had originally been part of the wall that was still standing. At some point the upper part of the wall had fallen over to the north and had then been covered with drifting sand, as had the base of the wall itself.

The wall was 4 feet (1.2 m) long and 5 inches to 6 inches (12.7 cm to 15.2 cm) wide, or roughly the width of the roof tiles themselves. It probably stood about 30 inches (about 76 cm) high originally. The wall was fashioned from both complete and broken tiles, laid with their major axis in line with the wall itself and with their concave surfaces downwards. The only footing for the structure was a line of roof tiles with their major axis running north and south; these had been placed directly on the levelled sand with their concave surfaces upwards. The back of the wall, that is, the north side, had been faced with horizontally laid boards that were about 2.5 cm thick.

When we started clearing out the sand that had slumped inwards along the north wall of the rectangle, we noted the odd piece of tile near the surface. Once the upper levels were removed, however, we found 20 cm to 25 cm stratum of perfectly clean sterile sand. And below this were the remnants of the tile wall, resting on the sand floor of the blacksmith shop. But the highest point of the heap of sand and roof tiles that we had noted at the beginning of the investigation was actually to the south of the tile wall. And when we started to remove the highest levels of the mound, we found that here, too, the tiles we had originally noted were confined to the upper surfaces of the small mound. The rest of it was pure sand, except for an irregular blob of clay near the southwestern arc of the sand pile. It became clear, at this point, that some of the sand covering the fallen tiles had come from the collapsed north wall of the blacksmith shop; some of it, however, had come from the sand pile that had originally been a free-standing feature on the level floor of the blacksmith shop. But why was the sand pile there?

We were unable to account for the presence of the sand pile until it was completely removed. Only then did we learn that it had originally been encased in a wooden form. Very little of the wood survived, although there were enough remaining traces to attest to its presence. But two circular organic stains, each 7 inches (17.8 cm) in diameter, were found about 3 1/2 feet (1.1 m) south of the tile wall. These marked the spots where posts had been set upright on the sand. The spacing was such that outside measurements from the two posts to the northern

corners of the wall formed a square with 4-foot (1.2-m) sides. The floor outside this square was littered with clinkers, bits of coal, and artifacts, but this layer of debris stopped abruptly at the edges of the square. When the blacksmith shop was in use, then, there had been a bottomless square wooden box sitting slightly to the west of centre, on the floor of the structure. Lining the north side of the box was the wall of roof tiles noted earlier. This box had been filled with sand and capped with a layer of clay. Then, as the retaining walls rotted away, the structure collapsed, pushing the tile wall outwards and covering its southern edge with clear sand. At about the same time, the southwestern corner of the structure also collapsed, and then the rest of it. This sequence could be read in the distribution of clear sand on top of the littered floor. The layer of clay that had capped the structure was found just outside the southwestern corner, having slid down the side of the sand pile. This sand-filled box had been the base of a forge.

Very little remained of the blacksmith shop itself. We located the four corners and some parts of each wall, but only the south wall of the structure could be traced throughout its entire length. This was a single log 17 feet (5.2 m) long and 7 inches (17.8 cm) in diameter. The north and west walls were also represented by single logs of the same diameter. The east wall, however, consisted of two log courses, each 7 inches (17.8 cm) in diameter and 18 feet (5.5 m) long. The corners were half-lap joints, pinned together with the familiar iron spikes. Overall dimensions for the blacksmith shop, then, were 17 feet × 18 feet (5.2 m × 5.5 m), with the major axis running north and south. The foundation logs for the building had been laid directly on the sand and levelled when necessary by short sticks of wood—about 30 cm to 60 cm long—poked underneath the low points.

The back of the blacksmith shop, as we noted earlier, was covered with a thick layer of clinkers. This deposit was heaviest along the eastern edge of the forge, where it attained a thickness of 15 cm to 20 cm. From there it thinned out gradually as it approached the east and north walls. Although almost all this material was confined to the rear of the shop, there was a thin scattering of it in the front as well. Artifacts, on the other hand, tended to be concentrated on the southern half of the floor. And again, there was the absence of decaying wood fibres that was a salient feature of Nixon's warehouse. Since there was nothing to suggest that the blacksmith shop had either disintegrated or been burned down, I was

forced to the uncomfortable conclusion that it, too, had been dismantled. But again, I could offer no explanation for such odd behaviour.

Although a description of the artifacts from the site will be presented in the following chapter, a few comments might be in order at this point. The kinds of artifacts, as well as their numbers, reflect quite sharply the difference in the activities that took place in the two structures. For example, food refuse, though present in both buildings, was extremely scarce throughout, as were broken bottles. Both of these categories contrasted sharply with Fort Albany, where food refuse and broken bottles occurred in vast numbers. And only one piece of cutlery was found on Charlton Island, the handle of a latten spoon or fork which was lying in front of the stove in the warehouse. The odd musket ball or piece of bird-shot was found in both structures but, apart from a bag of shot found in the blacksmith shop, these artifacts, too, were sparsely represented. Pipe fragments occurred throughout, but were heavily concentrated in the blacksmith shop—only eight pipe bowls were found on the floor of the warehouse, while sixty-two were found on the floor of the blacksmith shop. During the excavation we got the distinct impression that the men ate and slept somewhere else. A few of them would gather from time to time in front of the hearth in Nixon's warehouse; more frequently they would gather in the blacksmith shop to smoke their pipes, attracted no doubt by the warmth of the glowing forge. But they lived somewhere else.

The major difference between the artifact assemblages from the two buildings was in the distribution of iron objects. Nails and spikes were about evenly distributed between the two structures—thirty-four in the blacksmith shop and thirty-eight in the warehouse. These, in all probability, were used mainly in the construction of the buildings themselves, rather than in any activities that took place within the buildings. But apart from these items, the assemblage of iron artifacts from the house consisted of only seven items, whereas that from the blacksmith shop consisted of sixty-seven objects. As we will see below, many of these were tools that were used by the blacksmith and simply left lying about; others were found in a wooden tool-box sitting against the west wall. Apart from the specimens that were brought back to the Museum, we found at least 45 kg of iron objects that were too rusted to be identified and were therefore reburied at the site.

As we approached the end of the field season, we drew a final map of our excavations (Fig. 60). We
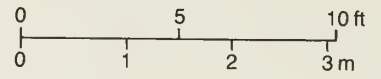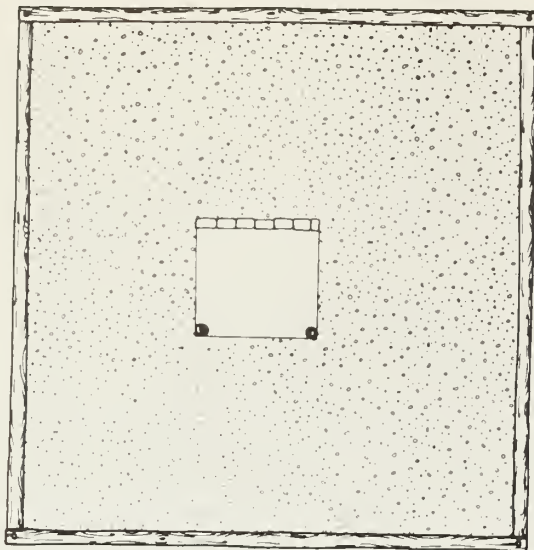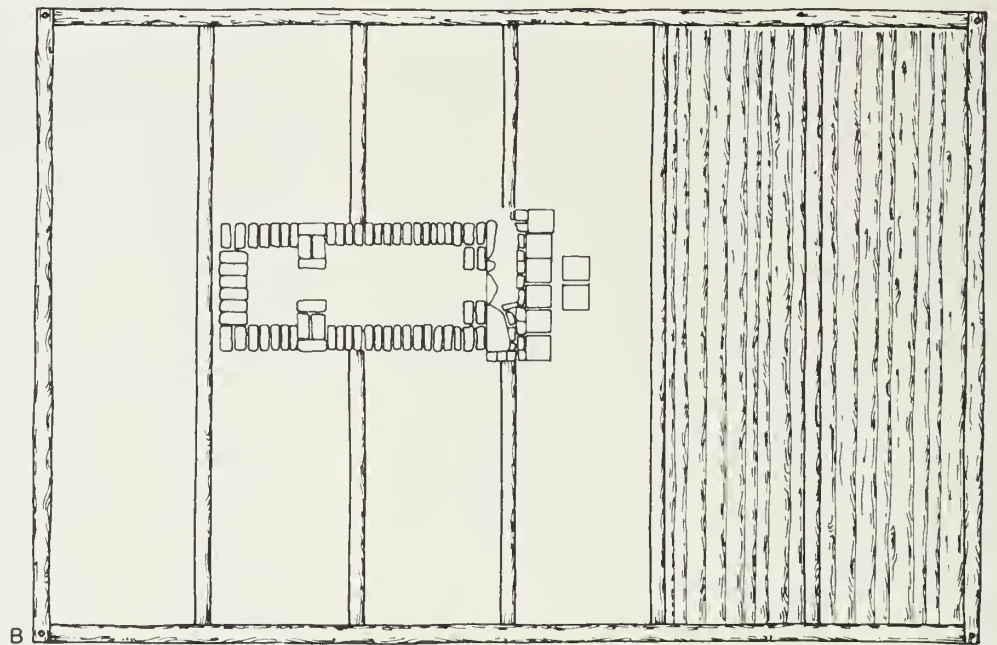
Fig. 60 Buildings, Charlton Island: *A* Thomas Kildale's blacksmith shop; *B* Nixon's warehouse.

noted that the warehouse and the blacksmith shop were carefully aligned. The east wall of the blacksmith shop was aligned with the inside of the west wall of the chimney in the warehouse; the south wall of the blacksmith shop and the north wall of the warehouse were an even 15 feet (4.6 m) apart. By that time, too, we had located two more depressions on the southern slope of the highest raised beach, the one where the blacksmith shop was located. I named these House No. 3 and House No. 4. They were side by side, but markedly different in appearance. The more easterly of these two structures was approximately the same size as the blacksmith shop we had just excavated. And, like the blacksmith shop, it seemed to have been dug horizontally into the slope of the beach. The other structure was much smaller and appeared to have been dug downwards from the surface of the slope.

From a spot 158.2 m north of our bench mark, I took a bearing on a point midway between the two western depressions: the relative bearing was 76°18′; the distance was 91.1 m. The people who scattered their thin mantle of artifacts across the floor of the warehouse and the blacksmith shop must have lived in those western depressions. I was sorely tempted to excavate them—to complete the story of Nixon's settlement on Charlton Island—but it was far too late in the season. We had to leave that final page unturned.

History

Although there are some brief scattered references to the company's activities on Charlton Island during that early period, most of the available information is contained in John Nixon's 1682 report to the governor and committee in London (HBRS 1945:239–304). In fact, Nixon's long rambling report gives us our first glimpse of daily life at the lonely outposts at the bottom of James Bay. And for Nixon, at least, the daily life was becoming complicated indeed. He had arrived in the bay in 1679 aboard the *John and Alexander*, whose captain was Nehemiah Walker, to replace Charles Bayly as governor. Nixon had sailed to Point Comfort, and then on to Charles Fort. It had been agreed, however, that in the future, the ships from England would sail directly to Charlton Island, for it was much safer to anchor a large sea-going vessel at Charlton than in the shoal water at the mouths of the rivers where the company posts were located. And, as we mentioned earlier, Nixon was to build a "substantiall" warehouse on the island to house the furs that would be collected there from the three company posts for shipment to England each summer.

On 2 June 1680 the company sent three vessels to the bay. One of them, the *Albemarle*, in the command of Captain Draper, was to sail directly to the mouth of the Severn River where a new post was to be built. The other two vessels, the *Prudent Mary* and the *Colleton*, were to sail directly to Charlton. The *Prudent Mary*, a chartered vessel, was to take the year's catch of furs from Charlton back to England; the *Albemarle* and the *Colleton* were to remain in the bay. As soon as the *Prudent Mary* was loaded, therefore, she headed for home. But she struck a reef on Trodley Island, just north of Charlton, and was lost (HBRS 1945:135 n.). At least some of the furs were salvaged, however, and the crew seems to have made its way safely to Fort Albany.

The following summer—on 9 August 1681—Nixon dispatched the year's catch of furs aboard the *Prince Rupert*, which had been in the bay since 1678, and the *Albemarle*, which had apparently failed to establish a post on the Severn (Voorhis 1930:162). Only then, finally, did Nixon start work on the warehouse he had been told to build on the island. He employed on this project the crews of the *Colleton*, which had arrived the previous year from England, and the *Hayes*, the coastal sloop that had brought him and his party to Charlton Island from Moose Factory. In all, he probably had a work force of fifteen or twenty men.

The warehouse he built was "20 foot square, and 2 stories and a halfe high" (HBRS 1945:239). Nixon complained that he was short of grub for the men, as well as of building materials for the warehouse. Specifically, he was short of boards, nails, and ironwork. He sent Walsall Cobbie, the new captain of the *Colleton*, to Trodley Island in the longboat from the *Prudent Mary* to see if he could salvage any building material from the wreck; but in this he was unsuccessful. Captain Greenway had apparently returned to the wreck of his vessel, the *Prudent Mary*, salvaged what he could, and then burned the derelict. Cobbie's trip was not a total loss, however, for Nixon says that the longboat returned with a small anchor "which stood us in good steed for the yaught".

When the men returned from Trodley Island, Nixon continued work on the house. He did not

have enough lumber to lay a floor in the structure, nor did he have enough mortar for tiling the roof. He laid the roof tiles without mortar nonetheless, explaining that such a roof would keep out the rain, although it would not keep out drifting snow (HBRS 1945:240). Nixon fails to tell us at this point in his narrative what the house was built of, although he does offer an important clue later on. In a totally different context, and while urging the committee in London to send out competent tradesmen, he complains that there were no sawyers in the bay. And he suggests that providing sawyers would not really cost the company a shilling. "The charge that you are at yearly for mous skins and for sowing of them, together, to make tents to cover our houses, would pay the sawiers wages double" (HBRS 1945:253).

This reference to moose-hide tents "to cover our houses" fills in the architectural details that we were missing (see also Oldmixon [Tyrrell 1931:384]). Nixon's warehouse, then, was 20 feet (6.1 m) square, and two and a half storeys high. It consisted of a wooden frame covered with a moose-hide tent. It had a dirt floor and was roofed with tiles that were laid without mortar. Although Nixon fails to mention it, the house was also provided with a large stove, built of tile and brick, for we unearthed it during our excavations. The fact that the structure was simply a framed tent clears up the archaeological problem that beset us while we were working there: we had not found the expected quantity of decayed wood because the house was not a wooden building. At this point the only archaeological problem that requires explanation is the presence of the burned annex that we found attached to the eastern end of the warehouse. We will return to a discussion of that topic following the introduction of some additional data. Meanwhile, let us pick up the thread of our narrative.

By the time the warehouse was finished it was well into September, and Nixon had almost given up hope of seeing a supply ship from England that late in the year. He decided to remain on the island till the fifteenth, however, on the off chance that one might still arrive. Then on 12 September some of the men who were wandering about the island heard the distant roar of a cannon being fired out at sea. When this was reported to Nixon, he sent out his sloop, the *Hayes*, to locate the ship and pilot her into the anchorage. They finally located the vessel, the *Diligence*, which had sailed from London in June. Moving the *Diligence* into harbour should have been a simple routine operation, but for some reason she struck a reef on the way in and tore off her rudder.

She managed to work her way off the reef, however, claw her way out into deeper water, and drop her anchor. Because of bad weather, it was not till the sixteenth that the men were able to bring her into the harbour under jury rig.

Once the *Diligence* was safely moored, Nixon started unloading her. Some of the supplies and trade goods were moved into the newly constructed warehouse, but the bulk of the cargo was sorted into three separate loads, one for each of the posts on the mainland. When it was all sorted out, he sent one load to Moose Factory aboard the *Colleton* and one to Fort Albany aboard the *Hayes*. When the ships returned, Nixon sent the third load of supplies to Rupert House aboard the *Hayes*, and because it was already mid-October, he told the captain to keep the ship at Rupert for the winter.

It must have been a frantic season for Governor Nixon. In addition to moving the winter outfits to the trading posts that were his primary charge, he was now faced with the added responsibility of a rudderless ship, as well as of the ship's crew. We are not told precisely how he wintered the ship, although we do know that he hove it ashore. Nor does he offer many details about the house he built for Captain Walker and his crew. Nixon does tell us, however, that he put his "carpenter to worke about theire house", and that he had some clay brought over from Fort Albany so that the bricklayer could build them a stove (HBRS 1945:265). But there can be little doubt that this structure, like the two we have already discussed, was a framed tent with a tile roof. And the stove must have had the same general features as the one we found in the warehouse. In any event, Nixon tried his best to make the crew of the *Diligence* as comfortable as possible under the cirumstances. He provided the men with beaver-skin coats, and with old moose hides with which to make themselves shoes. And from time to time he encouraged the men with a dram from his own private stock. Finally, he tells us, Captain Walker and his men had "a good and roomly warme hous".

When everything was settled to his satisfaction, Nixon boarded the *Colleton* to return to his headquarters at Moose Factory. But he was soon driven back to Charlton Island by strong westerly winds and broad fields of drifting ice. After making two more unsuccessful attempts to reach the mainland, Nixon was forced to the conclusion that he was stranded. He pulled the *Colleton* ashore and moved into the "roomly warme hous" with Captain Walker and his men.

Although it has not yet been excavated, that house

was almost certainly built in the depression we found carved into the highest raised beach at House Point, west of the blacksmith shop. Surface indications make it clear that it was a semisubterranean structure about 20 feet (about 6 m) square, with the stove approximately in the middle of the floor. It must have been incredibly crowded, for there were thirty-five men on Charlton Island at the time—twenty-two from the *Diligence* and thirteen, including Nixon himself, from Moose Factory (HBRS 1945:276).

To help relieve the pressure, Nixon dug a small ''seller'' just to the west of the house. The crowding was made even more awkward by the fact that Nixon and Walker disliked each other intensely. This personal animosity had first developed in 1679 when they arrived in the bay together, Nixon as the new governor who was to replace Charles Bayly, and Walker as the captain of the *John and Alexander*. And Walker's behaviour since arriving at Charlton—if we are to believe Nixon's report—had been far from exemplary. There is little merit in trying to evaluate the charges that Nixon levelled at Walker, for both men appear to have been rather obstreperous. But we can probably agree with Nixon when he complained that Walker was a troublesome landlord!

At some point during that long abrasive winter, Nixon and his men moved out of Walker's house (HBRS 1945:280). Since the only other building on Charlton Island at the time was the warehouse, Nixon must have moved in there. It was probably then that he built the small log annex we found attached to the east wall of the warehouse.

That winter must have seemed interminable to Nixon, for it was not till 14 June that he received any news from the mainland. On that day the *Hayes* arrived from Rupert House, after a rough crossing. There was still so much ice in the bay that it had taken her fifteen days to make a passage that normally took only eight hours. And when she finally did arrive at House Point, there was so much ice in the channel between Charlton and Danby islands that she had to be hove ashore for protection. By the nineteenth the situation had improved sufficiently that Nixon was able to send the *Hayes* to Fort Albany and to sail himself aboard the *Colleton* to Moose Factory. There he was pleasantly surprised to find that everything was in order. Nixon returned to Charlton on 30 June, taking with him the blacksmith and armourer, Thomas Kildale, to fashion a new rudder for the *Diligence*.

The blacksmith shop that we excavated (Pl. 151) must have been built about that time, although there are no references to that structure in the published records. Nixon turned his attention to other and more pressing matters during this period. He had, after all, been away from his post at Moose Factory for almost a year, and there was a long list of things that had to be done. Among them, of course, was arranging for the furs to be transported from the three mainland posts to Charlton Island for shipment to England as soon as the *Diligence* was ready. Preoccupied as he was with other matters, Nixon apparently left Kildale to the task of refitting Walker's vessel. Nixon's long rambling report to the committee in London makes no further reference to the activities on Charlton Island. Kildale did fashion a new rudder, however, because the *Diligence* sailed for home in early August with a rich cargo of furs aboard.

There is a sequel to Kildale's activities on Charlton Island. With the sailing of the *Diligence*, Kildale went back to Moose Factory, but, as we have seen, he left his tool-box in the blacksmith shop where he had forged the ironwork for the vessel's rudder. The following summer he returned to England. There, in the records of a committee meeting held on 9 November 1683, the following entry is found: ''Ordered the Tools Tho. Killdale Gunsmith left in the Bay be paid for and the Secretary take Advice with some of the Compa. Gunsmiths what they are worth'' (HBRS 1946:151).

6

Charlton Island Artifacts

The artifacts we unearthed on Charlton Island held few surprises. They were the same as the Fort Albany specimens, except that the range of materials was narrower. This was to be expected, of course, because the range of activities was more restricted on the island. As most of this material has already been described, we will simply list the items, adding the occasional comment as required.

Nixon's Warehouse

On the floor of Nixon's warehouse, the following items were found.

Spikes (7)

Nails (31)

Small chunks of flint (20)
This is the same material from which most of the gun-spalls were fashioned.

Kaolin pipe bowls (8)
These were the same as the type dominant at Fort Albany (see Pl. 138D). None of them were marked.

Pieces of pipe stem (50)

Gun-spalls (7)
All of them had been used.

Wine bottles (2)

Case bottles (2)

Glass beads (2)
One of these was a red tubular bead, type Ia1; the other was a small blue specimen, type IIa48.

Apothecary jars (2)

Copper scoop (1)
This specimen had been crudely fashioned from an irregularly shaped piece of copper, probably from an old kettle. It is 11.0 cm long. Triangular in outline, it has sides that are roughly 3.0 cm high.

Ceramic handles (2)
Neither of these specimens is complete, but they were obviously derived from large lead-glazed vessels of some sort.

Plate (1)
A single small tin-glazed rim appears to have been part of a dinner plate, the only one found on James Bay.

Peas (7.4 g)
A number of charred peas (*Pisum satiuum*) were scattered along the southern edge of the stove.

Barrel hoops
A number of these were found, though none of them were complete.

Blobs of lead (3)

Blobs of melted glass (2)

Latten handle (1)
This specimen (Pl. 152) is the handle of either a fork or a spoon, probably the latter.

Trigger (1)

Iron rings (2)

Stray bits of iron (3)

Lead-glazed pots (4)
Two of these vessels are represented only by very small rim fragments. A third vessel is represented by a large rim fragment and appears to have had an oral diameter of about 9.3 cm. The final specimen in the group was apparently a globular vessel about 12.0 cm high and with an oral diameter of some 11.0 cm; the base is 8.5 cm in diameter.

Musket balls (26)
These are in a variety of sizes, ranging from .36 calibre to .68 calibre.

Dropped shot (137.0 g)

Pintle (1)

Thomas Kildale's Blacksmith Shop

The specimens from the blacksmith shop are much more varied than those found in the warehouse and are also much more plentiful. Those items that were scattered across the floor of the shop—and that were not in Mr Kildale's tool-box—are as follows.

Spikes (8)

Nails (24)

Bits of iron (19)

Pieces of barrel hoops (2)

Case bottle (1)

Gun-spalls (11)
These specimens (including those illustrated in Pl. 153) had probably all been used. They were fashioned from the same material as those found at Fort Albany.

Trigger guards (2)

Sear spring (1)

Gun lock (1)
This specimen was found behind the forge, just a few centimetres from the north wall of the shop. When it was found, it was covered with a thick layer of sand that was cemented to its surface with rust (Pl. 154). Even at that stage, we could see that it was an unusual specimen. Only when it was cleaned, however, did we learn that it was the early model with the flat cock and lock plate (Pl. 155 and Fig. 61).

Musket balls (15)
These range in size from .27 calibre to .74 calibre.

Dropped shot (22.4 g)

Glass beads (113)
Four types are present. One hundred and seven of these are small opaque white beads, type IIa14; four are type IIa15; one is type IIa31; the final specimen is type IVa1.

Knife blade
This blade is from an eared jack-knife such as those from Fort Albany illustrated on Plate 101.

Iron keys (3)
These are illustrated on Plate 156.

Pintles (2)
Both these specimens (Pl. 157B, C) are unfinished. When they were completed, they would have had pointed ends so that they could be driven into a heavy plank or timber.

Apothecary jars (2)
One of these consists only of a small handful of sherds; the other specimen is 5.5 cm high and 6.0 cm in diameter (Pl. 158). This jar or cup is unusual in that it has a small pouring lip, the only such specimen that I have seen on James Bay.

Kettle-lug (1)
This is a heavy specimen of cast brass weighing 253.2 g (Pl. 159). It is 10.5 cm high and 8.5 cm wide.

Copper strap (1)
This specimen is complete (Pl. 160). If the ends of the strap were soldered together, the strap would form a ring 3.3 cm in diameter.

Door catch (1)
This is illustrated on Plate 161.
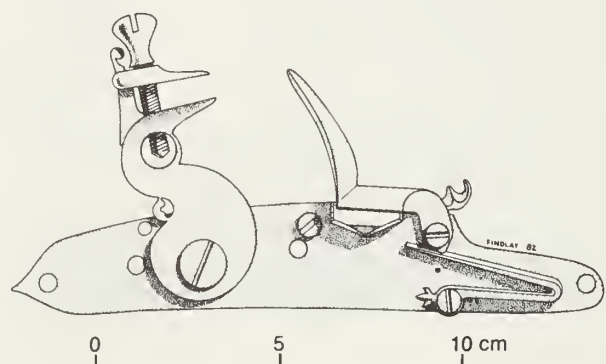
Fig. 61 Gun lock (No. 206), Charlton Island.

Iron grommets (2)
One, an unfinished specimen, is particularly rugged, weighing 532.1 g. In its present form it is 6.5 cm in diameter; it was fashioned from an iron bar that was 4.2 cm wide and 1.0 cm thick. The other is a light specimen, about 2.0 cm high and 5.0 cm in diameter.

Copper bangles (2)
These are both 3.0 cm long.

Iron staples (3)
These range in length from 7.3 cm to 11.7 cm.

Brass drawer pull (1)
This well-made specimen (Pl. 162A) was probably from an instrument case or some similar object.

Brass catch (1)
This closing device (Pl. 162B) is only 3.1 cm long and was attached to whatever it closed with two small square nails.

Common pin (1)
This specimen (Pl. 163) is fashioned from tin-plated copper or brass. It is 3.0 cm long.

Pieces of scrap copper (5)

Iron rings (2)
These were fashioned from light iron rods and are 5.0 cm and 5.8 cm in diameter.

Iron washers (4)
These heavy specimens range from 4.5 cm to 6.7 cm in diameter.

Brass ferrule (1)
This specimen is 7.0 mm wide and 15.0 mm in diameter.

Iron swivel (1)
This was probably attached to the end of a small chain, possibly from a trap.

Cold chisels (3)
The largest chisel in this group weighs 6.4 kg and is 36.7 cm long. The top 10.0 cm of the tool is 5.7 cm square, with chamfered corners. From these corners the blade tapers to a cutting edge that is 3.5 cm wide.

Another chisel is represented only by its bit end, a fragment that is 10.0 cm long. This fragment was cut from a larger specimen with the same degree of taper as the one described above and probably came from a similar chisel. The third and final chisel in this group (Pl. 164B) is 13.5 cm long.

Augers (2)
Only one of these specimens is complete (Pl. 165). It is 71.5 cm long and would have drilled a hole just under 1 inch (2.3 cm) in diameter. It was turned with a wooden handle, 1¼ inches (3.2 cm) in diameter. Kildale, the blacksmith, would have used the auger to drill holes edgewise through the heavy planks from which he fashioned the new rudder for the *Diligence*.

The other auger is represented only by the top 5.0 cm of the handle, but this top is virtually identical with those of the complete specimens.

Pipe bowls (55)
One of these specimens is the same as those manufactured by Thomas Smithfield (Fig. 56). Five are of the type with the cylindrical spur (see Pl. 166A) such as we found at Fort Albany. The remaining forty-nine are of the type that was most common at Fort Albany. Five of these are illustrated (Pl. 166B–F) to show the very subtle variations in size and form.

Pipe stems (503)

Kildale's Tool-Box

Although a few bits of wood were still present, most of the tool-box itself had long since rotted away. Judging from the distribution of the materials it contained, however, it must have measured about about 30.5 cm × 61 cm. Not including shot and musket balls, the tool-box contained thirty-five items.

Pintle (1)
This specimen (Pl. 157A) is 14.2 cm long.

Scrap copper (1)
This small fragment is probably part of a burnt-out copper kettle.

Iron bars (5)
One of these is 2.1 cm square and 28.5 cm long. The other four are from 13.0 cm to 15.0 cm long, 3.5 cm to 5.0 cm wide, and 1.0 cm to 1.5 cm thick.

Marlinspike (1)
This specimen (Pl. 164A) is 20.6 cm long.

Caulking iron (1)
This specimen (Pl. 164E) is 20.5 cm long.

Cold chisels (2)
These specimens (Pl. 164C, D) are 18.5 cm and 14.5 cm long.

Rip saws (2)
These are represented by small sections of their blades only. The sections are from large saws with widely spaced teeth, probably pit saws.

Spikes (3)

Iron scroll (1)
This is a small strip of iron 1.0 cm wide and 3.0 mm thick, with each end rolled up into an opened spiral. It is 8.5 cm long.

Brass ladle (1)
This crudely fashioned specimen was chiselled out of a sheet of heavy copper or brass and then hammered into shape (Pl. 167). It is 13.0 cm long.

Gun cock (1)
This specimen (Pl. 168) has the rounded outer surface of the Oakes-pattern musket.

Gun-spall (1)
This specimen (Pl. 169) is probably unused. It is 2.8 cm long and 2.8 cm wide.

Pipe (1)
Kildale's pipe is illustrated in Plate 166C.

Brass tacks (9)
These are all 1.5 cm long, with tapered rectangular shanks (Pl. 170). Such tacks were fixed to the ends of wooden ramrods. With head diameters of 1.0 cm, they could have been used with muskets of .40 calibre or larger.

Adze blade (1)
This specimen (Pl. 171) is 27.4 cm long and has a cutting edge 13.0 cm wide. The eye is circular and tapers from an outside diameter of 5.5 cm to an inside diameter of 5.0 cm.
   Just below the eye, on the inside surface, is a circular stamp 1.4 cm in diameter, bearing the initials ''I A''.

Shovel blade (1)
This specimen, like the similar ones from Fort Albany, would have been fitted over the end of a wooden spade (Pl. 172). Its cutting edge is 21.0 cm wide.

Copper strainer (1)
This crudely fashioned specimen (Pl. 173) was made from the bottom of a copper kettle that had a diameter of about 26.0 cm.

Drawer pull (1)
This strange object (Fig. 62A) may have been part of the tool-box's furniture, or it may have been a stray fastening that was part of the contents.

Hasp (1)
This specimen (Fig. 62B) was probably used to close the tool-box, but again, I cannot be sure.

Dropped shot (741.5 g)

Musket balls (183)
A few of the musket balls were rejected because they were slightly out of round. The diameters of the remaining 177 are presented in Table 8. The balls weigh 2.5 kg. It would appear that Thomas Kildale used a .52 calibre musket.
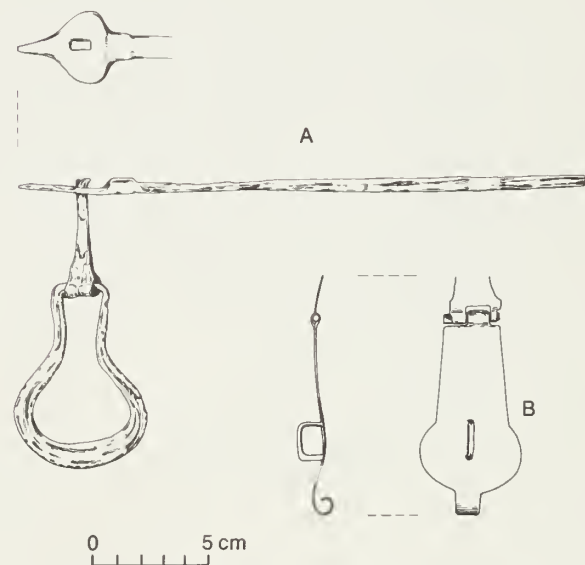
Fig. 62 Fittings from Thomas Kildale's tool-box, Charlton Island: A drawer pull (No. 109); B hasp (No. 104).

Table 8. Musket ball calibres, Kildale's tool-box, Charlton Island
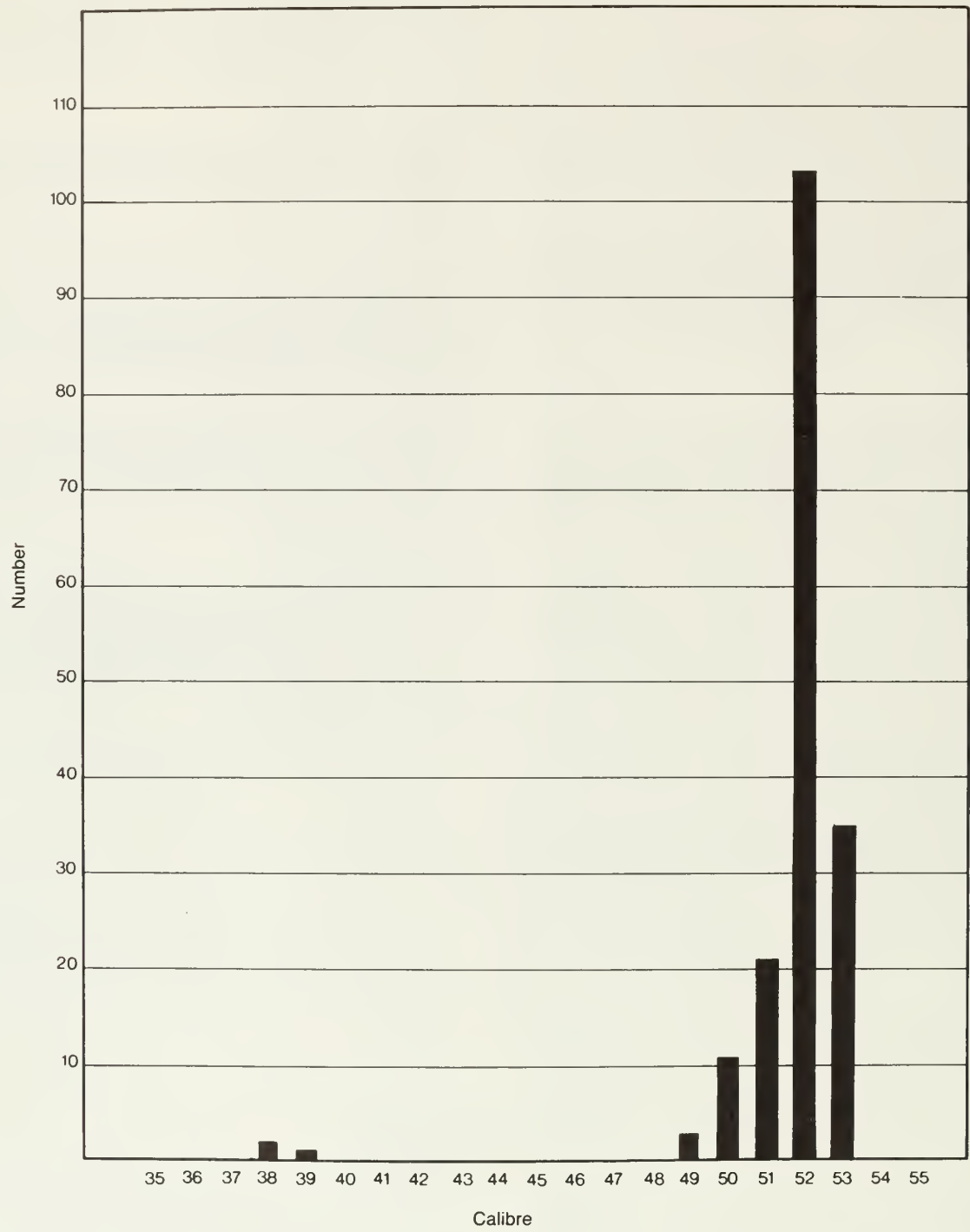
Charlton Island Pipe Collection

The entire pipe collection from Charlton Island consists of 64 bowls and 553 stems. When we measured the bore diameter of 561 of the pipes and stems from the entire Charlton Island excavation, we found the distribution presented in Table 9. Diameters are measured in sixty-fourths of an inch.

Applying the Binford formula to these data, we derived a date of A.D. 1666, which is sixteen years too early.

Table 9. Pipe stem bore diameters, Charlton Island

Diameter	Number
6/64	112
7/64	374
8/64	75
	———
	561 Total

The Battle for James Bay

When the *Diligence* sailed from Charlton Island in the fall of 1682, she carried Nixon's report back to the committee in London. Although it is a long rambling document, as was mentioned earlier, it contains much valuable information on conditions in James Bay. It tells us, for example, that the Hudson's Bay Company had a total complement of only forty-one men in the bay at that time (HBRS 1945:299–300). At Rupert House, under Hugh Verner as factor, there were only three men. At Moose Factory, there was Nixon, the governor; Thomas Phipps, his deputy; William Whittaker, secretary to the governor; Benjamin Gorst, trader; John Ker, surgeon; Thomas Mettam, carpenter; Thomas Kildale, smith and armourer; and three other men, presumably labourers, making a total of ten people. At Fort Albany, under Robert Sandford, trader, were five men. Besides the captains, there were nine sailors on the two coastal vessels—four on the *Colleton* and five on the *Hayes*. In spite of the fact that there were so few men in the bay at the time, the *Diligence* left Charlton with an impressive cargo of furs. She carried 139 moose hides, as well as 18 707 beaver skins, 94 lynx, 180 otter, and 1914 marten (HBRS 1946:26).

This was a remarkably small body of men to run the trading posts, maintain a warehouse on Charlton Island, look after the gardens and livestock, and operate two coastal sloops during the navigation season. In fact, Nixon recommended that the company should have fifty men in the bay, apart from ships' crews (HBRS 1945:250). He suggested that five men would be ample at Rupert House, which produced very few furs. At Moose Factory, he said, there should be twenty-two people, including the governor and his staff; at Fort Albany, where trade was most active, there should be twenty-three people.

Nixon suggested that the composition of the staff in the bay should be changed as well. He urged the committee to send out tradesmen—particularly sawyers, carpenters, bricklayers, tailors, and smiths. The smiths, he pointed out, could manufacture axes, knives, awls, and similar small items in the bay at a fraction of their cost in England; they would also be available for routine work around the posts, as well as for emergencies such as the *Diligence* had just suffered. Tailors, similarly, could keep the men's clothing in good condition—an important consideration during the long northern winter—as well as make garments for the Indian trade. And, like the smiths, they could make such items at a fraction of their cost in England. But above all, he wanted sawyers—to provide planks, boards, and shingles for the endless task of putting up buildings and keeping them in repair.

Nixon was concerned, too, with the quality of the men who were sent to the bay. The company shared this concern, for on 29 March 1682, the committee ordered "that the Secretary indeavour to gett 10 honest and able Fellows, batchelers not under 20 nor above 30 yeares old to be either Bricklayers, Carpenters, quarriers or such like" (HBRS 1946:99). But it was the younger men, the labourers or apprentices who might work their way up through the ranks to become fur traders, with whom Nixon was particularly concerned. He urged the committee to send him "some country lads that are not acquainted with strong drink, that will woorke hard, and faire hard, and are not debauched with the voluptwousness of the city" (HBRS 1945:251). He pointed out that, if England could not supply such men, Scotland could "for that countrie is a hard country to live in, and poore-mens wages is cheap, they are hardy people both to endur hunger, and could, and are subject to obediance." With such lads, and two or three old soldiers to train them in military discipline, Nixon's authority would be firmly established. "For I would have a select number of men in the country well disseplined and in good order, so that at all times I may be in a capacity to brydle all mutaneous, licentious, and factious spirits" (HBRS 1945:277).

Nixon felt, too, that his position would be more secure if his dignity as governor were buttressed with some visible symbol of esteem. He suggested, therefore, that the company supply him with something extraordinary for his table. He pointed out that "a governours table is always comon for all commers, and goers, both in winter and summer and what a bace contemnable thing it is, that a Governour is not able to treat his inferior officers sivilly." He suggests they send him a few "west fally hams", some butter, some "chesser chesses", some "cherry—for that is a good sound wine—and some

good Nantice Brandy''. He also requests a butt of malt, stating, ''for I am antiant and water doeth not agree with me.''

Towards the end of his report, Nixon sums up his situation as follows: ''I am not altogether discouraged...for although I have been perplexed with many troubles, the Lord hath delivered me out of them all.'' And finally, with perhaps a suggestion of apology, he concludes with this observation: ''I am wearie to wryte such long letter and I feare you will be wearie to read them.''

Although Nixon was satisfied with the growth of the establishment in the bay, the French were not. They had watched with growing apprehension as the English enterprise expanded along their northwestern flank. As we noted earlier, they had sent Father Albanel to spy out the English position in 1672. He returned to the bay in 1674, this time in an effort to persuade des Groseilliers to join the French. Instead, he was taken prisoner and sent to England. He was soon freed, crossed the channel to France, and returned to Quebec from there. Five years later, as we have seen, Louis Jolliet appeared at Rupert House for a brief reconnaissance, and then quietly returned to the St Lawrence with his report.

The monopoly of the Hudson's Bay Company, meanwhile, was being seriously threatened by interlopers. And, as Oldmixon pointed out in 1708, ''there's nothing so terrible to a Monopolizer as an Interloper'' (Tyrrell 1931:400).

The first to appear on the scene was Benjamin Gillam, the son of Zachariah Gillam, with the *Bachelor's Delight* from Boston. He arrived at the mouth of the Nelson River in August 1682. Just as he was settling in, two French vessels—the *St Pierre* and the *Ste Anne*—arrived there from Quebec. In charge of the French party were Radisson and des Groseilliers, who had left the Hudson's Bay Company and were now associated with the Compagnie du Nord. The Frenchmen seized the *Bachelor's Delight*, together with Benjamin Gillam and his entire party. Radisson and des Groseilliers then moved to the mouth of the Hayes River, where they built a trading post which they named Fort Bourbon. In the spring of 1683, both the *St Pierre* and the *Ste Anne* were damaged. The *St Pierre* was abandoned, but the *Ste Anne* was given to some of the prisoners so they could make their way to James Bay. Radisson, with most of the French party, returned to Quebec aboard the *Bachelor's Delight*, leaving his nephew, Jean-Baptiste Chouart, and a few men to carry on the trade at the fort.

That same year another party of interlopers, led by Richard Lucas in the *Charles*, sailed for Hudson Bay

from Dartmouth. But the *Charles* was captured en route and taken to Charlton Island.

And so it went. This long, complex struggle was primarily between the Hudson's Bay Company and the French, particularly the Compagnie du Nord. And it was not finally settled until the signing of the Treaty of Utrecht in 1713. This treaty restored Hudson Bay to the British, and it ''implied official recognition of the Hudson's Bay Company's title to Rupert's Land, a point that, until then, had always been in dispute'' (Cooke and Holland 1978:50).

Oddly enough, the opening moves in this protracted struggle were all made in Hudson Bay itself rather than in James Bay. This was a key location, even at that early date, for whoever controlled the mouth of the Nelson had access to that vast, rich area that is now Manitoba. But men of the Compagnie du Nord finally realized that they could not hope to control the mouth of the Nelson as long as the English were so firmly ensconced in James Bay. They decided, then, that the English would have to be dislodged.

With the active support of Jacques-René de Brisay, marquis de Denonville, who had replaced the hapless La Barre as governor general of New France in 1685, the Compagnie du Nord organized an overland expedition to capture the English posts on James Bay. To lead the expedition, they chose Pierre de Troyes, a captain in the *troupes de la marine*. These men were not marines in the modern sense, but a branch of the regular army. Their name was derived from the fact that they were recruited in France by the Ministry of the Marine, the government department that was responsible for the French colonial empire. Denonville had brought a detachment of 350 of these men with him as reinforcements, and de Troyes was one of the officers.

The route from Tadoussac through Lake Mistassini to Rupert House was well known, having been travelled and described by both Albanel and Jolliet. The latter reported that he had travelled some 343 leagues—approximately 1370 kilometres—to reach the bay by this route in 1679. And Albanel added that there were ''200 saults or water-falls, and consequently 200 portages'' as well as ''400 rapids'' (Kenyon and Turnbull 1971:23). Because of these difficulties, the French decided to use the Ottawa River which, though long, was not nearly as hazardous. This route was well known as far north as Lake Timiskaming, where the French had a small trading post. Beyond that, they probably had at least some knowledge of the canoe route to Lake Abitibi. From there, down the Abitibi and Moose rivers to the bay,

they would be travelling through unexplored territory, but it could hardly present more difficulties than the Lake Mistassini route.

The detachment that de Troyes assembled for the attack on the James Bay posts consisted of 100 men—30 colonial regulars and 70 Canadians. Father Antoine Silvy, S.J., accompanied the expedition as chaplain; Saint-Germain acted as chief scout. The officers were Pierre Allemand, Zacharie Robutel de la Noue, and the three remarkable Le Moyne brothers—more commonly known by their titles les sieurs d'Iberville, de Sainte-Hélène, and de Maricourt. The total party, then, consisted of 108 men, including de Troyes himself.

When they left Montreal on 30 March 1686, there was still so much ice on the river that they carried much of their gear aboard sleds pulled by oxen and dog teams. But some of the oxen broke through the ice, and it took the men so long to get them out of the water that the party logged only two leagues that first day. On the second day, when the oxen again broke through the ice, de Troyes sent them back to Montreal. The party continued across the ice till 5 April when a sudden thaw and a gentle rain made the dogs and the remaining sleds completely useless; so they too were returned to Montreal. De Troyes and his party were camped at the foot of the Long Sault Rapids at the time, only some forty kilometres from where they had started. They spent the next few days repairing the thirty-five birch-bark canoes they had hauled over the ice, and lining them up through the rapids. It was back-breaking and bone-chilling work.

As they moved slowly upstream, the weather gradually improved. And with experience, de Troyes soon learned how to cope with the wilderness. The Canadians, after all, were old hands at that sort of thing. Still, it was a long, slow passage. It was not till 19 June that they reached the junction of the Abitibi and Moose rivers, just a short distance upstream from Moose Factory. Two days later, the French party attacked the fort at daybreak. Taken completely by surprise, the English were quickly overwhelmed. The French did not lose a man.

De Troyes described Moose Factory as follows:

This fort is constructed of thick palisades which, coming out of the earth to a height of seventeen or eighteen feet, form four curtains of which each face is a hundred and thirty feet long. The curtains are flanked by as many bastions whose plain earth is held together by two rows of thick stakes tied together occasionally

with planks. The planks which cross from one row of stakes to the other firm up the earth which they enclose, thus making the bastions more difficult to batter down. They were very well equipped with cannon. The two bastions which overlooked the river were each pierced for three guns which were in position. That is, in each flanker (or bastion), two guns were positioned to defend the curtains, while the other pointed outward. The rear bastions, which overlooked a clearing of twenty acres or thereabouts, were armed with six- or seven-pounders.

The embrasures were very properly made. It was impossible to fire a musket-shot along the gun because of sliding panels which closed the embrasures, and which could be drawn back easily when it was necessary to run out the guns. That is the description of the exterior of the fort. Inside, there was one large building and a redoubt in the middle composed of three storeys, and built of horizontal logs. It had a flat roof of rafters and planks protected by a parapet which had four embrasures on each side. These embrasures were simple openings. However, the redoubt was armed with only four cannon—three two-pounders and one, of cast iron, of eight pounds. From their elevated position, these cannon could command a field of fire on all sides of the fort. The main entrance to the fort was in the middle of the curtain which faced the river. This was closed by a door which was half a foot thick, reinforced by nails, thick strap-hinges, and iron bars. There was also a sally port in the rear curtain. (Kenyon and Turnbull 1971:66–67)

Leaving forty men to look after the fort and to guard the English prisoners he had taken, de Troyes then headed across the bottom of the bay to Rupert House. When he was within sight of the fort, at ten o'clock in the morning on 1 July, he camped behind a point and sent Sainte-Hélène through the bush to reconnoitre the English position. The results were as follows:

On the second, at eight o'clock in the morning, Ste. Hélène returned and told me that...the fort was a square flanked with four bastions almost identical to the fort at Moose River except that no cannon were visible in the bastions. This fort also enclosed a redoubt of similar construction to that at Moose River except that this one was

covered by a flat roof instead of a *terrasse*, and lacked a parapet. Also, it was not situated exactly in the middle of the fort. Ste. Hélène added that the redoubt was fortified by four small bastions which were raised about the height of a man above the ground, and were supported by pieces of wood which stuck out from the body of the redoubt. These were more like sentry-boxes than bastions; in each of them were two cannon. There was also a ladder leaning against the redoubt to be used in case of fire, and a small building with a smoking chimney at the other end of the place. During his observations, Ste. Hélène had not seen a sentinel. (Kenyon and Turnbull 1971:73–74)

On 3 July de Troyes attacked at dawn; again he captured the place without losing a man. A small vessel, the *Craven*, was lying at anchor in the mouth of the river at the time, and this he captured as well.

After he had loaded the cannon captured at Rupert House aboard the *Craven* and dispatched it to Moose Factory, de Troyes headed back there himself, by canoe. At Moose Factory he added the cannon captured from that fort to the load on the *Craven* and sent the vessel on towards Fort Albany. Meanwhile, he led his small flotilla of canoes along the coast. He paused at the mouth of the Albany River while he sent out scouting parties to locate the English fort and assess its defences. The fort, de Troyes tells us, was located in the elbow of an arm of the river (Kenyon and Turnbull 1971:80). He described the fort as follows:

> Fort Albany is located on very marshy ground. As a result, when the snows begin to melt, the water rises and floods the fort. Here is how it is built. There is a large main building constructed of horizontal logs which forms the major part of the curtain which faces the river. This is the servants' quarters, having at each end a score of stakes which make up the curtain at each side, and join the building to the bastions with which it is flanked. The side which faces the woods is built in the same way. There, the large building serves both as the dwelling of the governor and as a warehouse. The ground floors of the bastions on this side of the fort are also used for storage.
>
> The other two curtains are composed of thick stakes strongly joined together, and capped by a plank garnished with iron points, as are all those which surround the place. These cur-

tains each have a gate defended inside by two cannon pointed directly at each gate to blow sky-high anyone who batters them down. The four bastions with which the fort is defended are of horizontal logs with a platform on top like a Cavalier with four cannon on each, in addition to those which appear out of the sides, floor by floor. An additional structure was a line of posts behind the fort which was the same length as the curtain which overlooked it. At one end of the line was a small kitchen. (Kenyon and Turnbull 1971:83–84)

The Frenchmen landed their cannon from the *Craven* on the eastern end of Anderson Island, and then dragged them through the bush till they were opposite the fort. There they set up their battery and invited Governor Henry Sergeant to surrender. When Sergeant refused, de Troyes decided that a few well-placed cannon balls would probably change his mind. And in this he was quite correct. After attending six o'clock mass in the morning of 26 July, de Troyes opened fire; a few hours later the English surrendered. De Troyes had achieved his purpose; the French now controlled James Bay.

The journal of de Troyes describes a dramatic and successful commando raid. The story itself has already been told (Caron, ed., 1918; Kenyon and Turnbull 1971), and all the major figures in this drama have been included in the *Dictionary of Canadian Biography*. A brief summary of the de Troyes expedition is introduced into the present narrative because of the architectural data that it contains. De Troyes's descriptions of the forts he captured are virtually the only descriptions we have of the Hudson's Bay Company's forts from that period. And one of his officers, Pierre Allemand, drew a map of James Bay (Fig. 4) that included a small plan of each fort, labelled with its new French name.

When we read the description of the Albany fort that de Troyes captured in 1686, there can be little doubt that he was describing the same fort we excavated on Fishing Creek. All the pieces—both archaeological and historical—fit neatly together; both the location and the outline of the fort are confirmed by Allemand's map. The Albany post that de Troyes captured, then, must have been very similar to the reconstruction presented in Figure 63. The ground plan we know to be accurate, for it is based on archaeological findings. The heights of the buildings, on the other hand, are based on nothing more palpable than my own sense of proportion. This is also true of the roofs, the size and placement of win-
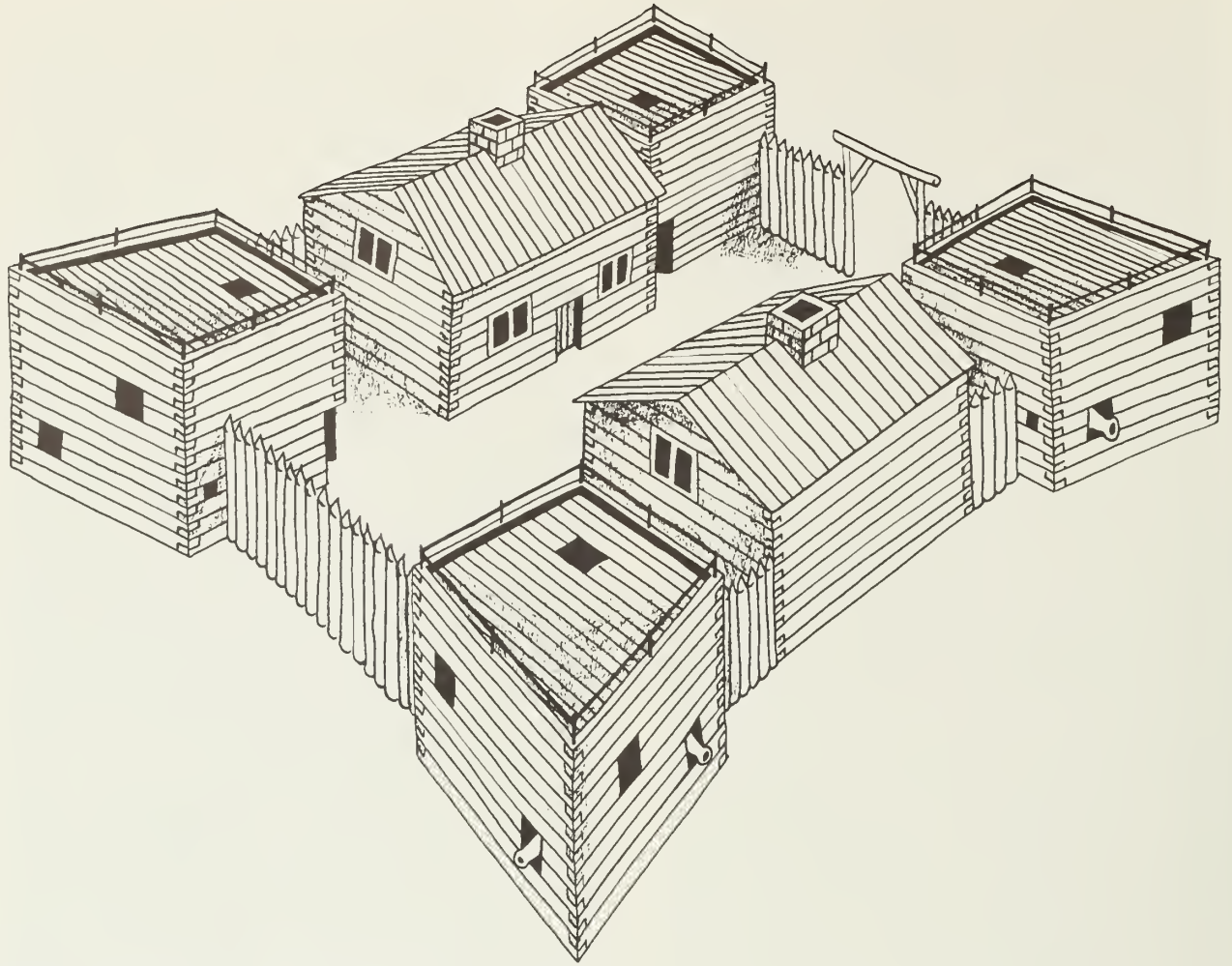
Fig. 63 Reconstruction, phase 3, Fort Albany.

dows, and similar details. The overall picture, however, is probably accurate.

The architectural history of Fort Albany, as we have seen, is not simple. We do not know exactly when the first buildings were erected there, but we do know that it was between 1675 and 1679. The earlier date is established by Oldmixon, who tells us that in 1674 Governor Bayly paid a brief visit to Albany "where no Englishman had been before" (Tyrrell 1931:391). The establishment at Albany must therefore have been built no earlier than the following year. Bayly was able to report to the committee when he returned to England in 1679, however, that he had established "a house of some strength" at Albany, and had left John Bridgar in charge (HBRS 1948:5). A letter from the committee to Bridgar also throws some light on the subject (HBRS 1948:20). Dated 21 May 1680, the letter states that "wee have yours of the 21th September from Port [Point] Comfort, and

are well pleased to understand that you have assisted in beginning a trade at the River of Chichichiwan [Albany]." The "house of some strength" at Albany, then, must have been erected between 22 August 1678, when Bridgar arrived in the bay, and the following summer, when Bayly returned to England. And that "house of some strength" was the same structure we excavated on the lower level at the Fishing Creek site. It was a simple log house surrounded by a light palisade, just as Jolliet described it (Fig. 64).

The bastions were probably added (Fig. 65) both to enlarge and to strengthen the post, for it rapidly developed into the foremost trading centre in the bay. These must have been erected no later than the summer of 1682, for Nixon referred to the Albany post as a "fort" at that time, whereas Bayly, at an earlier date, had referred to it simply as a "house".

The following summer Nixon was replaced by
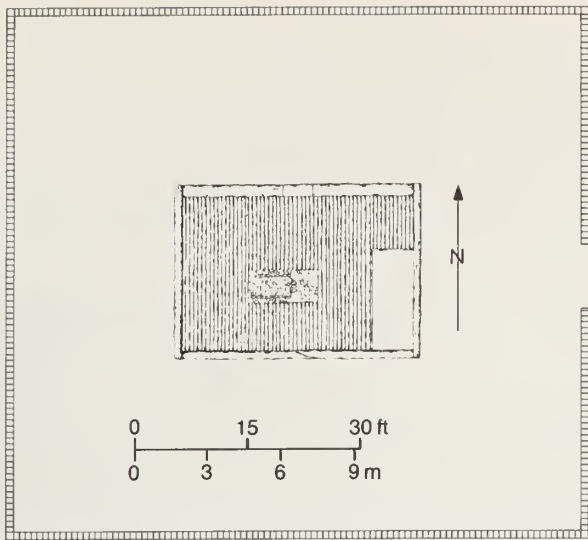
Fig. 64 Ground plan, phase 1, House No. 3, with palisade, Fort Albany.

Henry Sergeant as governor of the bay. Sergeant arrived at the bay with instructions to ''keepe your owne chiefe residence at the Factory of Chychewan River, that being the place of the greatest trade and resort of the Indians, and we have thought fitt that from hence forth the said river shall have the name of Albany river in honour of his Royall Highness our present Governour'' (HBRS 1948:72).

Sergeant arrived in the bay with the most elaborate entourage yet seen in that remote outpost. He brought with him his wife and her companion, a Mrs Maurice. They were the first European women to visit the bay and were referred to by the committee in London as Sergeant's ''parcel of women''. He also brought with him the Reverend John French, a minister of the Church of England.

In spite of his specific instructions, Sergeant moved into the governor's residence at Moose Factory, where Nixon had maintained his headquar-
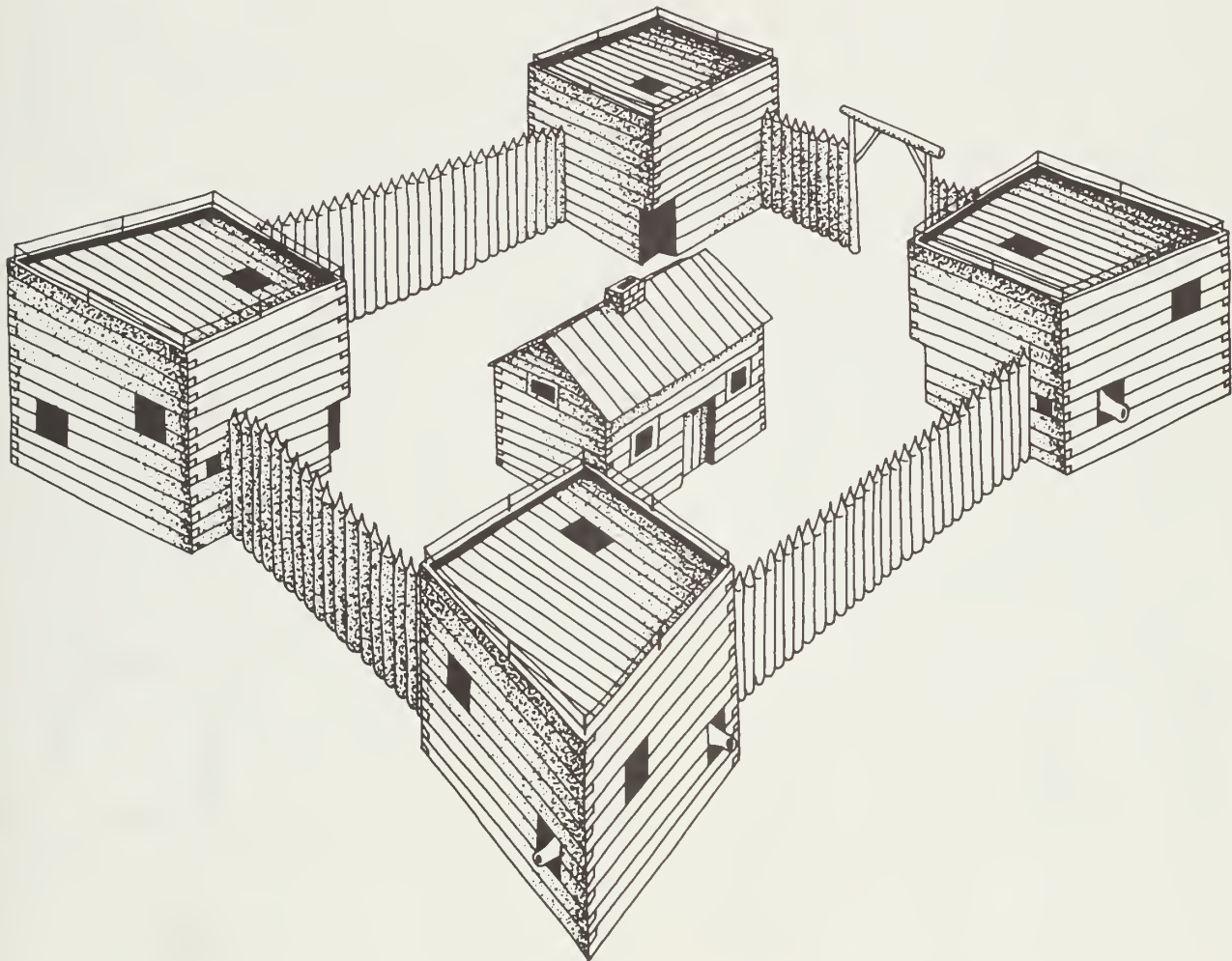
Fig. 65 Reconstruction, phase 2, Fort Albany.

ters. He probably did so because the facilities at Fort Albany were totally inadequate for him and his entourage. But he immediately sent a letter to the committee in London requesting the tools and building materials that he would need to enlarge the Albany post. These arrived the following summer, 1684, on the *John and Thomas,* and included 11 000 nails, 500 pounds (226.8 kg) of spikes, 5800 English bricks, 4000 Flemish bricks, and 2000 roof tiles.

The rebuilding of Fort Albany was probably started as soon as the tools and building materials arrived in the bay. It involved the demolishing of the old ''house of some strength'', the hauling in of enough gravel and clay to raise the central compound about
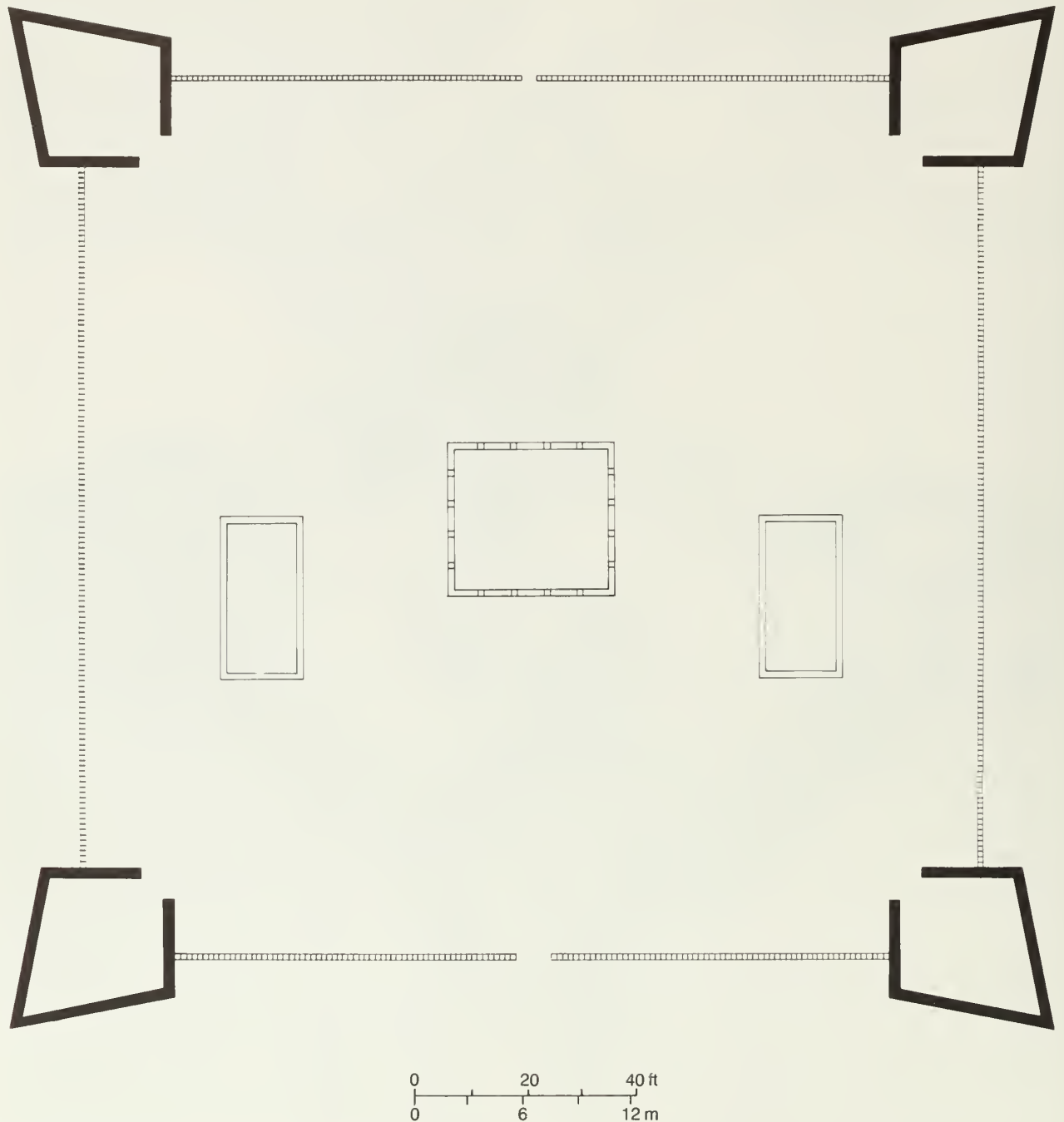
Fig. 66 Ground plan, Moose Factory, 1686.

thirty centimetres, and the erecting of the two main buildings that appear in Figure 63. It is possible that the moat was dug during Sergeant's renovation as well, although we have no data that bears directly on this matter. A passing reference by de Troyes suggests that it was probably dug earlier, perhaps when the flankers were added. The fort, he said, was "surrounded by old ditches almost filled up, which contained water only in some places" (Kenyon and Turnbull 1971:84). This comment suggests that the moat had been there for some time, probably longer than the two central structures.

The small ground plan of Fort Albany that Allemand sketched on his map of James Bay (Fig. 4) is almost identical to the ground plan of the fort we excavated there, that is, its major axis is roughly parallel with the southern branch of the Albany River and is appreciably longer than the minor axis. On both plans, Fort Albany contains two rectangular structures within its compound, one on the north side and one on the south; again on both plans, the major axes of these structures are parallel with the major axis of the fort itself. And the structures on both plans are integral with the north and the south curtains. There can be no doubt, actually, that what Allemand drew was a scale model of the fort he had just helped to capture. It was a crude sketch, to be sure, but it was drawn by an experienced navigator and surveyor and can be accepted as essentially accurate.

If we compare Allemand's sketch of Fort Albany with his sketch of Moose Factory, we find that each side of the latter is about half as long again as the major axis of the Albany post. We have archaeological evidence showing that Fort Albany was about 100 feet (30.5 m) long; therefore, Moose Factory (Fig.
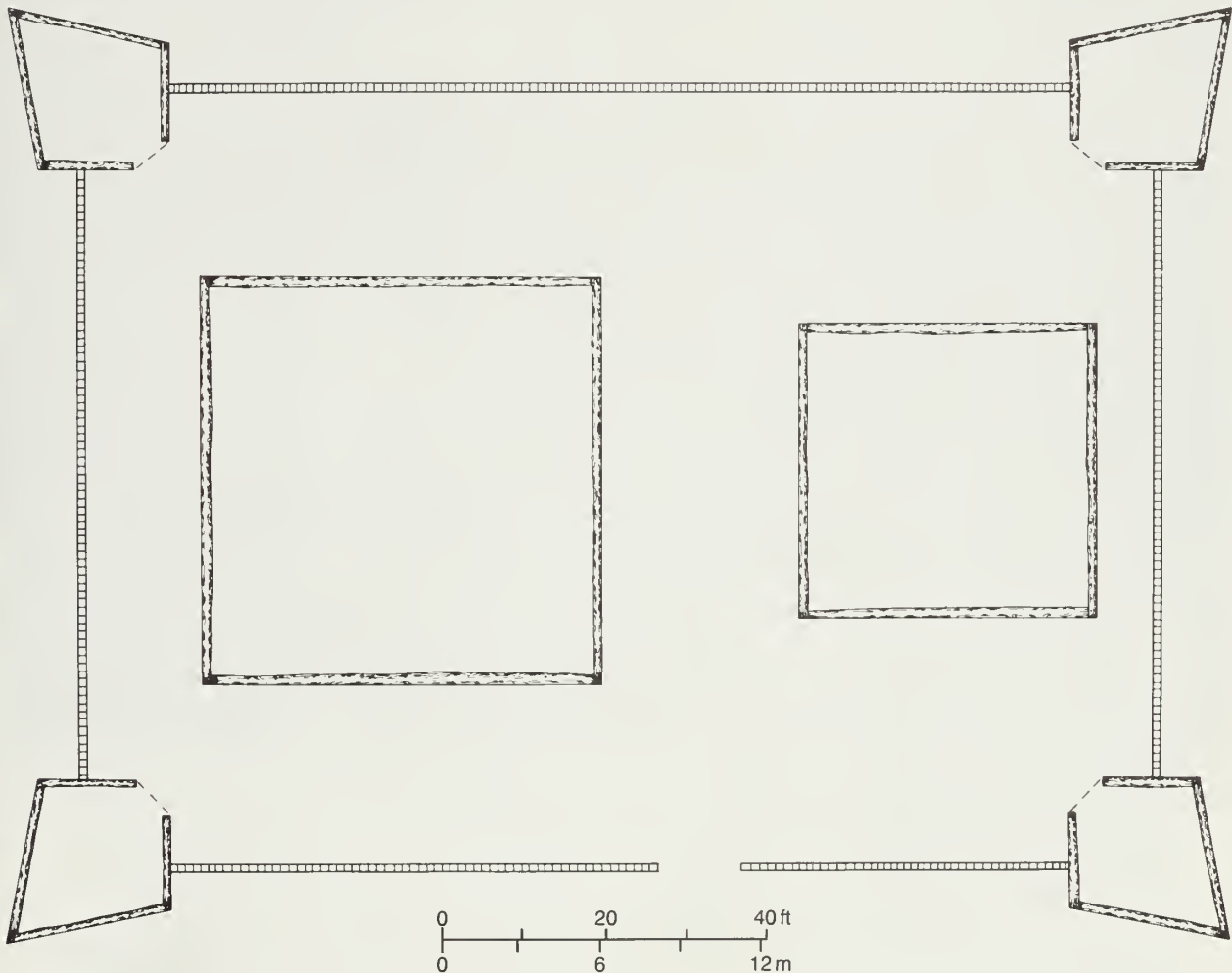
Fig. 67 Ground plan, Rupert House, 1686.

66) must have been about 150 feet (45.7 m) square. Similar comparisons show that the minor axis of Rupert House is the same length as the major axis of Fort Albany, and that the major axis of Rupert House is the same length as the sides of Moose Factory. Rupert House (Fig. 67), then, would have measured 100 feet × 150 feet (30.5 m × 45.7 m).

The elevations of the various buildings and palisades are largely conjectural, although we do have a few bits of relevant data. The historian la Potherie, for example, mentioned that the flankers at Albany were 18 feet (5.5 m) high (Tyrrell 1931:251). He also said that the curtain walls there were 50 feet (15.2 m) long and 42 feet (12.8 m) long; because these figures agree quite closely with the archaeological measurements of the same features—51¼ feet and 41½ feet (15.7 m and 12.7 m)—I am inclined to trust his statement that the redoubt at Moose was a three-storey building, 30 feet (9.1 m) high and that it measured 28 feet × 30 feet (8.5 m × 9.1 m). With these data as a guide, I drew elevations of the three posts on James Bay, the posts that de Troyes captured in the summer of 1686. These, in turn, were used to make the perspectives on which the reconstruction drawings (Figs. 68–70) were based. Many of the details are unquestionably inaccurate, for our data are severely limited. Still, when de Troyes and his men stood gazing upon the forts they were about to attack, those structures must have looked very similar to the drawings presented here.
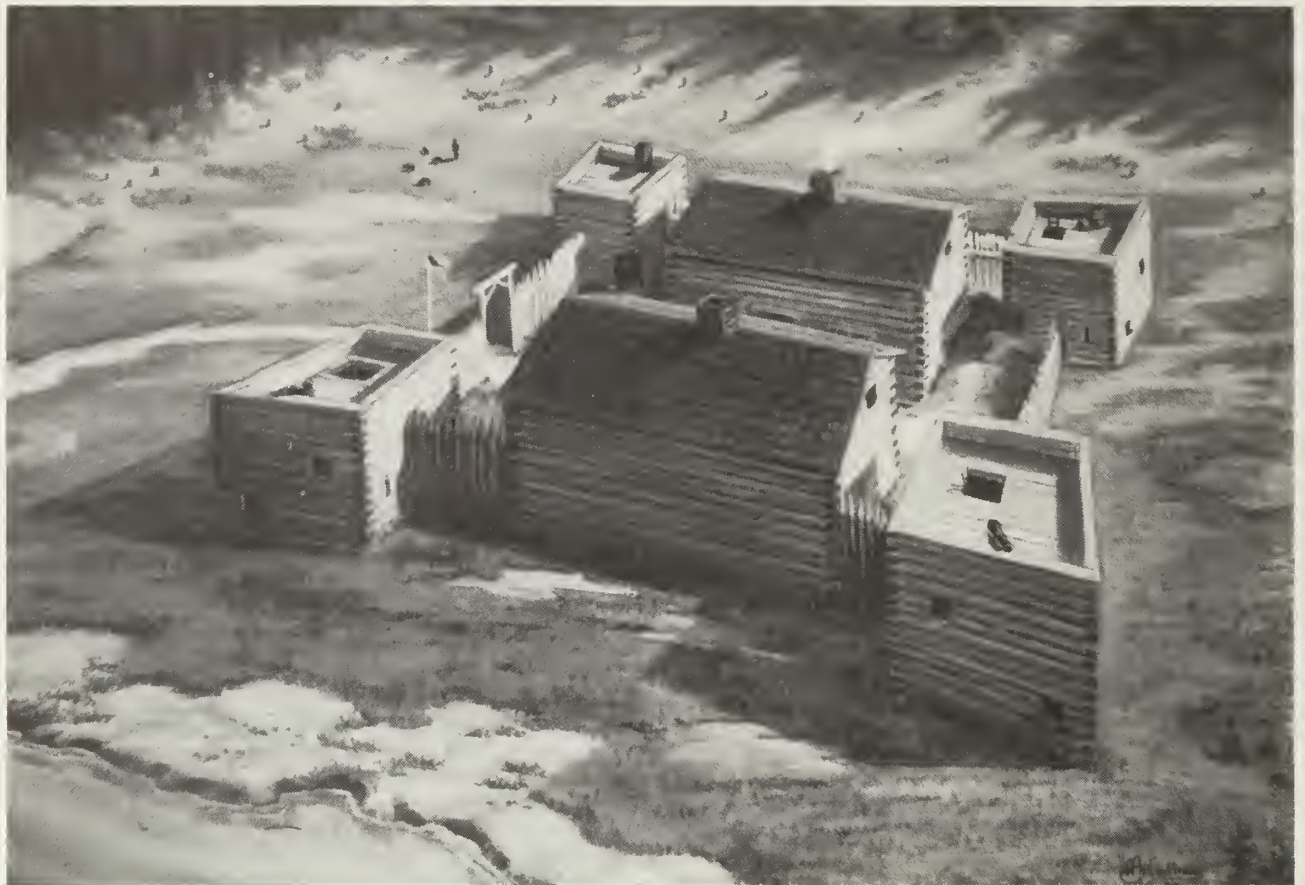
Fig. 68 Reconstruction drawing, pastel, Fort Albany.
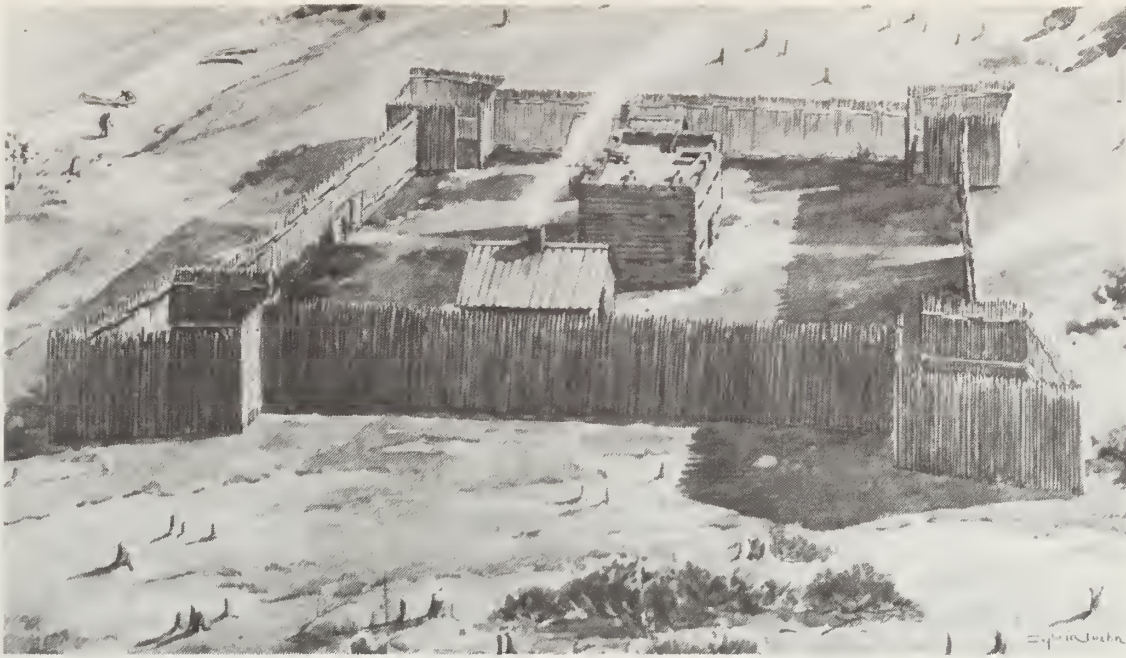
Fig. 69 Reconstruction painting, watercolour, Moose Factory.

Fig. 70 Reconstruction drawing, pastel, Rupert House.

8

Life on the Bay

In the preceding chapters we dwelt at some length on the history of James Bay and on the history and architecture of the Hudson's Bay Company's early establishments at Rupert House, Moose Factory, Fort Albany, and Charlton Island. During the process, a wide range of excavated materials was examined. This included trade goods as well as items that were used by the company's officers and men as they went quietly about their daily tasks. I use the word "quietly" advisedly, for the men were an unobtrusive lot, by and large. They arrived in the bay usually on a three-year contract, served out their time in almost total obscurity, and then simply disappeared from the stages of history. There were exceptions, of course. Generations of school children have heard about Radisson and des Groseilliers, those legendary "Caesars of the Wilderness". And anyone who reads the reports of John Nixon or James Isham, for example, receives a vivid impression of the writers themselves, as well as of the matters under discussion. But most of the early bayside records deal with the mundane problems of running a trading post in an isolated subarctic wilderness.

These problems are spelled out in considerable detail in the journal that Governor Anthony Beale kept at Fort Albany in 1705–1706. This document (HBRS 1975:10–73) is the earliest surviving post journal in the Hudson's Bay Company Archives, where it is listed as B.3/a/1. It begins on Thursday, 13 September 1705, when the retiring governor, John Fullartine, read Beale's commission to the men who were assembled in the courtyard for the ceremony. This commission formally installed Beale as

> Governor & Chiefe Comander of & in the places. Comonly Called Albany River, Moose River & Ruperts River, In Hudsons Bay in the north west parts of America, & of all the Lands Teritories Isles forts Seas Bayes Rivers Creeks & Lakes within the Bay & Streights of Hudson, & upon the East & west maine.

Fullartine then surrendered the keys to the fort and boarded the *Hudson's Bay*, a frigate of 160 tons burden, for the return trip to England. On the following morning Captain Michael Grimmington weighed her anchor and dropped down the river with the tide. But almost immediately the vessel was stranded on a sandbar. It took two weeks for Grimmington to work his vessel through the reef-infested mouth of the Albany River and out into James Bay. By that time it was too late to attempt the return passage, and he decided to winter the vessel at Gilpin's Island off the east coast of the bay. This was a regular wintering place for supply ships that were unable to make the round trip in one year, for it was extremely dangerous to winter a large ship in the river itself—or in any of the other major rivers for that matter. The odds were too great that such a vessel would be damaged by drifting ice during the spring breakup, when an ice jam downstream could raise the water level to incredible heights.

When Anthony Beale assumed command of the fort, there were forty-six men stationed at Albany and it was the only post still in company hands. Both Rupert House and Moose Factory had been abandoned for some time, and York Factory was occupied by the French. Beale turned his attention to preparing for the long winter that was rapidly approaching. He sent a party of men into the bush to cut firewood and set nets for whitefish—or tickomeg, as he called them—in the creek below the fort. Day after day he watched his woodpile grow and counted the number of fish from the nets. And almost every day he bemoaned the fact that fish were not nearly as plentiful as they had been in the past. He was concerned with the size of the catch because he hoped to feed his men on fish for three days each week at the rate of three fish per man per day. To do so he would need 21 528 fish for the year.

It had been company policy from the beginning to have the posts produce as much food as possible in order to reduce the high cost of importing food. In addition to fishing, gardening was an important activity at all the James Bay posts, as was hunting, especially goose hunting during the spring and fall. When Beale assumed command of Fort Albany, there were already native hunters in scattered goose camps near the mouth of the river and along the coast to the south. To these Beale added camps of his own people, mainly on Bayly Island. The company supplied powder and shot to both groups. The geese

were cleaned and plucked by native women, and then sent back to the fort, where they were salted down in barrels for future use. By 9 October the men had salted down 342 geese and taken 6433 whitefish from the nets. The largest single haul of fish was an even 1000 taken on 7 October. Although Beale fails to tell us how the fish were preserved, they were probably also salted down in barrels.

A number of other tasks had to be attended to during this same period. The logs that the men had been cutting up the river for firewood had to be rafted and then floated downstream to the settlement. There they were carried up the bank to the fort and piled up for future use in stoves and fireplaces. Another task was the preparation for wintering the *Knight*, a small sloop of some forty-eight-tons burden. She had been built in England in 1696 and had sailed to Hudson's Bay that same year. After calling at York Factory, she had continued south to Fort Albany and had remained in James Bay. Having decided to winter the *Knight* on Albany Island, Beale had his men cut timbers for skidding her above the high-water mark and shoring her up. Her sails, masts, and rudder, meanwhile, were taken back to the fort for storage. In addition, about two bushels of turnips still in the garden had to be pulled up, cleaned, and stored for the winter. The gunsmith was kept busy forging locks and making screws so that muskets could be stocked during the winter; the blacksmith worked day after day making ice chisels and scrapers from thin iron bars. And hay had to be hauled back to the post—first by boat and then by sled—to feed the herd of sheep and goats that occupied a barn outside the fort.

When Beale took over from Fullartine, the herd consisted of eighty-five animals—fifty-two sheep and thirty-three goats. Between 13 and 25 October, Beale had his men butcher twenty-one sheep and twenty-one goats, cutting his herd roughly in half; the remaining animals were kept for breeding stock. These had to be fed and watered every day. Both the barn and the fort had to be caulked—probably with sphagnum moss—to make them as watertight as possible and to protect the inhabitants from the searing cold of midwinter storms. The nets still had to be cleared at least once a day. By 21 October the ice was so thick in Fishing Creek that the nets had to be lifted. Five days later, however, the creek was frozen so solidly that the nets could be reset under the ice. Although the catch dropped off sharply by the end of the month, the men continued fishing till 4 November when the fall run was over. By that time, the men had netted 17 630 fish.

Other activities continued during this period as well. On 1 November a new saw-pit for sawing out planks was dug upriver. Four days later, on Guy Fawkes Day, a bonfire was lit in the evening, and drinks issued to all hands were solemnly raised to the good health of Anne, Queen of England. As winter set in, Beale sent small parties out hunting and trapping. These parties usually consisted of two men who set up camp, in a tent or a lean-to, trapped fur-bearing animals, and added whatever was available to the larder of the fort. A few natives were also employed at the same task. These parties were mainly after marten, which they took in dead-falls although a few iron or steel traps were also used. Rabbits, which were extremely rare that year, were either shot or snared. Hunting was started on 9 November and ended on 16 March. Total returns for the year were 920 ptarmigan, 164 marten, 9 rabbits, 9 red foxes, 1 wolf, and 1 wolverine.

On Christmas Day Beale issued a special ration to each mess of four men. The ration consisted of "20 lb of flour, 2 lb of bacon, 8 pints of oatmeal, 2 pints of rice, 2 lb of raisins, 1/2 lb of currants, 8 lb of mutton, 3 fresh whavers and 2 salt, 1 piece of salt beef, 12 partridges, 4 lb of biscuit bread, 2 lb of cheese, 1 1/2 lb of butter, 3 lb of suet and 60 fish" (HBRS 1975:30). This was a rich and varied diet to feed four men for one week. It contrasted sharply with the basic rations, established in 1685, of five pounds of flour and five pounds of meat per man per week and forty gallons of malt per man per year (Rich 1960:177–178). Some variety was apparently introduced in the flour ration by replacing it from time to time with oatmeal or ship's biscuit. But by and large the diet was a variation on the solid fare of England—bread and beef. Oatmeal, rice, peas, beans, prunes, currants, raisins, cheese, and butter were all listed among the stores at Fort Albany and were issued to the men on special occasions, but the diet consisted essentially of flour, in some form, and meat or fish. To wash this down, small beer was brewed from malt and molasses, used in the ratio of "fore gallons of malt and three pints of Mallases" (Grimmington, Sat., 15 June, 1716, in the Hudson's Bay Company Archives, No. B3/a/7). The annual ration of malt for each man was five bushels or forty gallons.

The governors of the various posts had a richer and more varied diet, one that was in keeping with their superior status—for it was an age in which social distinctions were sharply drawn and zealously maintained. The London committee, for example, writing to Governor Geyer at Port Nelson in 1690 said: "We have sent you a quarter Caske Canary a quarter

Caske Sherry and two hogsheads Strong Beere which is presented to you from us for your owne drinking'' (HBRS 1957:103). Although Beale was not given any such luxuries in the shipment of provisions that arrived from England in 1706, the invoice (HBRS 1975:70) lists 360 gallons of strong beer and 20 gallons of wine. This was in addition to the 640 bushels of malt and the 1001 pounds of molasses that were sent out for making small beer.

After the Christmas celebrations, Beale and his men settled into a routine that was broken only by the appearance of the occasional Indian with a few furs to trade, usually for tobacco. Small parties of men continued to lay out in the woods hunting ptarmigan and trapping marten. The smiths were still forging lock plates for muskets and beating bars of iron into axes, chisels, and scrapers for the next year's trade. And the sawyers ventured forth each day to their saw-pit, where they whipped out planks and boards. From time to time parties of men would square heavy timbers with broadaxes and drag them to the saw-pit for the sawyers. Every week or so more hay had to be hauled back to the fort to feed the small herd of sheep and goats. It was a fairly regular routine designed to feed and house the men and to produce furs for the company.

The problem of keeping the various buildings in repair also involved endless work. They were built of local spruce, with the bottom tier of squared timbers placed directly on the ground. Because the timber was green, it was subject to constant warping and decay. Joseph Robson outlined this same problem in a description of York Factory:

> In the summer the water beats between the logs, keeping the timber continually damp; and in the winter the white frost gets through, which being thawed by the heat of the stoves, has the same effect: so that with the water above and the damp below, the timber both of the foundation and superstructure rots so fast, that in twenty-five or thirty years the whole fort must be rebuilt with fresh timber. (HBRS 1949:172 n.)

Beale's matter-of-fact journal fails to comment on the problem of living through a northern Canadian winter in such buildings.

James Isham, however, had some pithy comments to make regarding life in a similar structure:

> Fires are made in Large Brick Stoves…as soon as the wood is Burn't Downe to a coal, the top

of the chimnley is close stop't with an Iron Cover, this Keeps the heat within the housses, tho' at the same time the smoa'k makes our heads to ac'h, and Very offencive and unholesome. (HBRS 1949:172–173)

In spite of the heat and smoke, however, moisture condensed and froze on the poorly caulked walls so rapidly that fifteen to twenty centimetres of ice had to be chopped off with hatchets each day. For their bedrooms they heated twenty-four-pound cannonballs in the fire, and hung them up to provide additional heat (see Pl. 145). But in spite of all their efforts, they could not prevent ''a 2 Gallon Botle of water freezing by the fire side''. Isham also commented on other ways of dealing with the problem. ''Cellors we have in the Said Housses under the stoves 10 & 12 foot Deep, wherein we Keep wine Beer &c: tho not clear from the frozt,—and in the wett Seasons full of water &c.'' Although Beale and his men lived under conditions that must have been virtually identical, they failed to comment upon them. In fact, Beale's comments were limited almost entirely to the weather and to such matters that pertained directly to the fur trade.

The major exception was Beale's response to an emergency. On 13 January, for example, an Indian came to the fort to report that the rest of his party was far to the south. They were completely without food and had already eaten all their dogs. Beale sent one of his own men with the Indian to take some oatmeal and fish to the destitute natives and to lead them back to the fort. They returned on the seventeenth. Ten days later the same thing happened. An Indian arrived—from the north this time—to trade a few small skins. His family of three women and four children had been without food for three days, he said, and were in serious danger of starving to death if, in fact, they had not already perished. Again Beale dispatched one of his men with food, probably some more oatmeal and fish. These were the only occasions on which Beale expressed any personal sympathy for the suffering of others.

Destitute Indians, however, were a heavy strain on the slender resources of the post, and so as soon as they had regained their strength, Beale sent the young and healthy ones up the river to see if they could survive on rabbits. To assist them, he gave them sixty fish and four quarts of oatmeal.

Two goats gave birth to two kids each on 13 February; the next day two lambs were born. From that time on, births occurred every few days till 9 June, by which time the herd had been increased by 61 ani-

mals—14 goats and 47 sheep. One of the lambs died and one of the sheep was killed by an Indian's dog, which left a herd of 102 animals in the summer of 1706—26 goats and 76 sheep.

Ten days after the birth of the first goat, one of the destitute families that had been lying about the fort decided—or was persuaded perhaps—to leave. Beale sent them off with seventy whitefish, some oatmeal, and some powder and shot. After they had gone, there were still seven destitute families dependent upon the post for food. It was a classic dilemma. The Indians were at the fort because they were destitute, and, being destitute, they were unable to leave. Although there were some ptarmigan in the surrounding area, they were not at all plentiful. And in the absence of other resources, it took a lot of ptarmigan to feed a family—more than the average hunter could hope to provide. It also required a large expenditure of powder and shot, which most of them apparently lacked. In better years rabbits could be snared in considerable numbers, but they were particularly scarce during the winter of 1705–1706. In fact the Indians were so short of country grub that Beale was afraid that some of the outlying families might be reduced to the extremity of cannibalism. That this was a real threat is evident from a letter written at Albany by Governor Fullartine in 1703:

It was a very hard winter (for provision) all over the country for abundance of the poor Indians perished and were so hard put to it that whole families of them were killed and eaten by one another: the young men killed and ate their parents and the women were so put to it for hunger that they spared not the poor sucking infants at their breasts but devoured them. The reason of this famine among them was the little snow that fell so that they could not hunt beasts. (HBRS 1965:9)

The winter of 1705–1706 was not nearly as bad as that, but Beale knew that things could not be expected to improve until the geese arrived back in the spring. He did what he could, meanwhile, to feed the starving natives. And in the presence of such extreme suffering, it is quite understandable that Beale failed to comment upon the privations of his own men which were, after all, relatively insignificant.

By 16 March hunting and trapping returns had dropped to such a low point that Beale called in his hunters. A week later the sawyers were finished at the saw-pit. A large supply of boards and planks, as well as some heavy squared timbers that were needed to repair the flankers, had been piled up at the fort. On that same day a party of Indians arrived from Moose River to trade, and gave Beale forty deer tongues as a gift. Tongues were considered a great delicacy, as they still are, and would have been a very welcome addition to the monotonous diet of Beale and his men. But they were not a gift in the modern sense; they were simply the opening move in a complicated trading ritual, and as Beale mentioned in his journal, he "made a retaliation for them".

On Easter Sunday, 24 March, each mess was issued an extra allowance of flour and plums to make a pudding, and each man was given one of the deer tongues. To celebrate the occasion in a more public fashion, the flag was run up the flagstaff.

With the approach of spring, the tempo of life seemed to increase for the men at the fort. New beams were installed in the northeast flanker. Three men were sent up the river to cut birch axe handles, for good birch was scarce at Albany. And Indians arrived to trade every few days. Fur trading at that time was not the impersonal economic transaction that it has since become. It was a variation on the Indian system of gift exchange. The Europeans preferred to see the fur trade as a process in which merchandise was bartered for furs at a rate that was more or less fixed. This rate—the standard of trade—was laid down by the committee in London, and post managers were expected to adhere to it within reasonable limits. It was understood, of course, that certain adjustments had to be made, that company policy had to accommodate itself to the customs of the people who provided the furs. The Indians, after dealing with the company for some thirty-five years, still operated within a system of interpersonal relationships.

Trading, then, was not "shopping" in the modern sense of that rather peculiar word, for the motivation of the Indian was different from that of the European. This difference was expressed quite graphically at a later period when traders complained that "the western Indians would rather hunt buffalo, steal horses, and make war than produce furs for the white man" (Francis 1982:63). The traders were forced, then, to adapt to the native system of trade. Thus we find that when a brigade of twenty canoes arrived from the interior—the upland Indians, as they were called—their leader was treated with great ceremony (HBRS 1975:52). Each of the men was given "the usual benevolence of a pipe and a pipe of tobacco". Their leader, however, was also given a coat, six pounds of Brazil tobacco, one

hatchet, and six knives. To the trader, this ceremonial gift-giving was a necessary prerequisite to trade; to the Indian, it was part of the trading process itself.

On 3 April one of the natives brought Beale two ducks, the first of the season. Because there had been a thaw for several days, most of the snow had melted, and sixty to ninety centimetres of water was already flowing over the top of the ice. The furs in the trading room were moved to the upper floor of the house to protect them from the rising waters that had sometimes flooded the lower floors of the post. And the local or home Indians who had been lying about the fort moved to the coast to hunt the geese that were expected hourly. Only one tent of women and children remained. To each departing family, Beale doled out sixty fish to last until the geese arrived. He also sent one of his own men to the coast to issue powder and shot to the Indian hunters, and to collect the geese. Powder and shot were issued at the ratio of one pound of powder to five pounds of shot. For each such issue, the hunter was expected to return 15 geese to the company. Beale also sent some of his own men to set up goose camps on Albany Island. The first goose of the season was taken on 8 April; by the time the hunt ended on 24 May, the total bag was 1854 geese.

April, May, and June were the busiest months of the year. During this period, some eighty canoes arrived at the post with loads of furs to be traded. Apart from the attendant ceremonies, the trading itself was a complex and time-consuming process. Each skin had to be spread out and examined, and then evaluated in terms of ''made'' beaver, the basic unit in the standard of trade. Some idea as to the amount of work involved can be seen in the number of skins traded. During the 1705–1706 season, the fur returns at Fort Albany were as follows: 16 795 beaver, 3360 marten, 287 otter; 121 lynx, 15 bear, 7 bear cubs, 7 wolverine, 1 wolf, and 1 moose. In addition to the skins and hides, Beale also traded 358 pounds of feathers and 191 pounds of castorium. In terms of made beaver, the trade amounted to 18 172 skins.

On 24 April some of the men started digging the gardens, turning over the thick spongy humus, and preparing it for planting. And even as they laboured, there were still slabs of ice drifting down the Albany River, for spring moves at a different pace in those higher northern latitudes; events that follow each other in a more leisurely fashion in the farmlands to the south are compressed at Albany and similar places into a much shorter period of time. Thus we find that while some of the men are digging and planting the gardens, others are still at work on the

Knight, the sloop that had spent the winter on Albany Island. Only now, with most of the ice already gone, could she be safely launched. First however she had to be dug out of the earthworks thrown up to protect her when she was hauled ashore in the fall. Then she had to be floated off on a high tide and towed back to the fort where her refitting would begin. By that time, the middle of May, the upland Indians had traded their furs and had quietly departed for the interior. Most of the home Indians, that is, the ones who lived on the lower Albany River and along the coast, had scattered to their summer camps; only a few Indians, the family of Muskemote, remained at the post. They would spend the summer at Cockispenny Point, halfway down the coast between the mouths of the Albany and the Moose rivers, watching for ships. And in the trading room at the fort, the beaver and other skins were being packed for shipment to England.

On 16 May two nets were set in the creek. Although the returns were not nearly as bountiful as they had been during the fall catch of the previous year, they still made an important contribution to the fort's larder. During the next fifty-four days, until the nets were lifted on 9 July, 920 fish were taken. Apart from a single haul of 50 suckers on 2 July, they were all whitefish.

The haying season started on 19 June, with three men cutting grass with scythes, and three others raking it together and piling it up into stacks. About the gardens, meanwhile, Beale made the following entry in his journal:

> Those parts of my garden that was sown with cabbage seeds came up very thick and are encumbered with a multitude of weeds that they have not room to grow. Therefore I have transplanted them into other ground which I kept for the same occasion.

The season approached its climax on 6 July when the lookout arrived from Cockispenny Point to report that a ship had been seen in the offing. Beale had been expecting the *Hudson's Bay* to arrive from Gilpin's Island at any time, and had already buoyed the main channel between the fort on Fishing Creek and the anchorage at the mouth of the Albany. The following day Captain Grimmington arrived at the post to report that the *Hudson's Bay* was lying at anchor near the mouth of the river. Beale immediately dispatched the *Knight* to pick up the furs that Grimmington had traded on the east coast during the winter and bring them to the fort for packing.

This trade added 2491 made beaver to the yearly returns. On her way back, however, the *Knight* was grounded on a sandbar and then held up by contrary winds. She was finally towed to the fort, where she arrived on 15 July, the day that Beale made the last entry in his journal. The final sentence in the manuscript, incidentally, is quite in keeping with the prosaic nature of the entire document: "Had a goat kidded of one he kid."

Although the journal ends with the 15 July entry, the *Hudson's Bay* did not sail for another ten days. During that interval a council was held at Albany, attended by Anthony Beale, governor; John Fullartine, the ex-governor whom Beale had replaced; Nathanial Bishop, deputy governor; Michael Grimmington, captain of the *Hudson's Bay*; Stephen Pitts, bookkeeper; and Richard Staunton, warehouse keeper. The most pressing matter before the council was that of staffing the fort. Many of the men had already served out the terms of their contracts by 1706, and were therefore entitled to sail for home on the *Hudson's Bay* if they wanted to. Some would normally have sailed for home in 1705 had the sailing not been aborted. The situation was complicated further by the fact that no vessel had reached the bay in 1704.

Thus Beale and his council found themselves in an awkward position. If all the men whose contracts had run out actually chose to return home on the *Hudson's Bay*, the staff at Albany would have been dangerously depleted. From a purely economic standpoint, this was inadvisable in that it would have left insufficient hands to do the necessary work. And this in turn would have adversely affected the profits of the next year's trade. Quite apart from such considerations, however, was the constant threat of a French attack. If the fort was to be successfully defended, Beale needed to keep his forces at full strength. He therefore followed the only course open to him. He offered to raise the wages of those who would sign up for another tour of duty.

The men whom the company hired to man its posts on the bay included both artisans—such as smiths, tailors, bookkeepers, sawyers, bricklayers, carpenters, and sailors—and general labourers. Apprentices were a separate matter. In 1684, for example, we find that "Nicholas Meching of Houlbourne Putt himself an Apprentice to the Company for 7 years at the end of his time he is to have £6 and two Shutes of Aparrell" (HBRS 1946:239). General labourers were usually signed on for a three-year period, with wages of £6, £8, and £12 per annum. During this same period (HBRS 1945:72–73), a bricklayer was hired for four years at £18 per annum and a haberdasher and

an apothecary at £10 per annum each. That these wages remained more or less stable is seen in a letter that Thomas McCliesh wrote to the London committee from York Factory in 1731 (HBRS 1965:159). He informed the committee that a labourer, John Taylor, had agreed to stay on for one year beyond his contracted time at £14 per annum.

The wages that Beale was forced to pay in 1706–1707, then, were highly inflated. A gunner could only be induced to remain at Albany at an annual wage of £48, a smith at £40, ten labourers at £30 each, one at £24, and four at £20 each (HBRS 1975:64 n.). William Stuart, one of the labourers who agreed to remain at Albany at £30 per year, returned to England in 1708. In 1714 he rejoined the company on a three-year contract at £18 per year. In all probability Beale had to raise the wages of the men whose contracts had expired by something approaching a hundred per cent. Even at that, most of the men chose to return home. When Beale assumed command of the post in 1705, it had a complement of forty-six men; when the *Hudson's Bay* sailed for home in 1706, this was reduced to only twenty-seven.

Throughout the year covered by Beale's journal there is not one mention of any illness among the men. They obviously lived a hard life, but it was apparently a healthy one as well. By our standards, their diet was monotonous, but most of the men probably fared as well on James Bay as they would have at home. We have followed them through their annual cycle of activities, the things they had to do to maintain the post, to keep relatively warm and dry, and to assemble the furs that had lured them to that lonely outpost. But we have almost no clue from the journal itself as to what the men did in their spare time. In fact, Beale's journal is so laconic that it fails to mention either a well or a toilet at the fort.

The archaeological record, fortunately, offers a few suggestions, but only a few. The number of fish hooks that were excavated suggests that angling might have provided some recreation for the men, as did hunting, particularly during the spring and fall goose hunts. True, some of the men were sent out specifically to shoot geese, but the others, including Beale himself, probably went hunting whenever they had an opportunity. The number of pipe fragments unearthed at the site suggests that the men were enthusiastic smokers, and the number of bottle fragments that were scattered about leaves little doubt as to their fondness for brandy. A pair of ivory dice, and a number of small lead discs and rectangles that could have been used as counters or "men", suggest that games of some sort probably

enlivened many a dull winter's night. And it is probable, too, that the occasional deck of cards would have found its way to Fort Albany, although none have survived. For a group of lusty young men in an all-male society, liaisons with Indian women must have been frequent, but they are never mentioned in Beale's journal. In fact, there is no mention of such liaisons in any of the early company records, to the best of my knowledge. Although they must have occurred, they were of no official significance and therefore elicited no official comments. Such activities, after all, would not have produced any furs.

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Plates

Plate 1 Southeastern corner of House No. 1, Fort Albany.

Plate 2 Grindstone *in situ*, House No. 1, Fort Albany.

Plate 3 Tile structure, House No. 1, Fort Albany.

Plate 4 East wall of trench through crawl-way, House No. 1, Fort Albany.

0 _____ 10 cm

Plate 5 Birch-bark basket (No. 2378) flattened out, House No. 1, Fort Albany.
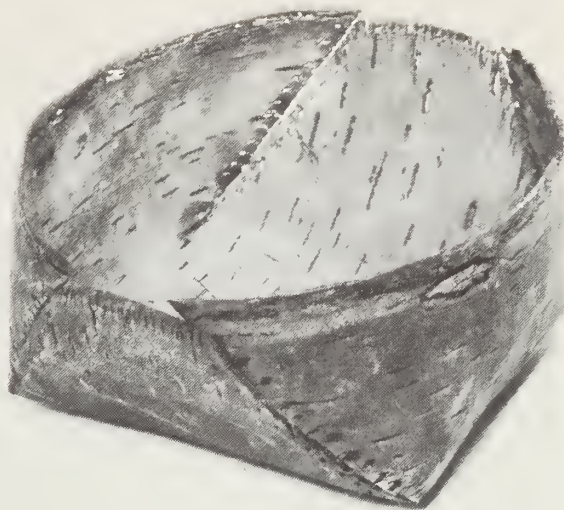
Plate 6 Birch-bark basket (No. 2378) reshaped, House No. 1, Fort Albany.

Plate 7 North end of trench through crawl-way, House No. 1, Fort Albany.

Plate 8 Back of fireplace, House No. 2, Fort Albany.

Plate 9 Flooring and bottle *in situ*, House No. 2, Fort Albany.

Plate 10 Fort Albany, looking northwest.

Plate 11 Southeastern corner of southeast flanker, Fort Albany.

Plate 12 North moat, Fort Albany.

Plate 13 Southwestern corner of House No. 3, Fort Albany.

Plate 14 (left) Excavating House No. 3, Fort Albany.

Plate 15 (below) House No. 3, Fort Albany, looking west.

Plate 16 House No. 3, Fort Albany, looking southeast.

Plate 17 Aerial view, Fort Albany.
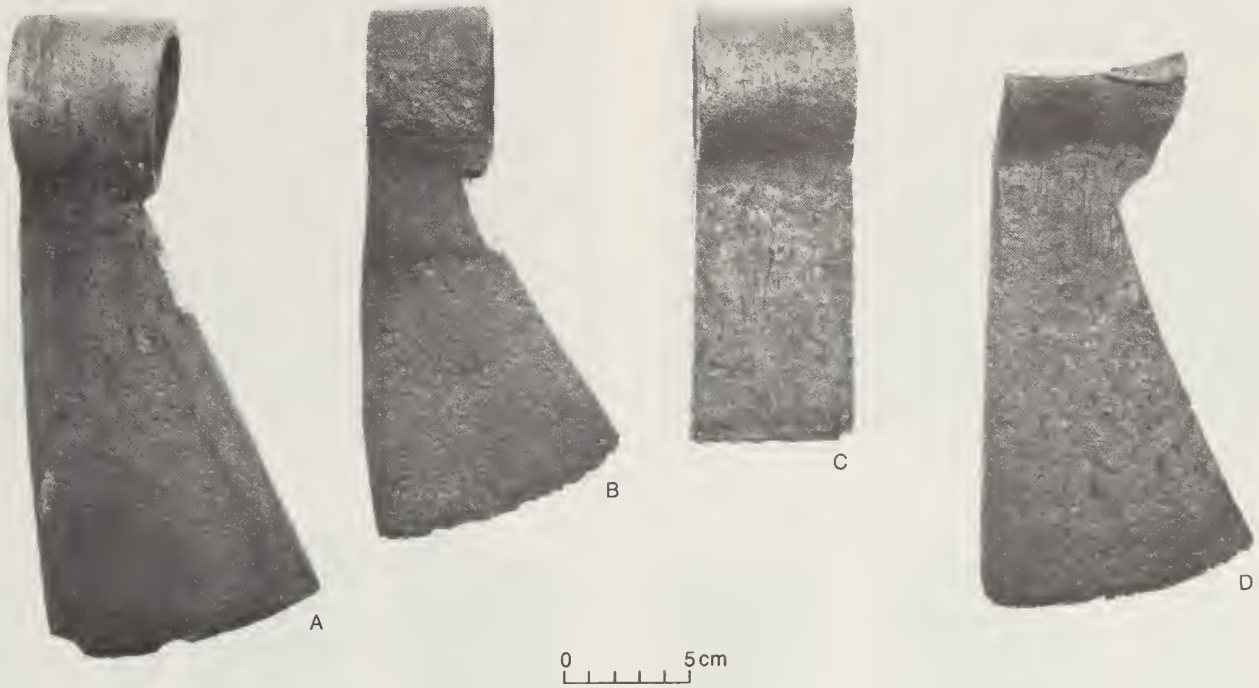
Plate 18 Iron axes, Fort Albany: *A* No. 1720; *B* No. 4171; *C* No. 1563, unfinished; *D* No. 1475.
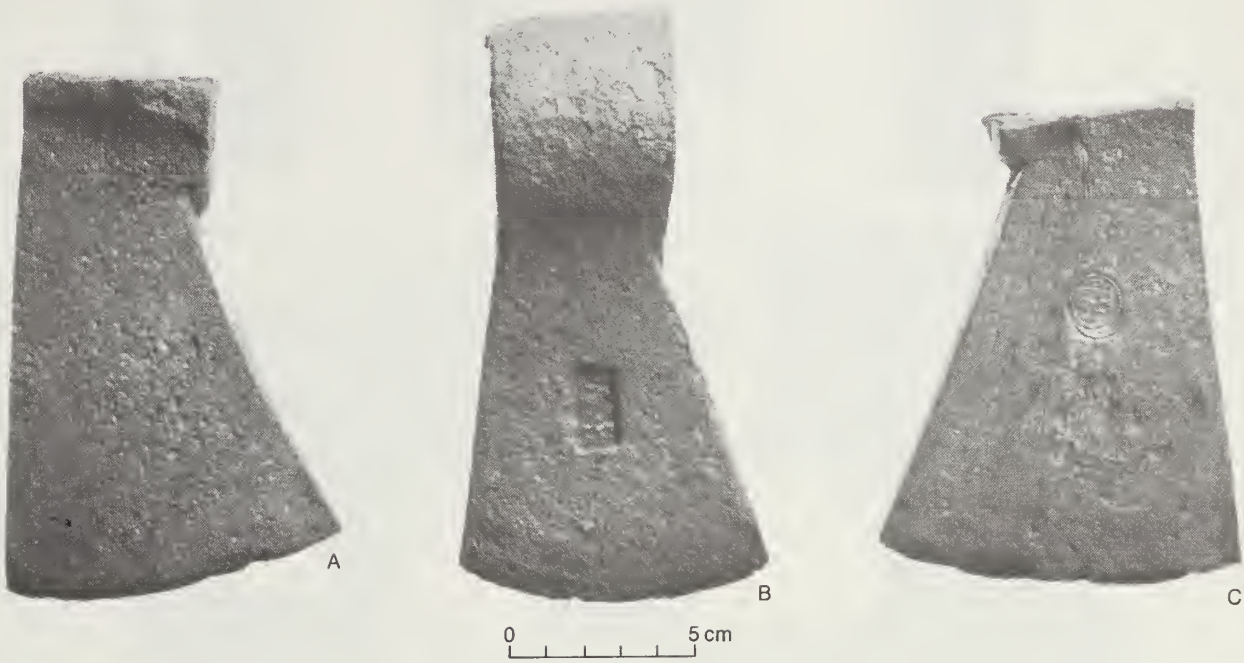
Plate 19 Iron axes, Fort Albany: *A* No. 397; *B* No. 4172; *C* No. 3311.
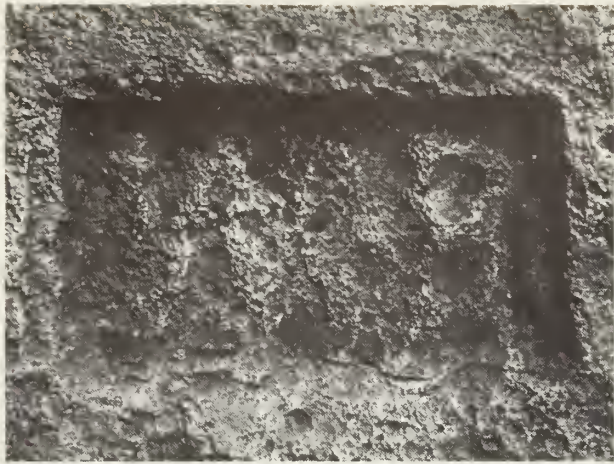
Plate 20 Maker's stamp ''W B'' on axe (No. 4172), Fort Albany.

Plate 21 Maker's stamp ''S B'' on axe (No. 3311), Fort Albany.
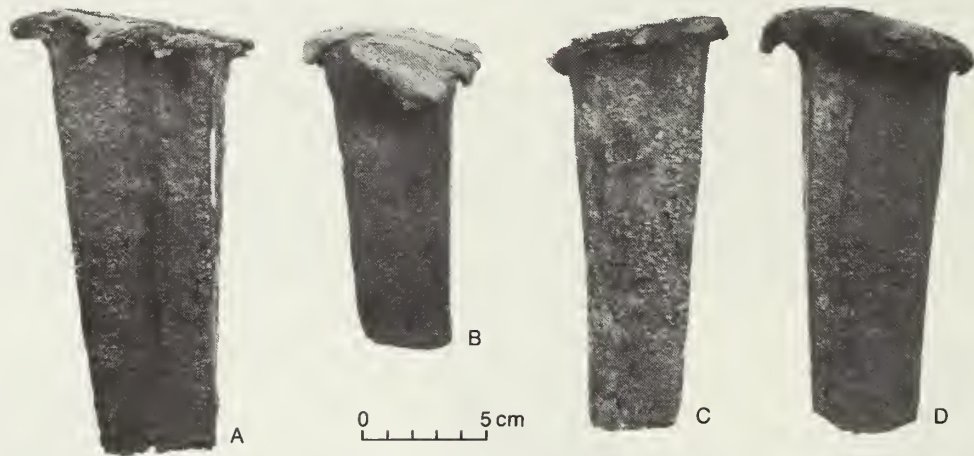
Plate 22 Splitting wedges, Fort Albany: *A* No. 395; *B* No. 3866; *C* No. 3867; *D* No. 4153.
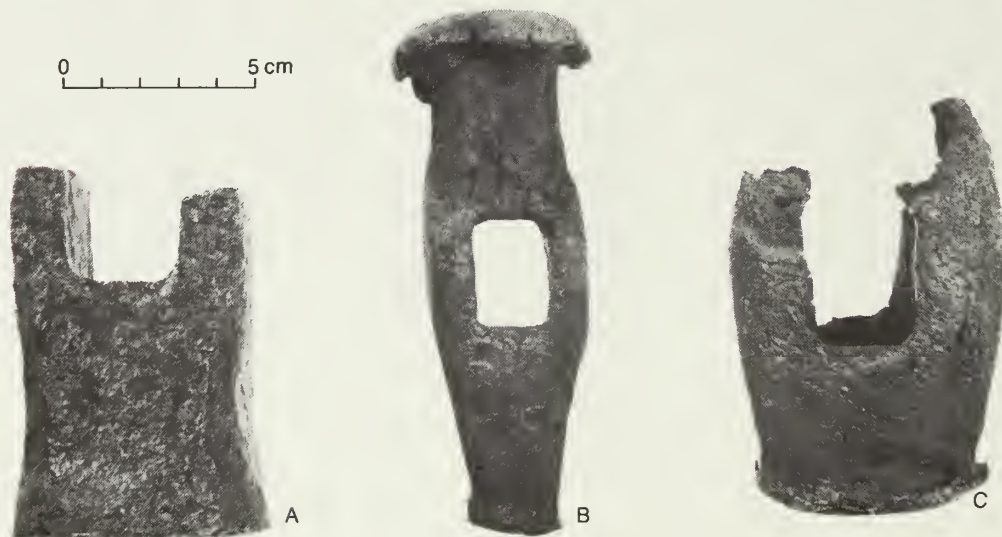
Plate 23 Tools, Fort Albany: *A* sledge hammer (No. 381); *B* blacksmith's punch (No. 3910); *C* blacksmith's parting tool (No. 564).

Plate 24 (left) Pickaxes, Fort Albany: *A* No. 1134; *B* No. 1638.

Plate 25 (below) Crosscut saw blades, Fort Albany: *A* No. 3862; *B* No. 3941; *C* No. 4067.
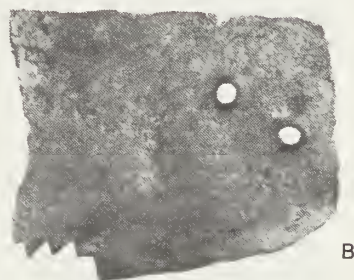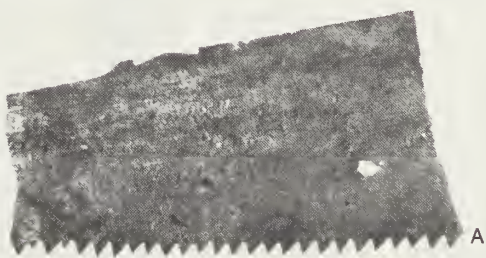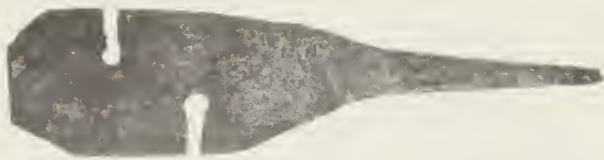
Plate 26 Saw-set (No. 4158), Fort Albany.

Plate 27 Augers, Fort Albany: *A* No. 3881; *B* No. 2741; *C* No. 354.
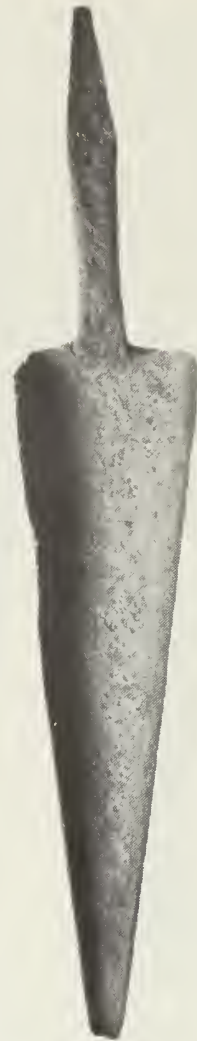
Plate 28 Cooper's auger (No. 4068), Fort Albany.
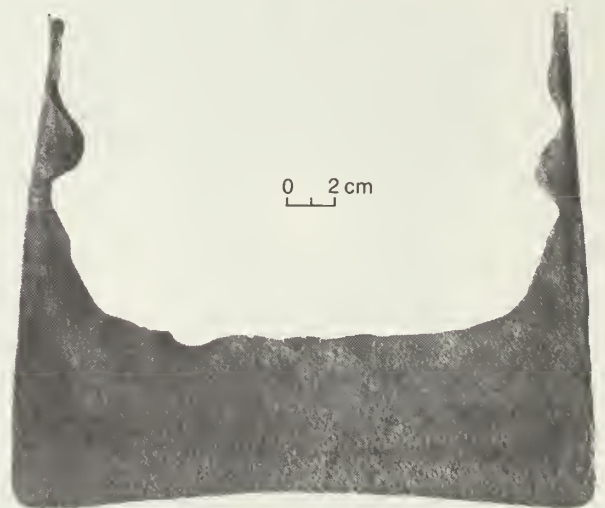
Plate 29 Cutting blade from a wooden spade (No. 3865), Fort Albany.
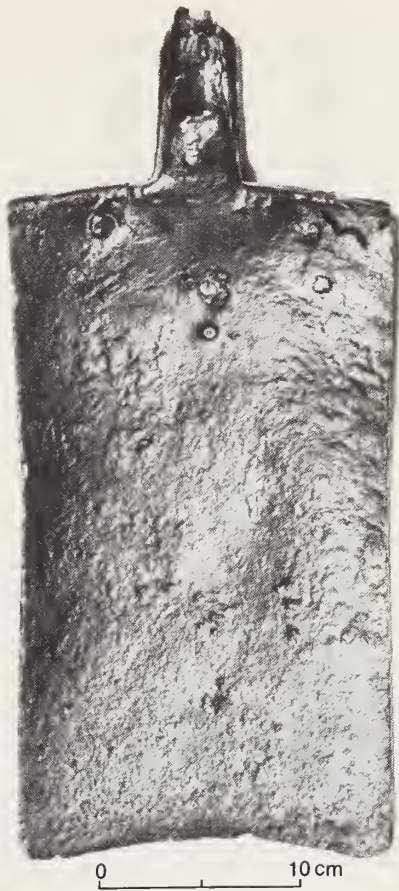
Plate 30 Shovel (No. 1917), Fort Albany.
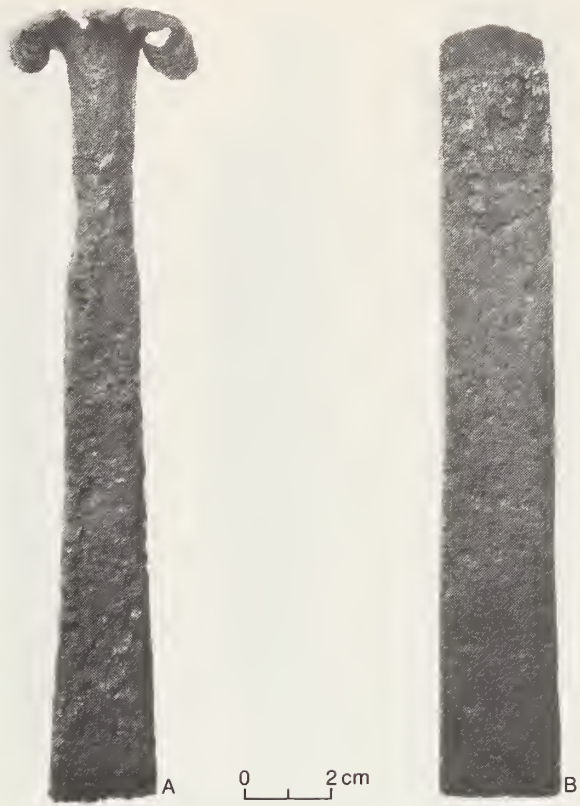
Plate 31 Chisels, Fort Albany: *A* wood chisel (No. 76); *B* ice chisel (No. 380).
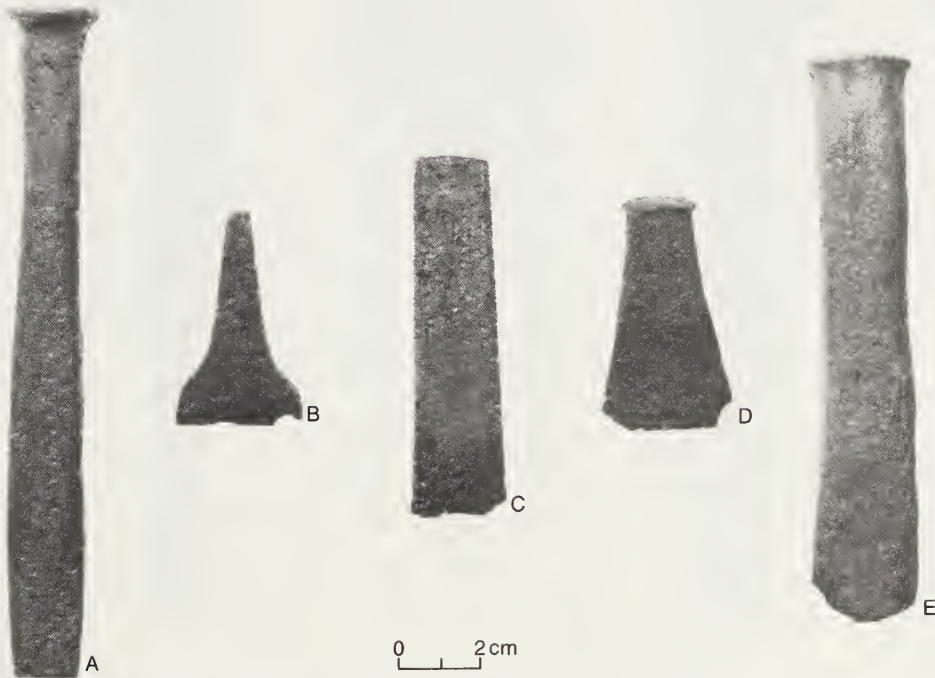
Plate 32 Cold chisels, Fort Albany: *A* No. 4029; *B* No. 4063; *C* No. 554; *D* No. 4105; *E* No. 4028.

Plate 33 (left) Punches or drift pins, Fort Albany: *A* No. 65; *B* No. 3908; *C* No. 3907.

Plate 34 (below) Gate studs, Fort Albany: *A* No. 5480; *B* No. 1969; *C* No. 1226; *D* No. 5479; *E* No. 5478.
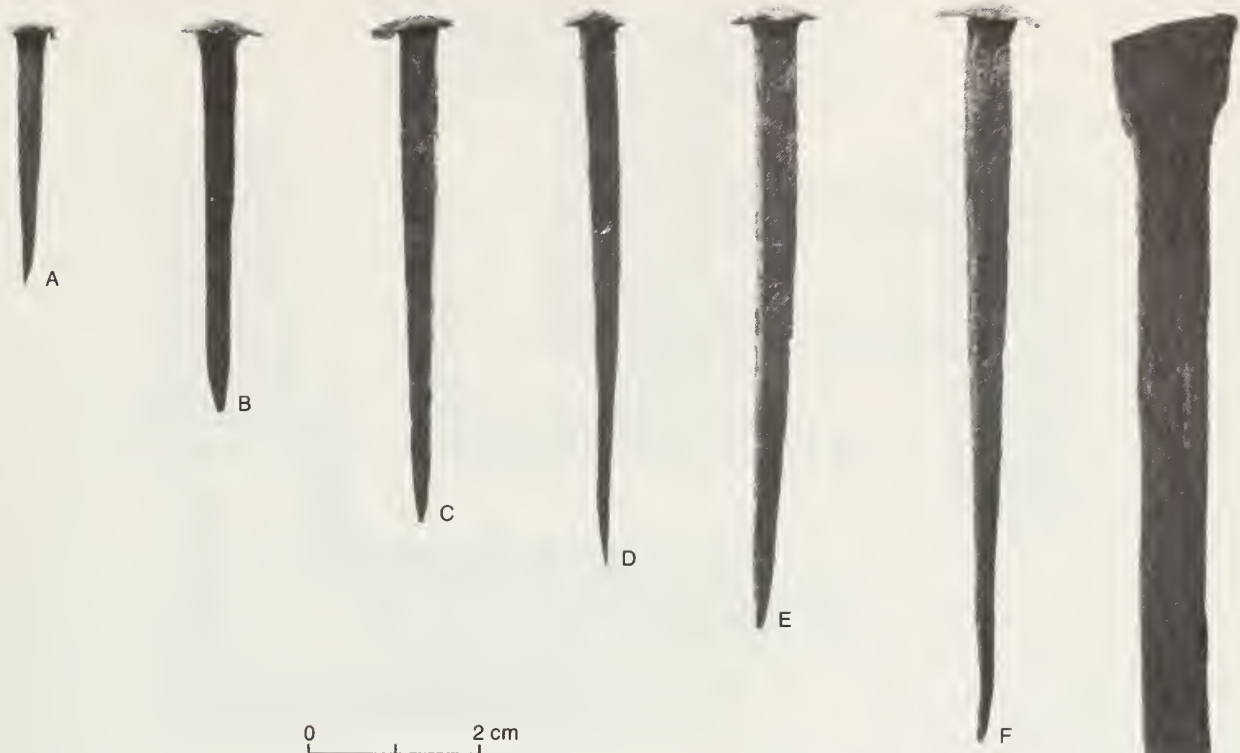
Plate 35 Nails with pointed tips, Fort Albany: *A* No. 2531; *B* No. 1743; *C* No. 4886; *D* No. 4872; *E* No. 4958; *F* No. 4621.

Plate 37 Unfinished spike (No. 5477), Fort Albany.
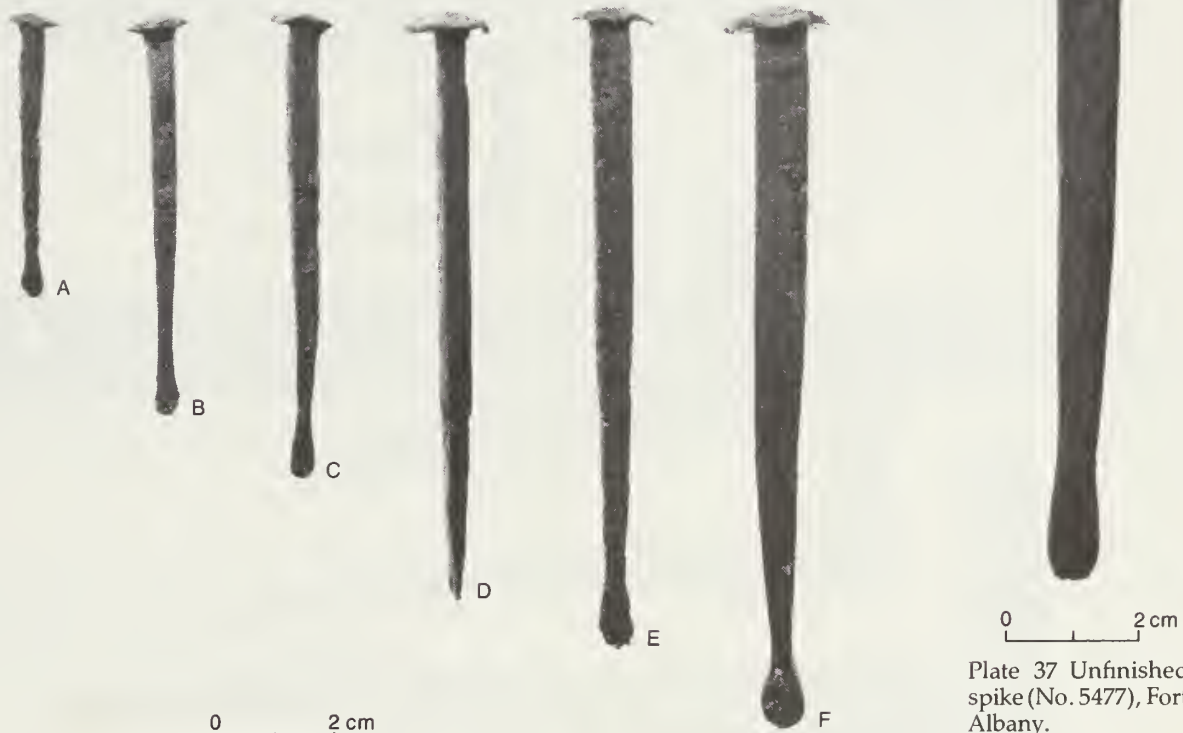
Plate 36 Nails with splayed tips, Fort Albany: *A* No. 18; *B* No. 4348; *C* No. 4564; *D* No. 4377; *E* No. 2247; *F* No. 2156.
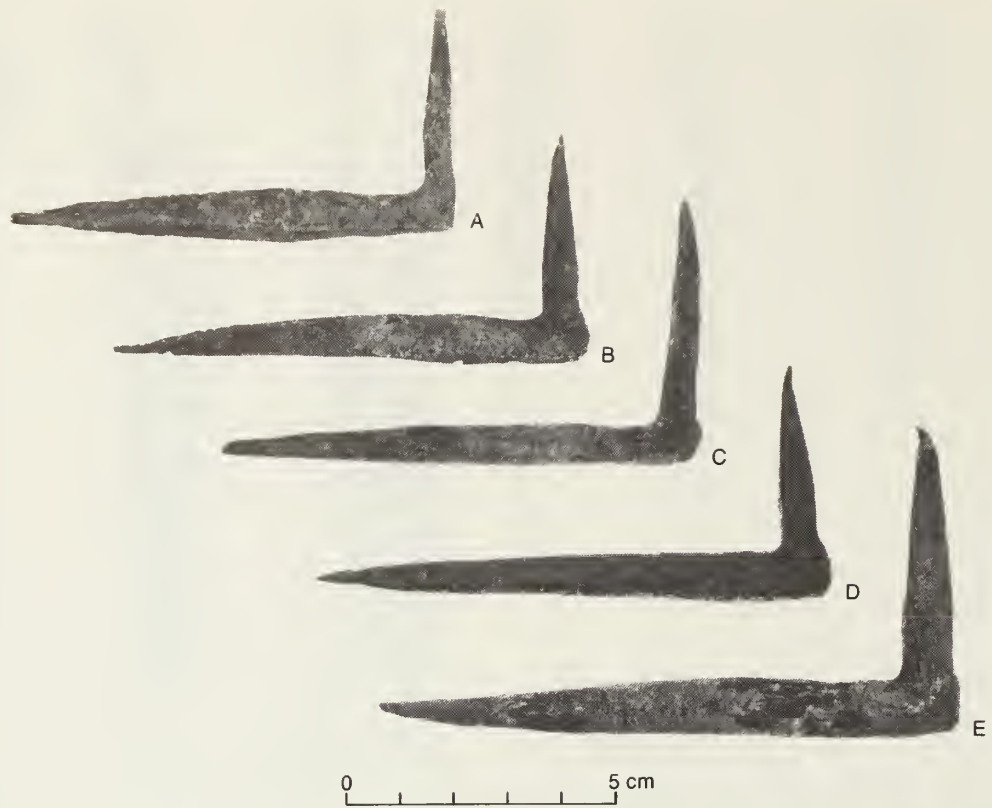
Plate 38 Angle-irons, Fort Albany: *A* No. 473; *B* No. 462; *C* No. 1223; *D* No. 464; *E* No. 450.
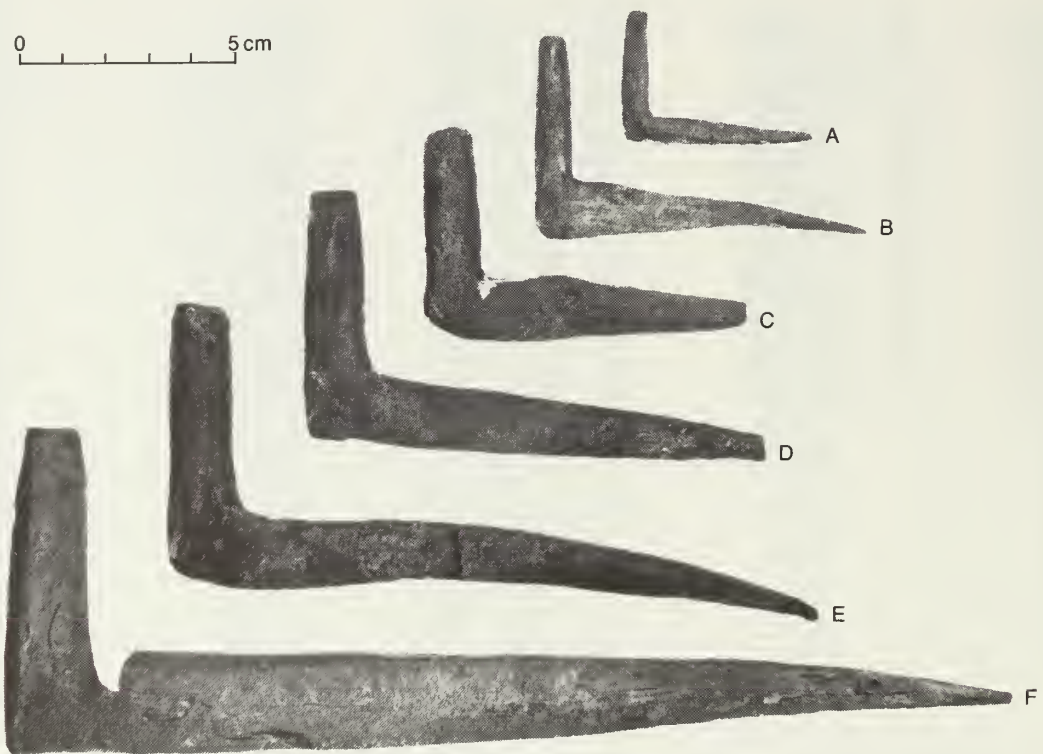
Plate 39 Pintles, Fort Albany: *A* No. 4059; *B* No. 3839; *C* No. 3122; *D* No. 4081; *E* No. 1809; *F* No. 4019.

Plate 40 Hinges, Fort Albany: *A* butterfly hinge (No. 3849); *B* T-hinge (No. 516); *C* butt hinge (No. 1471); *D* single-strap hinge, unfinished (No. 3845); *E* single-strap hinge (No. 3846); *F* double-strap hinge (No. 1911).
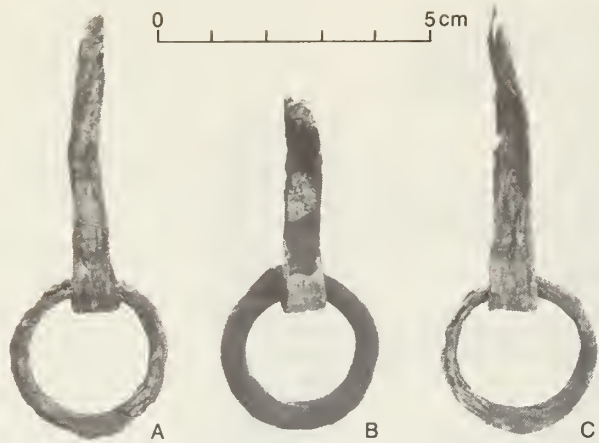
Plate 41 Drawer pulls, Fort Albany: *A* No. 3777; *B* No. 1949; *C* No. 3776.
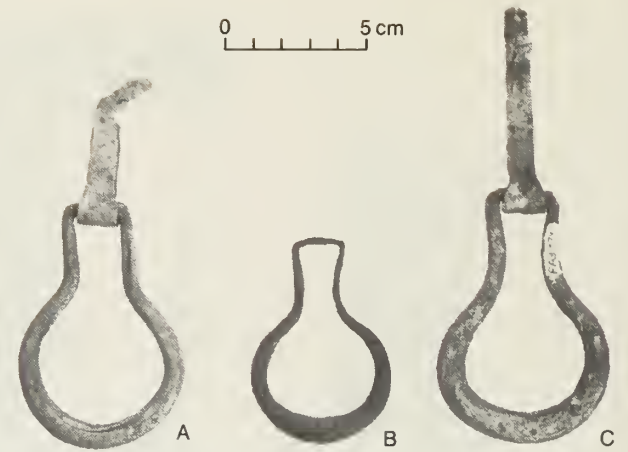
Plate 42 Drawer pulls, Fort Albany: *A* No. 3775; *B* No. 1637; *C* No. 3774.
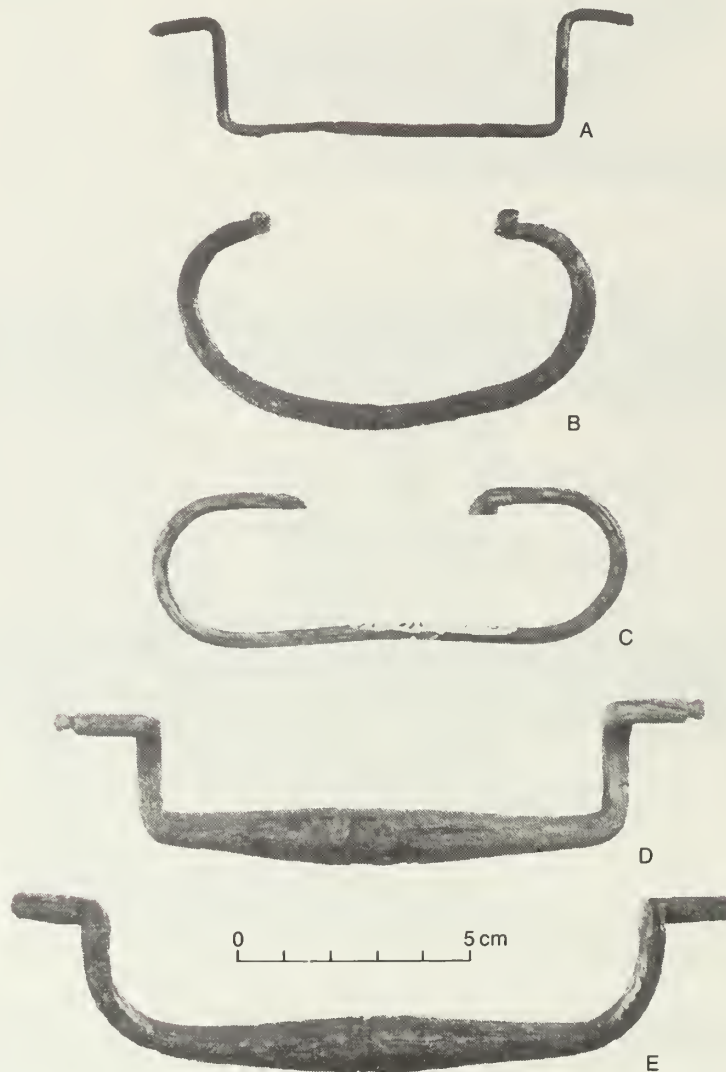
Plate 43 Drawer pulls, Fort Albany: *A* No. 1870; *B* No. 1936; *C* No. 3966; *D* No. 3767; *E* No. 3768.
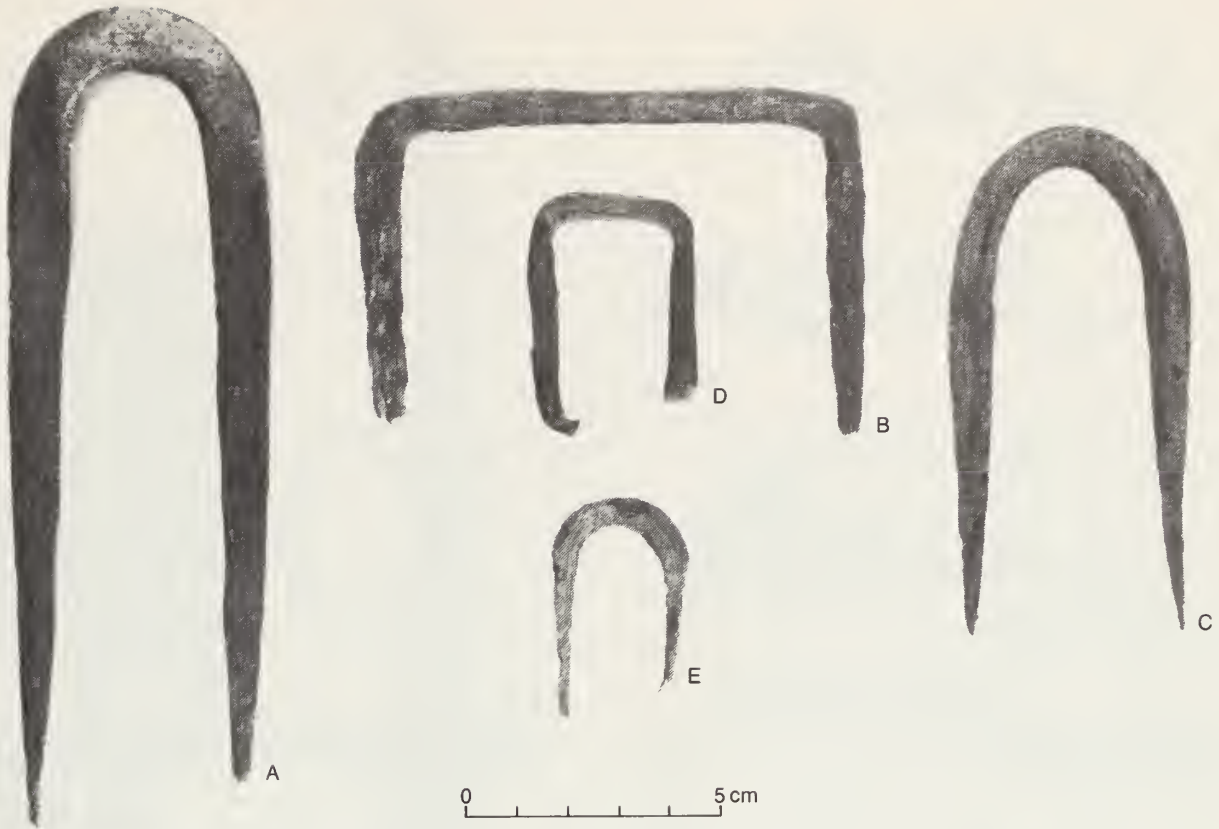
Plate 44 Staples, Fort Albany: *A* No. 555; *B* No. 2065; *C* No. 3101; *D* No. 2075; *E* No. 3084.
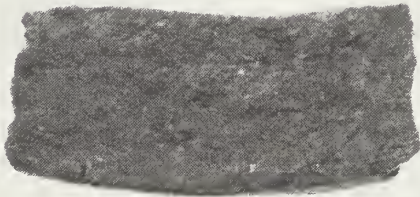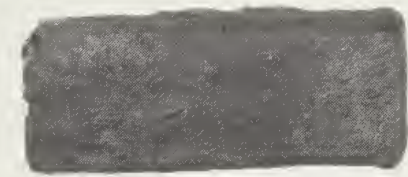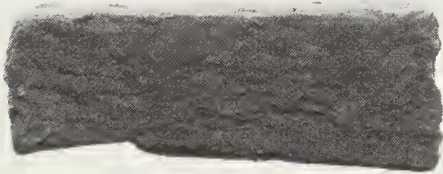
Plate 45 Typical Flemish bricks, Fort Albany.
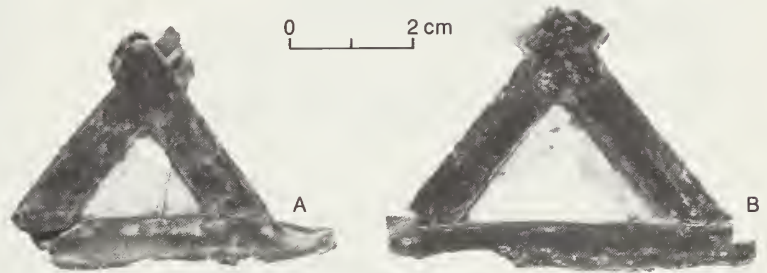
Plate 46 Leaded window panes, Fort Albany: *A* No. 815; *B* No. 586.
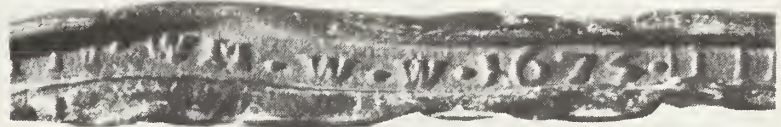
Plate 47 Embossed lead came (No. 3220), Fort Albany.

Plate 48 Embossed lead came (No. 597), Fort Albany.
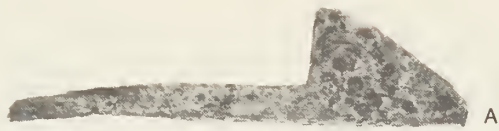
Plate 49 Latch keepers, Fort Albany: *A* No. 3926; *B* No. 3096; *C* No. 4060.
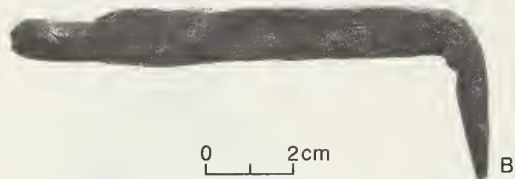
Plate 50 Door hooks, Fort Albany: *A* No. 3934; *B* No. 3933.

Plate 51 Hasps, Fort Albany: *A* No. 3931; *B* No. 3855.

Plate 52 Padlocks, Fort Albany: *A* No. 385; *B* half-heart padlock (No. 3922).
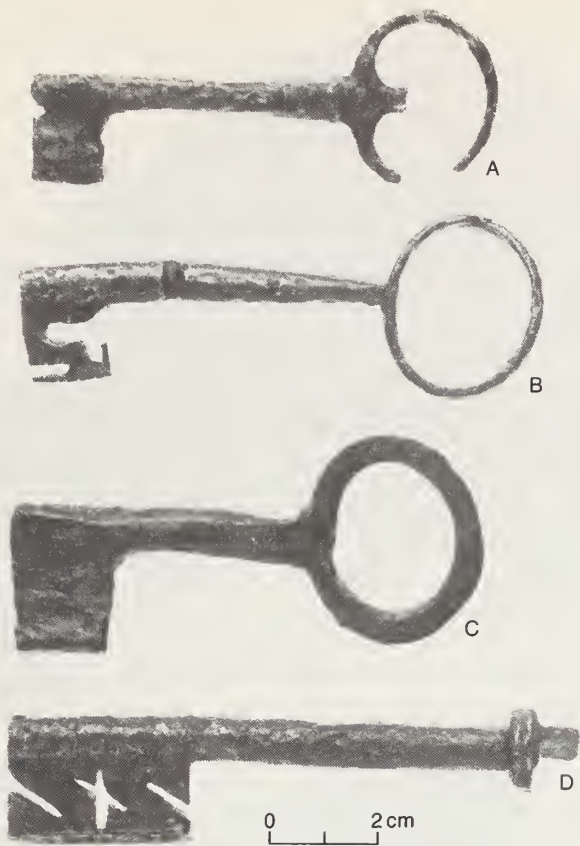
Plate 53 Iron keys, Fort Albany: *A* No. 1839; *B* No. 1869; *C* No. 1675; *D* No. 1903.
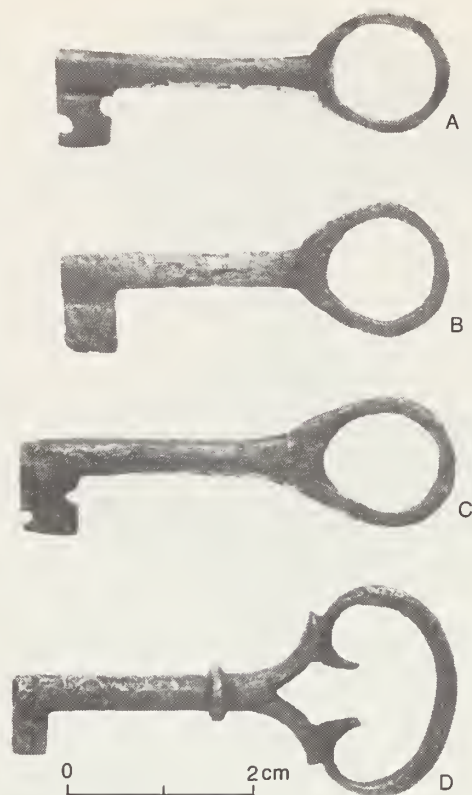
Plate 54 Keys, Fort Albany: *A* iron (No. 3903); *B* iron (No. 3904); *C* iron (No. 4057); *D* brass (No. 3648).
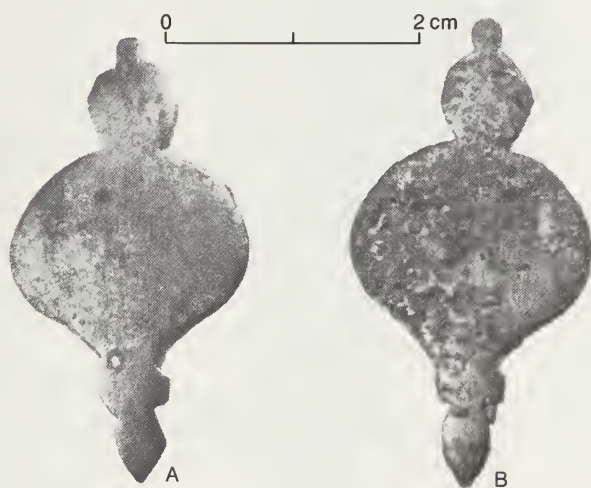
Plate 55 Gilded brass escutcheons, Fort Albany: *A* No. 3647; *B* No. 441.
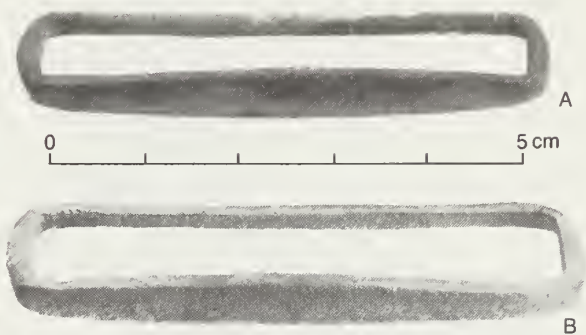
Plate 56 Brass belt-loops, Fort Albany: *A* No. 3726; *B* No. 3711.
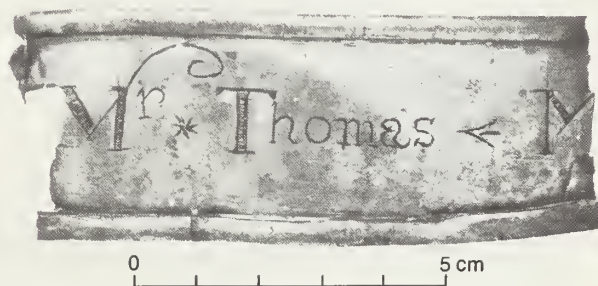
Plate 57 Engraved copper strap (No. 1234), Fort Albany.
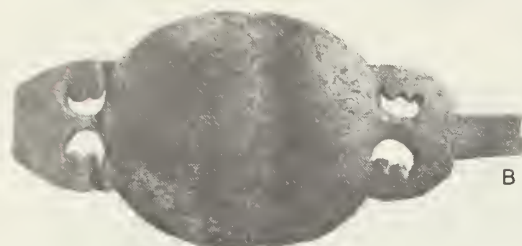
Plate 58 Perforated copper straps, Fort Albany:
A No. 3713; B No. 3692.

Plate 59 Brass coat of arms (No. 3642), Fort Albany.
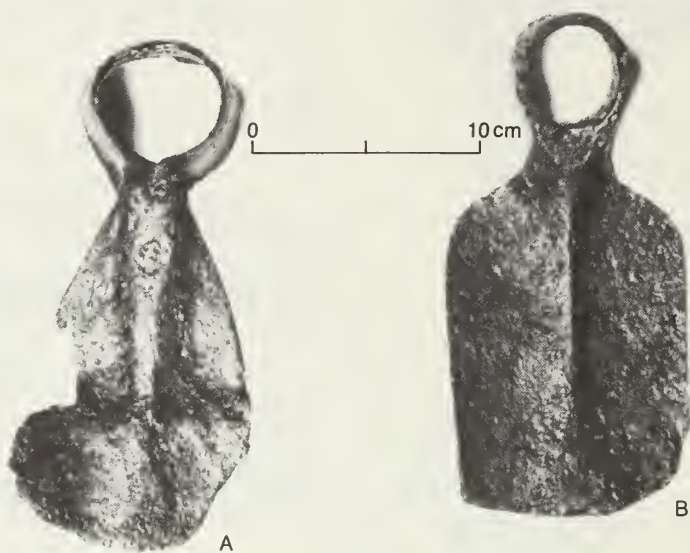
Plate 60 Iron hoes, Fort Albany: A No. 1236; B No. 1848.

Plate 61 Iron crank (No. 2202), Fort Albany.
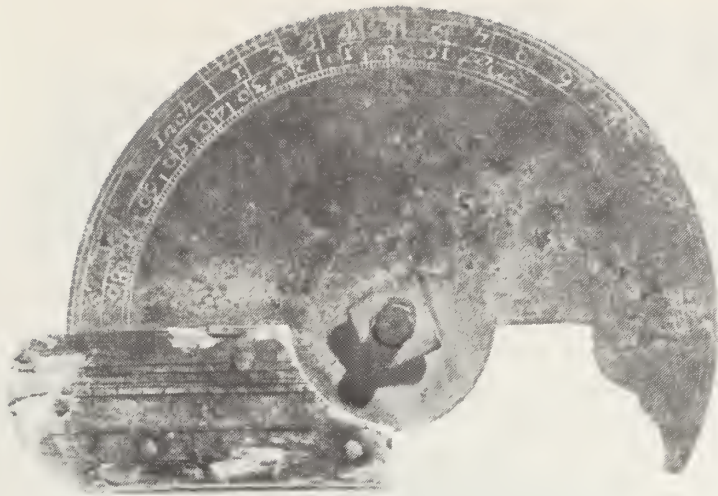
Plate 62 Proportional compass (No. 443), Fort Albany.

Plate 64 Copper funnel (No. 3688), Fort Albany.

Plate 63 Iron and brass ladle (No. 1191), Fort Albany.
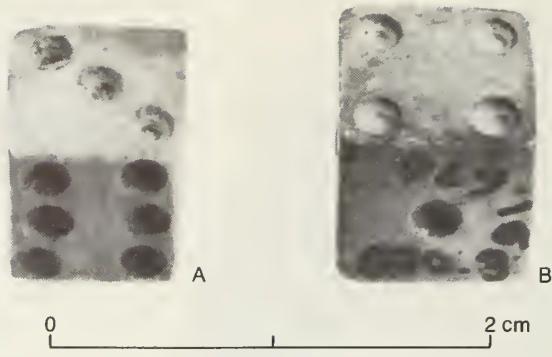
Plate 65 Ivory dice, Fort Albany: *A* No. 3346; *B* No. 676.
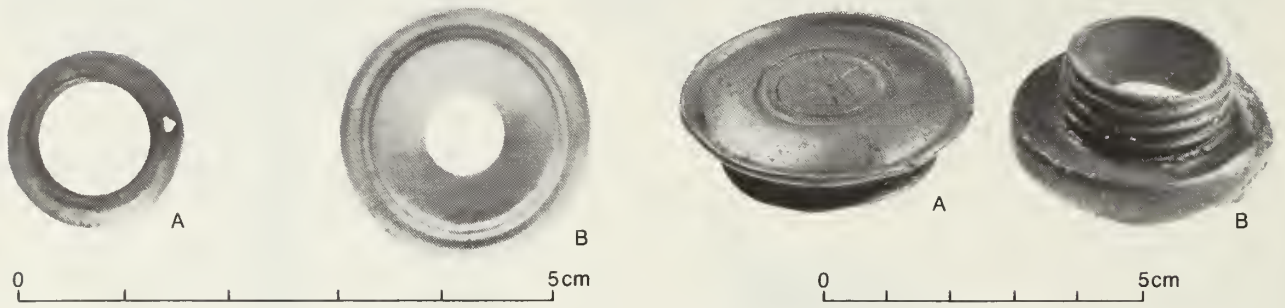
Plate 66 Threaded ivory rings, Fort Albany: *A* No. 667; *B* No. 3242.

Plate 67 Pewter cap (*A*) and stopper (*B*) (No. 3625) from a bottle or decanter, Fort Albany.

Plate 68 Lead figurine (No. 3588), Fort Albany.
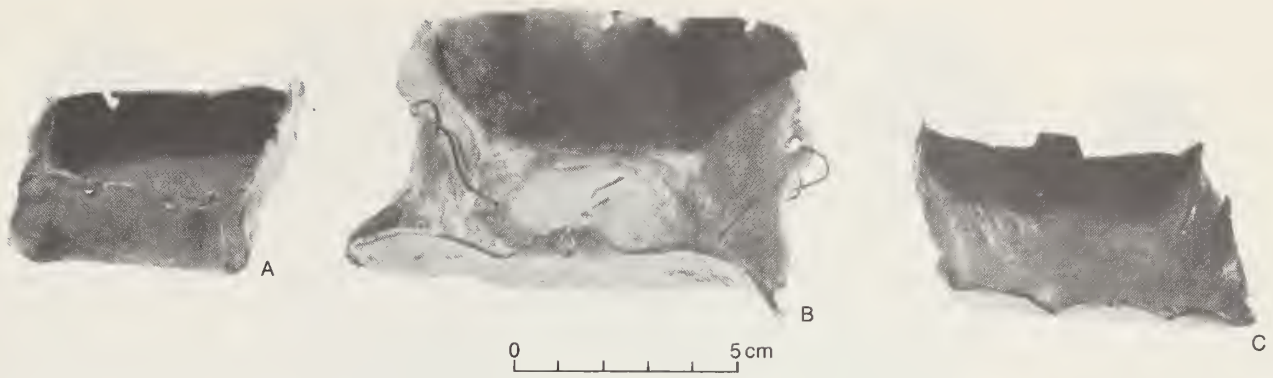
Plate 69 Hanging lamps, Fort Albany: *A* No. 3562; *B* No. 3561; *C* No. 3563.
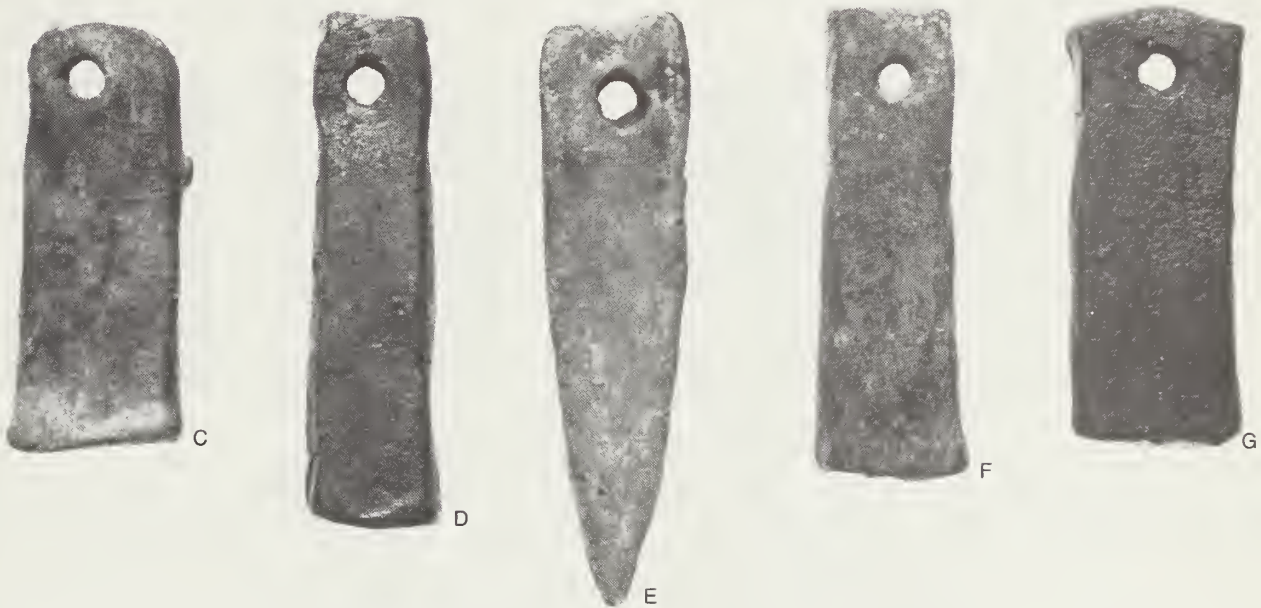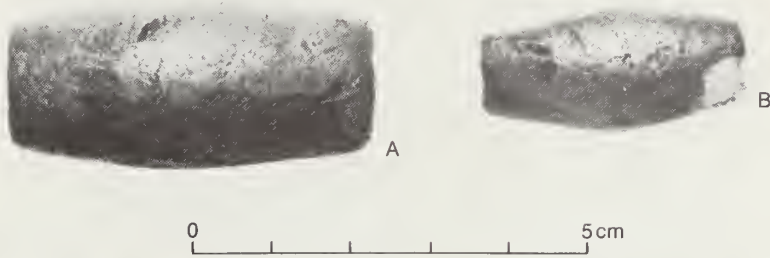
Plate 70 Lead net-sinkers, Fort Albany: *A* No. 3241; *B* No. 1913; *C* No. 688; *D* No. 3585; *E* No. 690; *F* No. 689; *G* No. 3537.
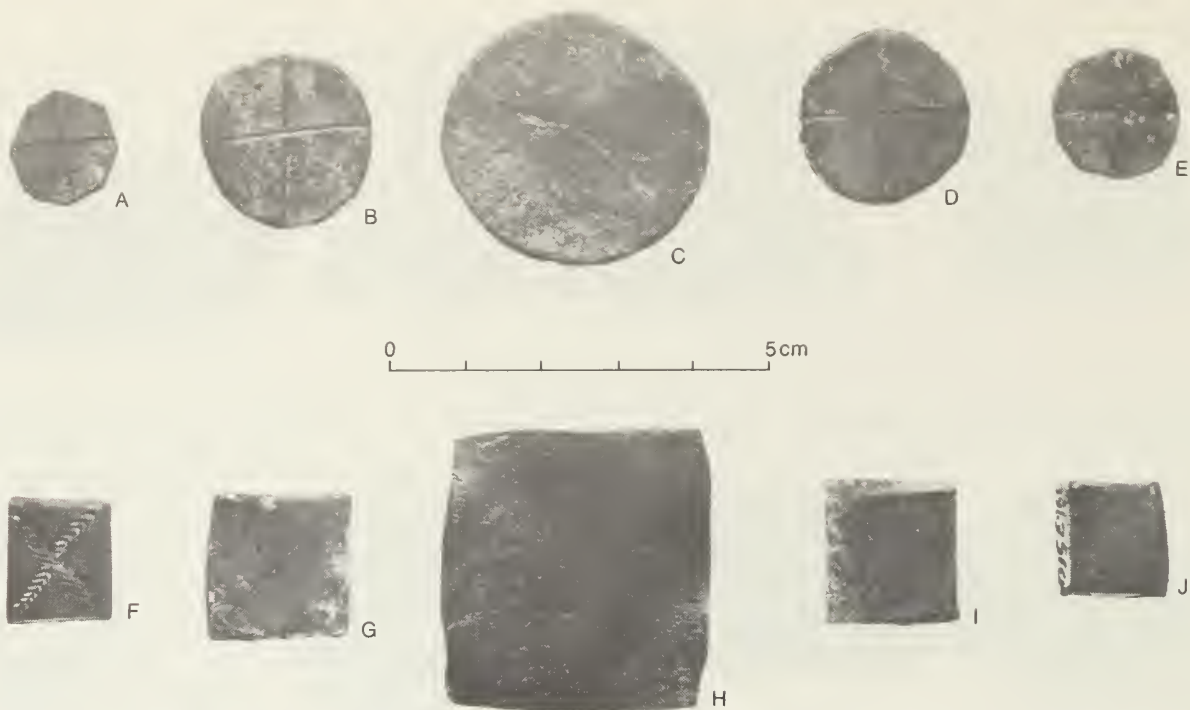
Plate 71 Lead discs and squares, Fort Albany: *A* No. 3615; *B* No. 3591; *C* No. 1706; *D* No. 3592; *E* No. 3498; *F* No. 3617; *G* No. 695; *H* No. 3695; *I* No. 1988; *J* No. 3510.
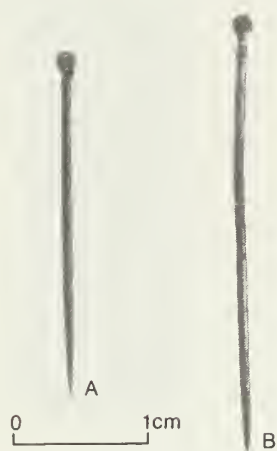
Plate 72 Common pins, Fort Albany: *A* No. 4165; *B* No. 3734.
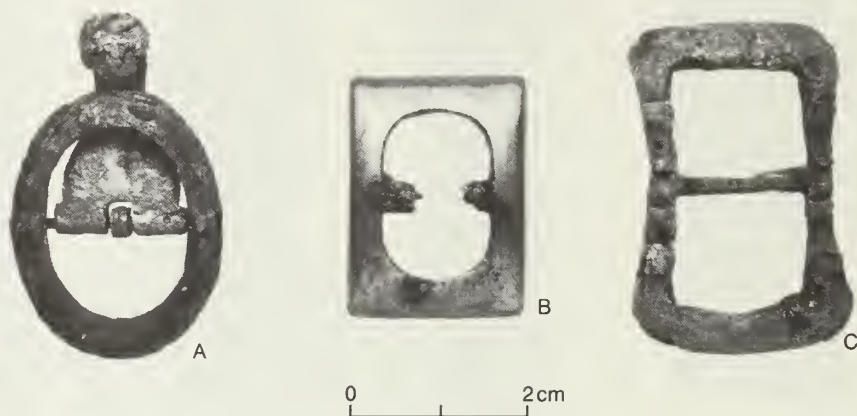
Plate 73 Buckles, Fort Albany: *A* iron (No. 3918); *B* brass (No. 641); *C* iron (No. 3100).

Plate 74 Casket hinge (No. 3637), Fort Albany.

Plate 75 Wine bottle (No. 1056), Fort Albany.
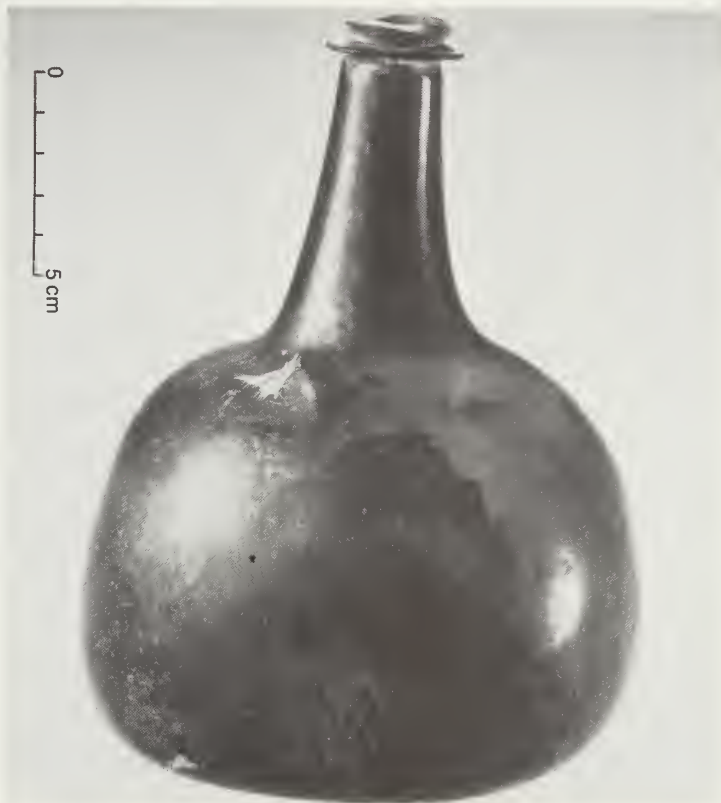
Plate 76 Wine bottle (No. 2356), Fort Albany.
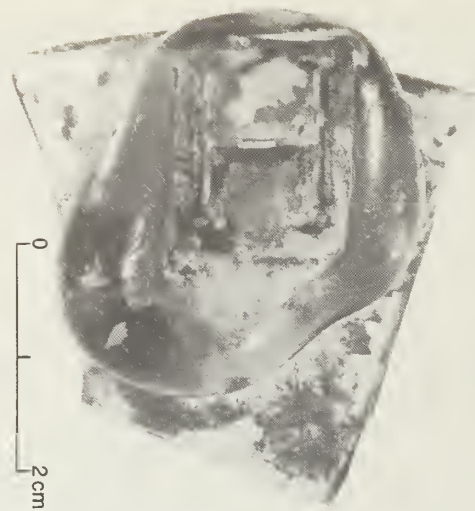
Plate 77 Bottle seal (No. 870), Fort Albany.
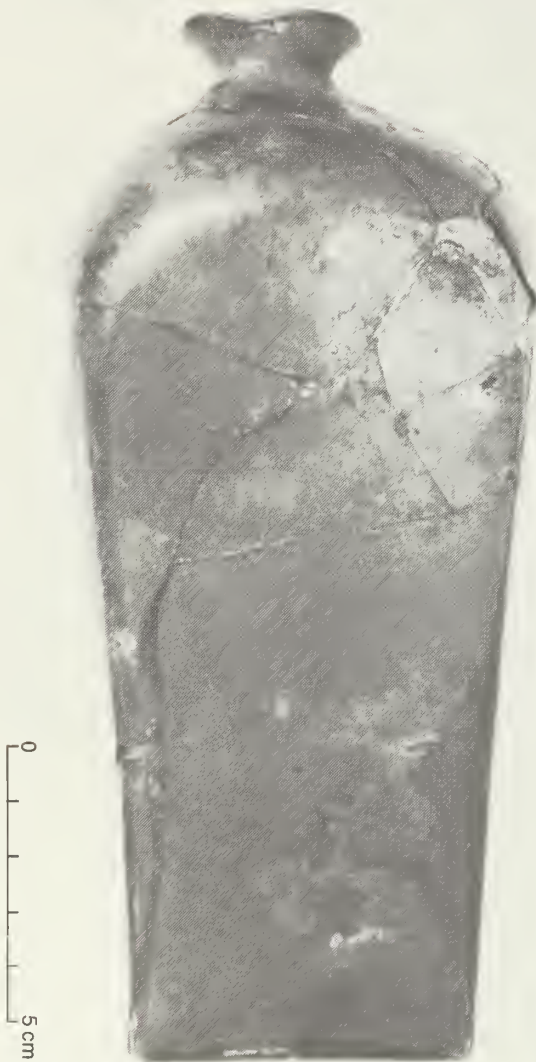
Plate 78 Case bottle (No. 3219), Fort Albany.
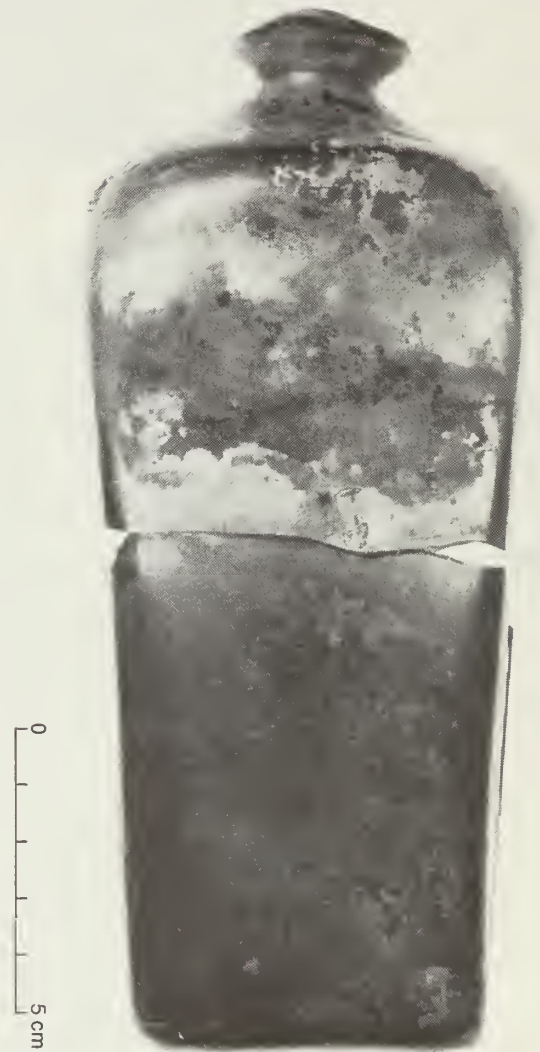
Plate 79 Case bottle (No. 3223), Fort Albany.

Plate 80 Medicine bottle (No. 3224), Fort Albany.
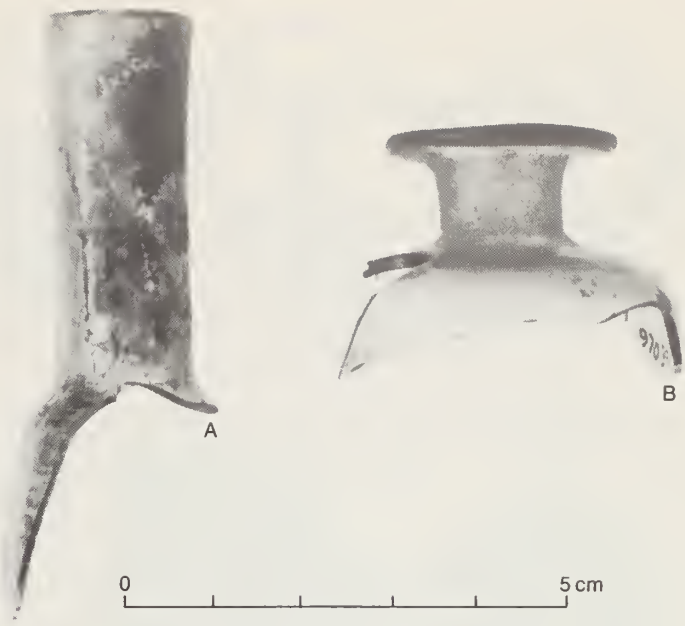
Plate 81 Medicine bottle necks, Fort Albany: *A* No. 1366; *B* No. 1365.
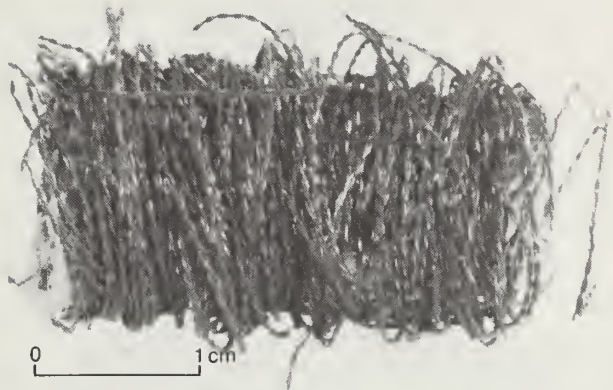
Plate 82 Roll of silvered copper wire (No. 3307), Fort Albany.
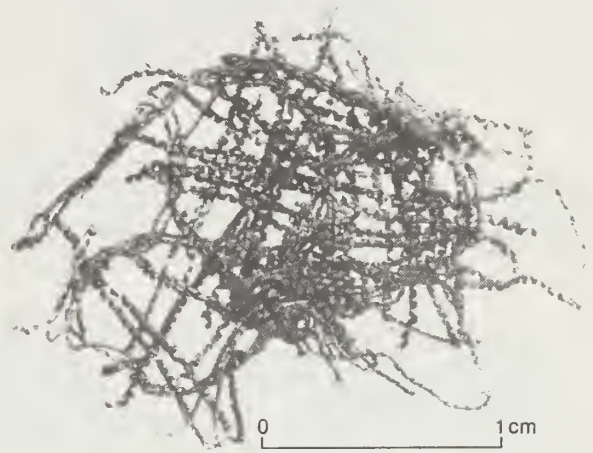
Plate 83 Silver-wound thread (No. 3722), Fort Albany.
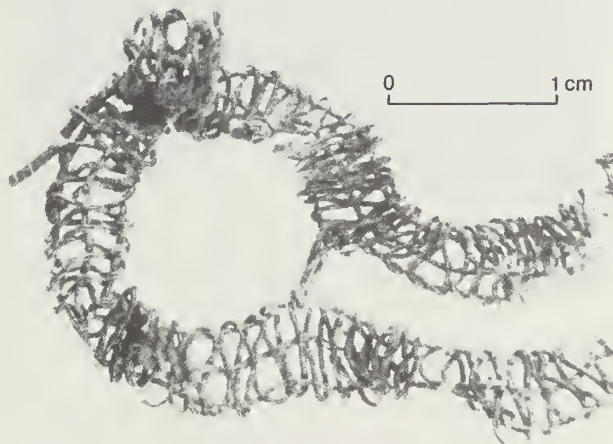
Plate 84 Tinsel braid (No. 3652), Fort Albany.
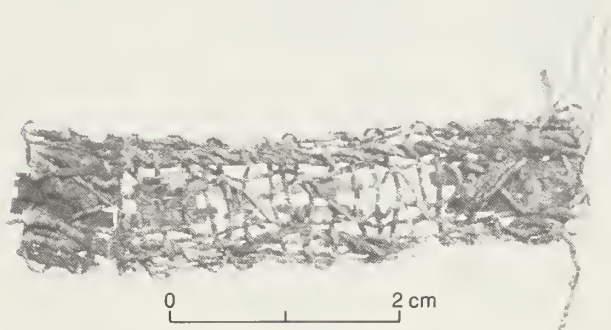
Plate 85 Tinsel braid (No. 70), Fort Albany.
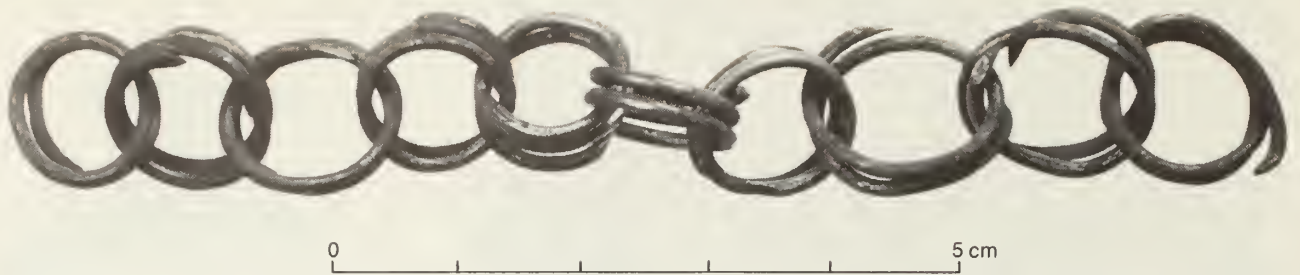
Plate 86 Copper chain (No. 3680), Fort Albany.
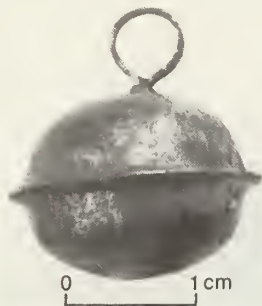
Plate 87 Copper bell (No. 477), Fort Albany.
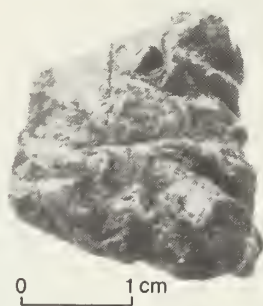
Plate 88 Lump of bees-wax (No. 3367), Fort Albany.
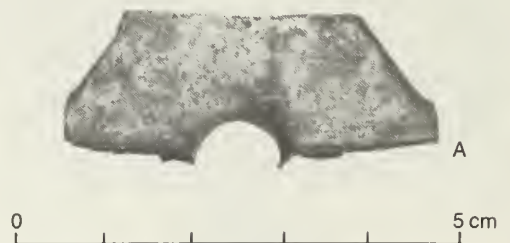
Plate 90 Ivory handle (No. 3347), Fort Albany.

Plate 89 Brass kettle-lugs, Fort Albany: A No. 3639; B No. 3677.
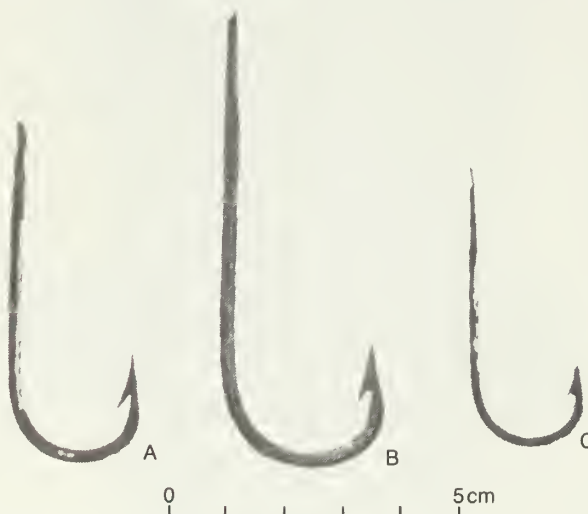
Plate 91 Fish hooks, Fort Albany: A No. 3897; B No. 3896; C No. 3902.

Plate 93 Brass rings and seal, Fort Albany: *A* finger ring (No. 4162); *B* finger ring (No. 3643); *C* finger ring (No. 3644); *D* seal (No. 3655); *E* finger ring (No. 3645); *F* finger ring (No. 3646).
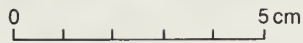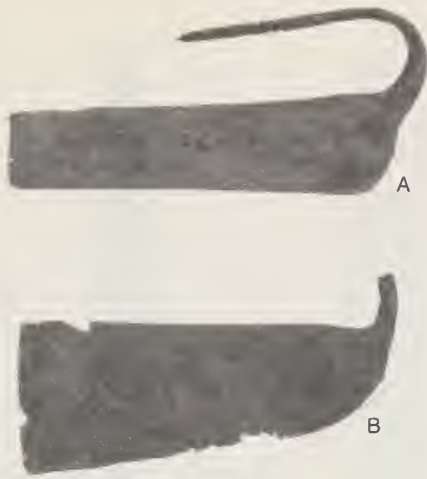
Plate 92 Strike-a-lites, Fort Albany: *A* No. 3814; *B* No. 3844; *C* No. 3815; *D* No. 3054; *E* No. 3065.

Plate 94 Combs, Fort Albany: *A* ivory (No. 450); *B* wooden (No. 2354).

Plate 95 Scissors, Fort Albany: *A* handle and blade (No. 1674); *B* handle and blades (No. 3873); *C* handle (No. 3875); *D* complete (No. 3872); *E* handle and blade (No. 1196).
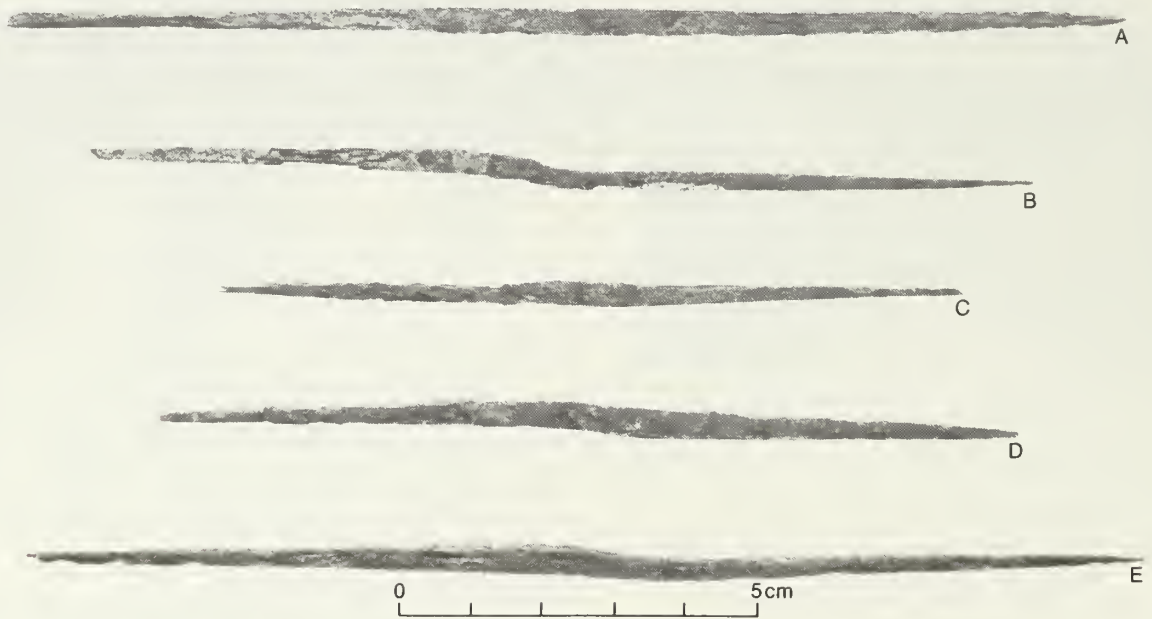
Plate 96 Iron awls, Fort Albany: *A* No. 4052; *B* No. 3889; *C* No. 1785; *D* No. 2287; *E* No. 3890.

Plate 97 Jew's harp (No. 4035), Fort Albany.
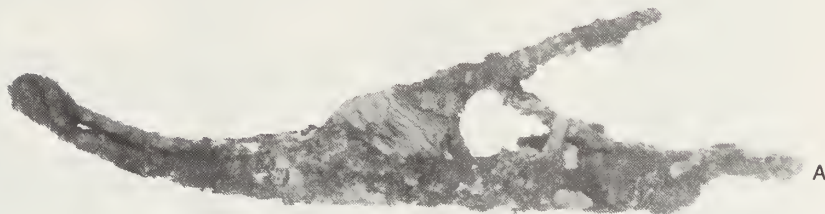
Plate 98 Smoker's companions, Fort Albany: *A* No. 3917; *B* No. 3111.

Plate 99 Smoker's companions, after conservation, Fort Albany: *A* No. 3917; *B* No. 3111.

Plate 100 Copper bangles, Fort Albany: *A* No. 3660; *B* No. 742; *C* No. 718; *D* No. 720; *E* No. 3715.
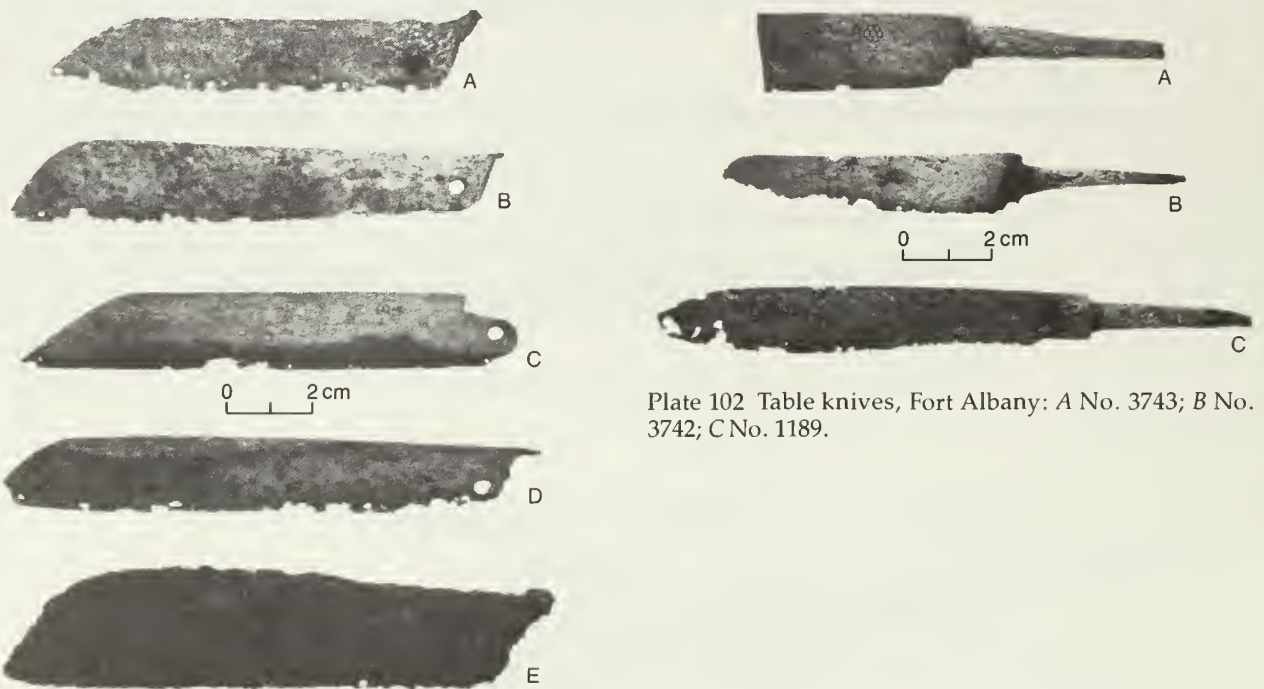
Plate 101 Jack-knives, Fort Albany: *A* No. 3737; *B* No. 3736; *C* No. 3739; *D* No. 3740; *E* No. 77.

Plate 102 Table knives, Fort Albany: *A* No. 3743; *B* No. 3742; *C* No. 1189.
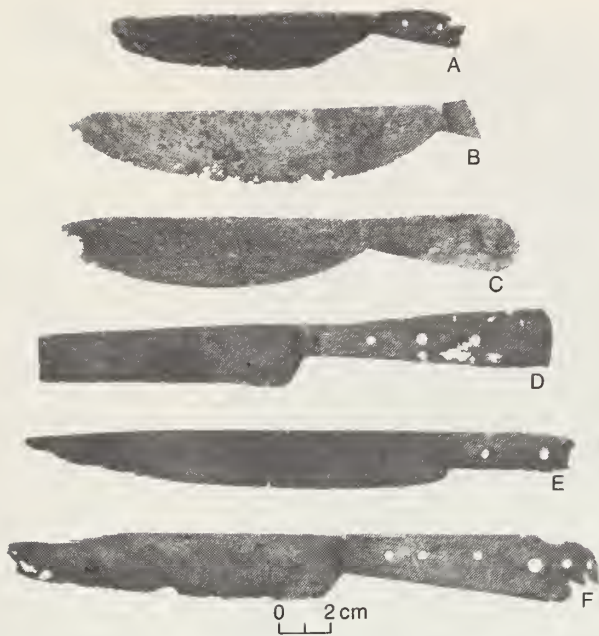
Plate 103 Butcher knives, Fort Albany: *A* No. 1673; *B* No. 3756; *C* No. 3066; *D* No. 3751; *E* No. 4155; *F* No. 3749.

Plate 104 Table forks, Fort Albany: *A* two-tined, with no handle (No. 3914); *B* three-tined, with ivory handle (No. 3912); *C* ivory handle (No. 3913).

Plate 105 Spoon handles, Fort Albany: *A* No. 2339; *B* No. 2340.

Plate 106 Cleaver (No. 1718), Fort Albany.

Plate 107 Cleavers, Fort Albany: *A* No. 1676; *B* No. 1472.

Plate 108 Fire-back (No. 98), Fort Albany.
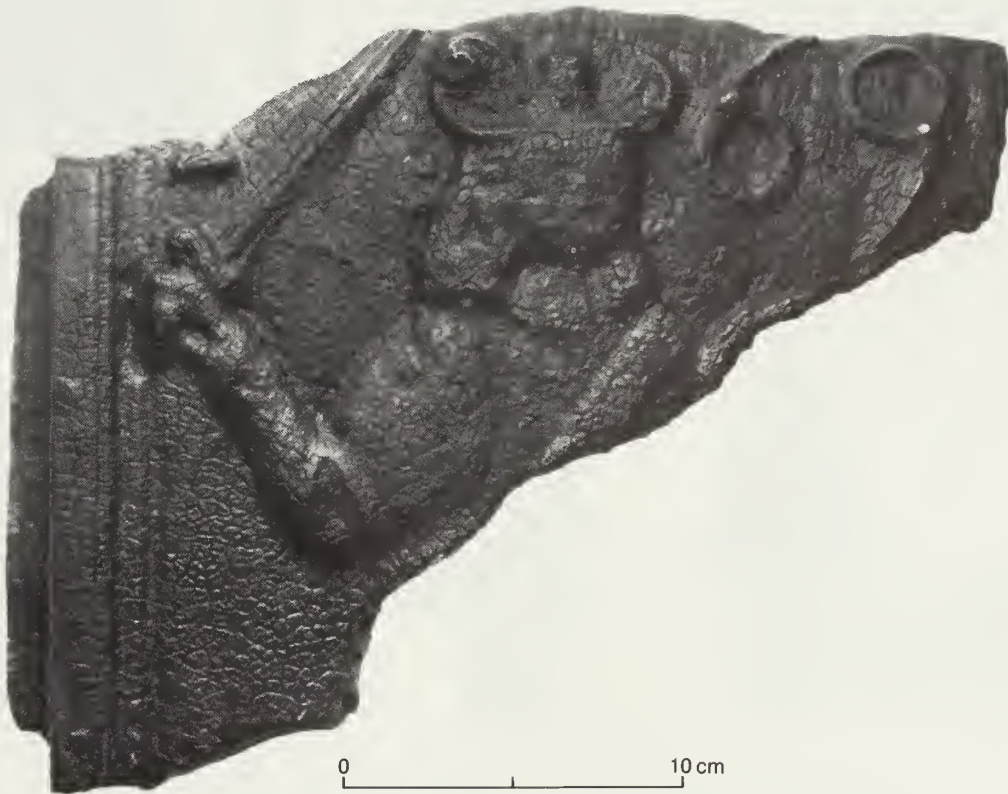
Plate 109 Fire-back (No. 4119), Fort Albany.

Plate 110 Iron arrow-points, Fort Albany: *A* No. 2184; *B* No. 3938; *C* No. 378.

Plate 112 Swivels, Fort Albany: *A* No. 2044; *B* No. 942.
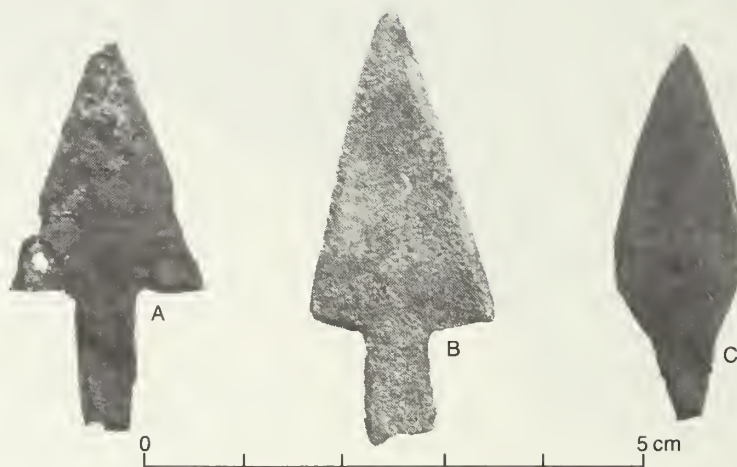
Plate 111 Arrow-points, Fort Albany: *A* iron (No. 377); *B* brass (No. 3678); *C* brass (No. 1600).
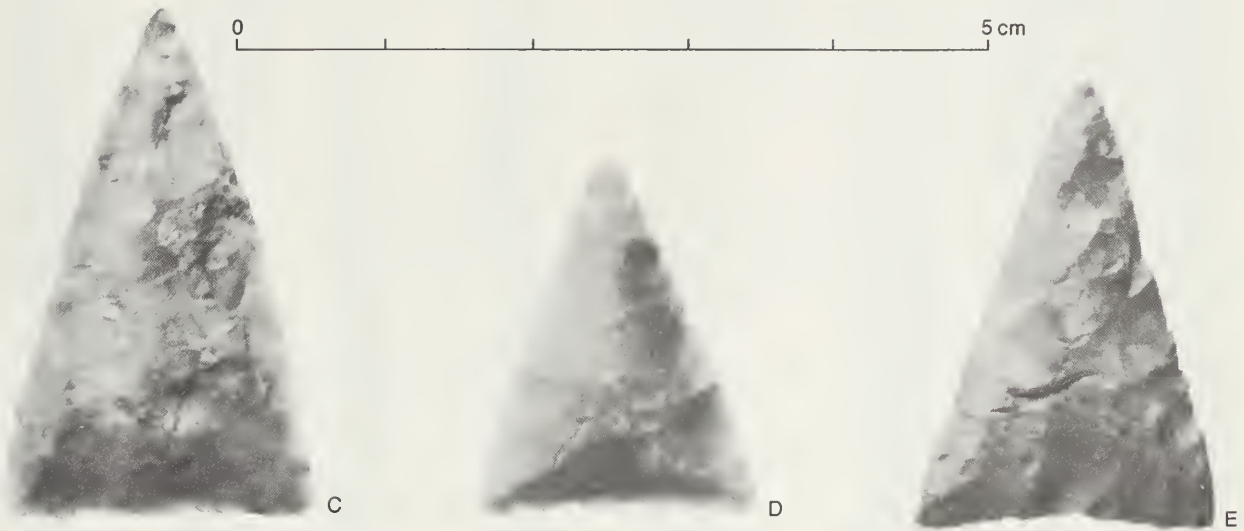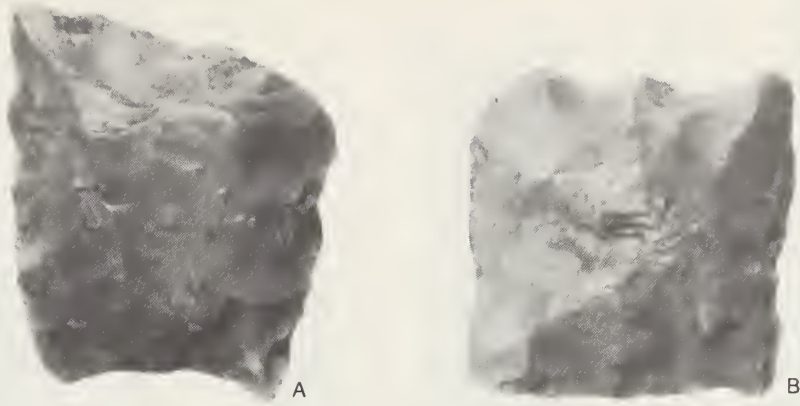
Plate 113 Native gun-flints and flint arrow-points, Fort Albany: *A* gun-flint (No. 3340); *B* gun-flint (No. 3341); *C* arrow-point (No. 1669); *D* arrow-point (No. 3339); *E* arrow-point (No. 4161).
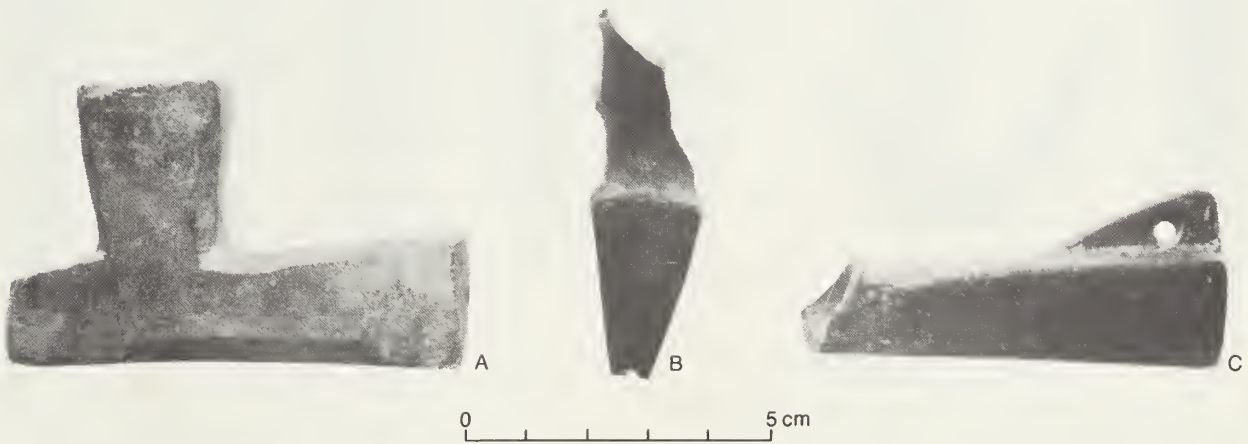
Plate 114 Native stone pipes, Fort Albany: *A* No. 1414; *B* No. 3363; *C* No. 3365.

Plate 115 Slate gorgets, Fort Albany: *A* No. 1034; *B* No. 1664.

Plate 116 Antler artifacts, Fort Albany: *A* chisel (No. 447); *B* netting needle (No. 446); *C* spear (No. 461).
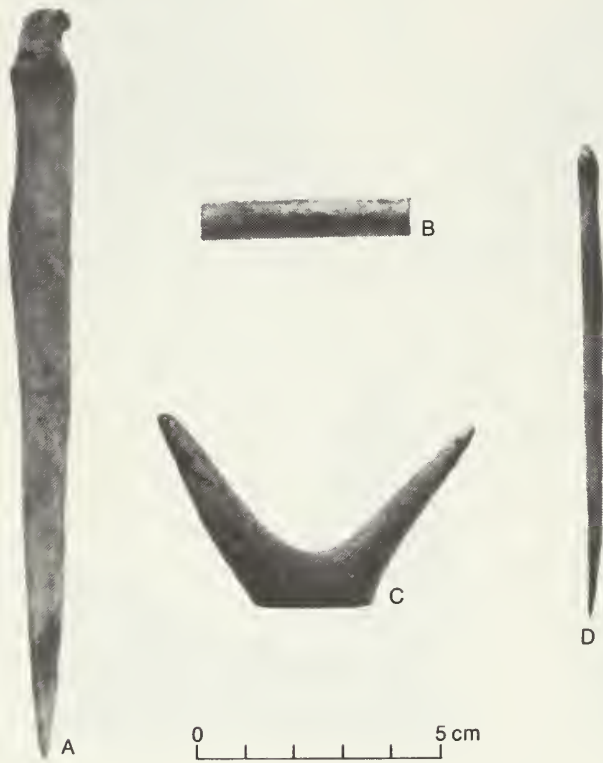
Plate 117 Native artifacts, Fort Albany: *A* bone awl (No. 3019); *B* bone bead (No. 3344); *C* antler object (No. 3345); *D* bone pin (No. 448).

Plate 118 Bone lances, Fort Albany: *A* No. 3015; *B* No. 3017; *C* No. 3022; *D* No. 3021; *E* No. 444.

Plate 119 Antler foreshafts, Fort Albany: *A* No. 3023; *B* No. 3020.

Plate 120 Three-pound cannon (No. 1962), Fort Albany.

Plate 121 Four-pound cannon (No. 1963), Fort Albany.

0 ____ 5 cm

Plate 122 Cannon ball and grenades, Fort Albany: *A* cannon ball (No. 569); *B* spiked grenade (No. 372); *C* grenade (No. 359).
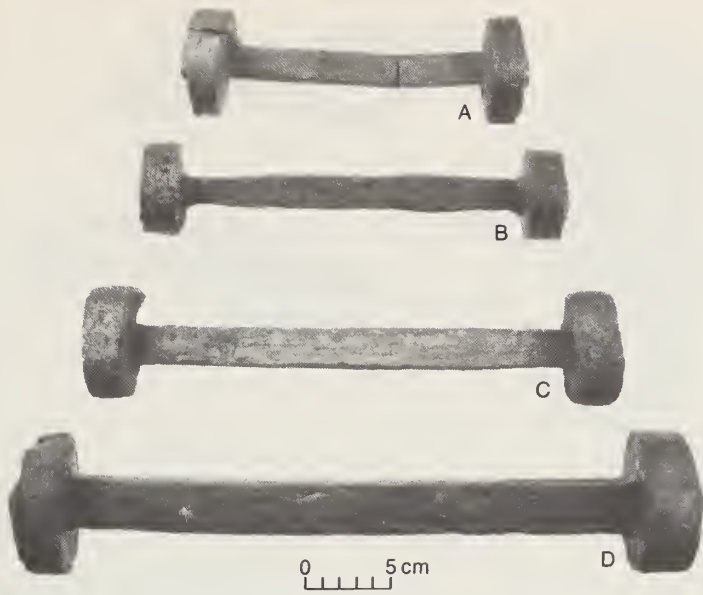
Plate 123 Bar-shot, Fort Albany: *A* No. 1476; *B* No. 1562; *C* No. 3864; *D* No. 433.
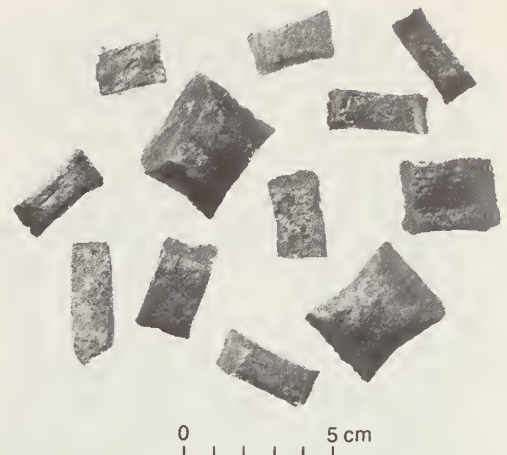
Plate 124 Grape-shot (No. 598), Fort Albany.
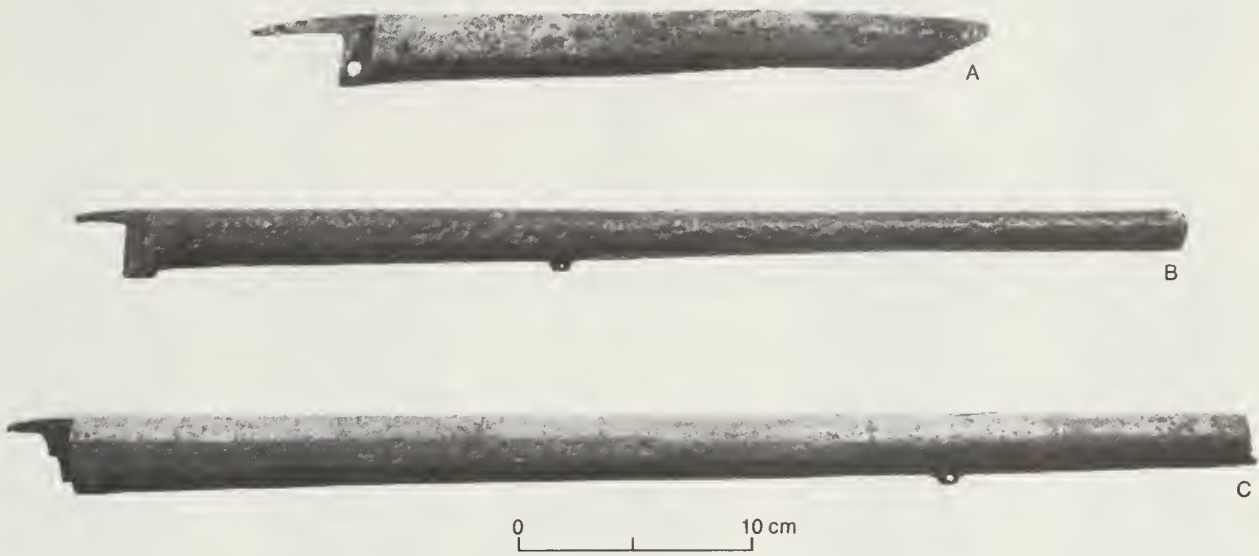
Plate 125 Musket barrels, Fort Albany: *A* No. 3812; *B* No. 2342; *C* No. 3047.

Plate 126 Lock plates, Fort Albany: *A* No. 35; *B* No. 76; *C* No. 1636.

Plate 127 Side plates, Fort Albany: *A* No. 3719; *B* No. 1714.
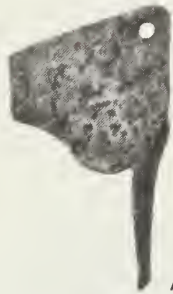
Plate 128 Gun parts, Fort Albany: *A* trigger (No. 4097); *B* trigger (No. 1798); *C* dog (No. 3064); *D* trigger (No. 3801); *E* trigger (No. 3800).

Plate 129 Gun cocks, Fort Albany: *A* No. 4042; *B* No. 1769.
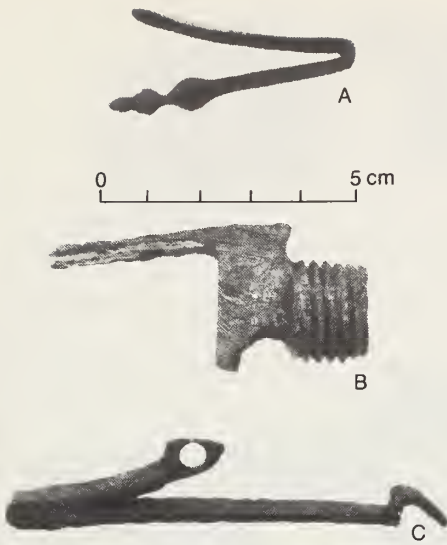
Plate 130 Gun parts, Fort Albany: *A* frizzen spring (No. 379); *B* breech plug (No. 4094); *C* main spring (No. 3057).
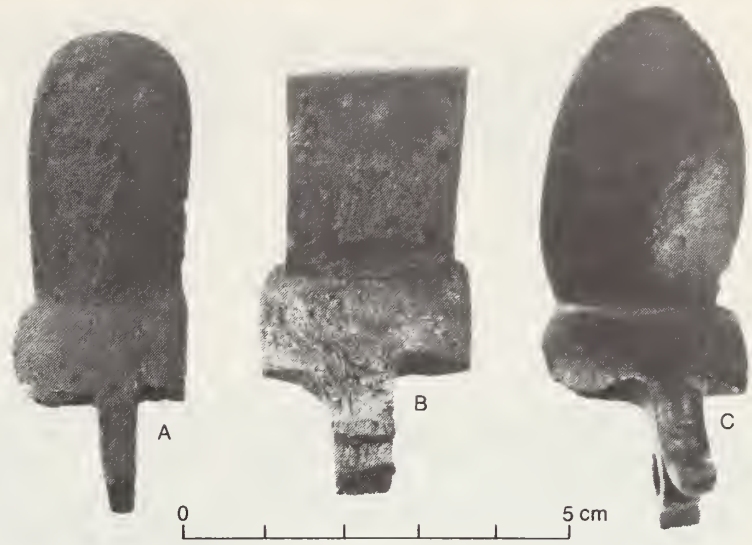
Plate 131 Frizzens, Fort Albany: *A* No. 392; *B* No. 3807; *C* No. 194.

Plate 132 Brass butt plates, Fort Albany: *A* No. 3728; *B* No. 3634; *C* No. 3673; *D* No. 1973; *E* No. 1815.

Plate 133 Gang-moulded lead shot (No. 3487), Fort Albany.

Plate 134 Gunmaker's die-plate (No. 3051), Fort Albany.
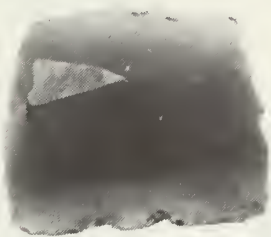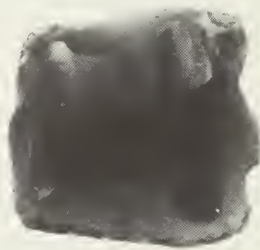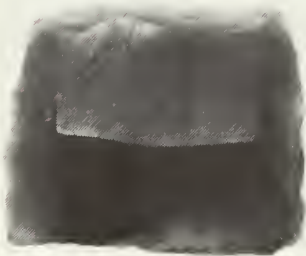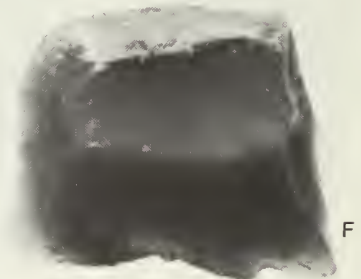
Plate 135 Rectangular gun-flints, Fort Albany: *A* No. 2679; *B* No. 2694; *C* No. 2938; *D* No. 633; *E* No. 2996; *F* No. 2824.
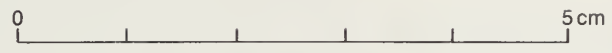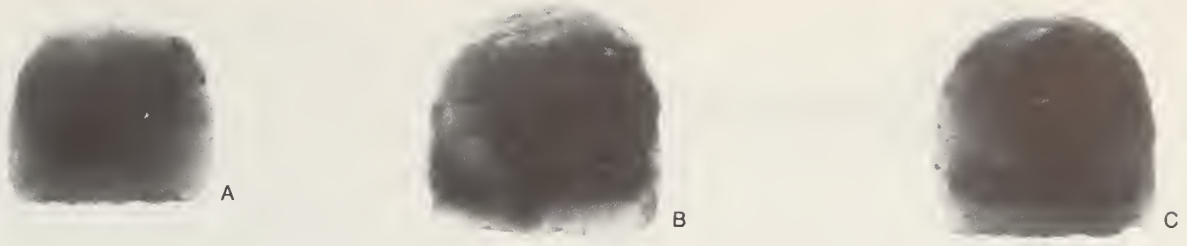
Plate 136 Gun-spalls, Fort Albany: *A* No. 2930; *B* No. 2891; *C* No. 2768; *D* No. 2716; *E* No. 250; *F* No. 2815.

Plate 137 Recycled gun-spalls, Fort Albany: *A* No. 2806; *B* No. 2957; *C* No. 2860; *D* No. 2836; *E* No. 2703; *F* No. 2852.
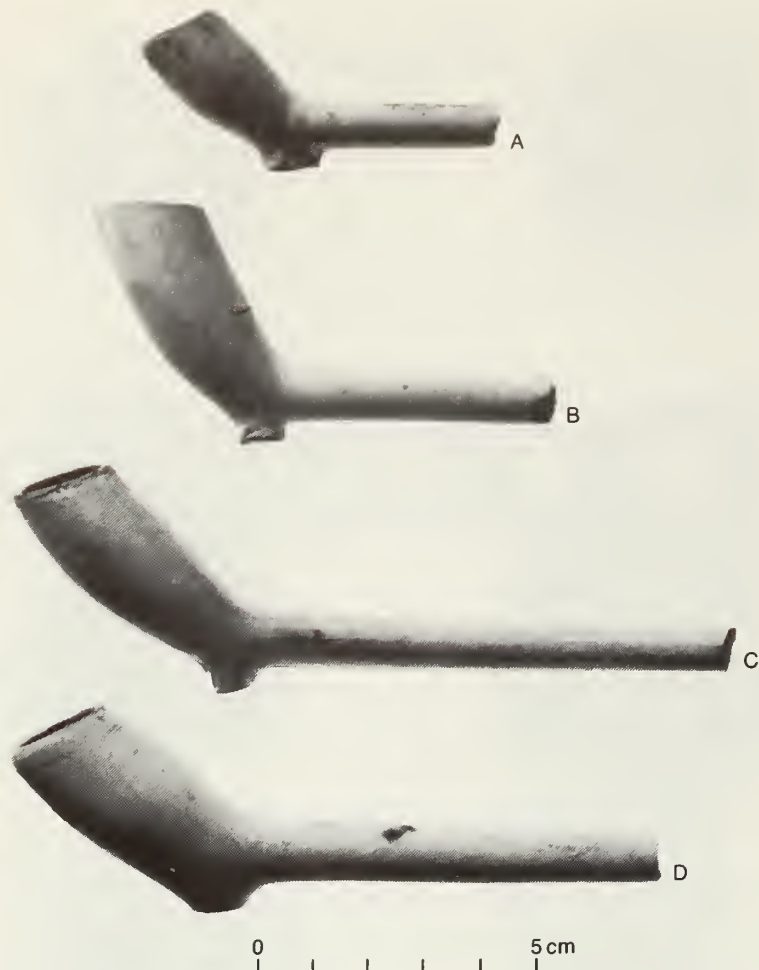
Plate 138 Kaolin pipes, Fort Albany: *A* No. 1716; *B* No. 1692; *C* No. 2595; *D* No. 2549.

Plate 139 Maker's initials on kaolin pipe bowl (No. 947), Fort Albany.
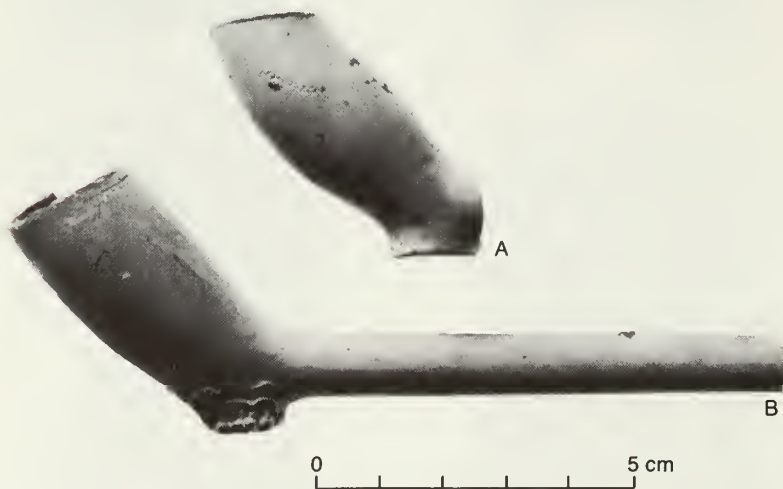
Plate 141 Kaolin pipes, Fort Albany: *A* No. 2428; *B* No. 1696.

Plate 140 Kaolin pipes, Fort Albany: *A* No. 2531; *B* No. 2605.

Plate 142 French water jug (No. 2379), Fort Albany.
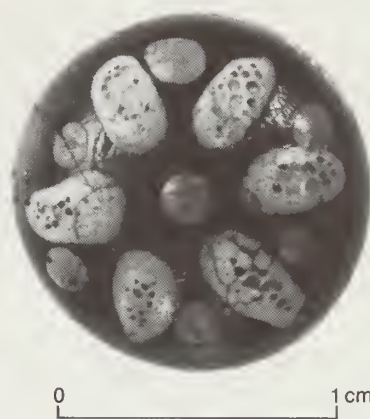
Plate 143 Ceramic button (No. 3349), Fort Albany.

Plate 144 Assorted glass beads, Fort Albany.

Plate 145 Heating device (No. 1399), Fort Albany.

Plate 146 House Point, Charlton Island.

Plate 147 Excavating a stove, Charlton Island.

Plate 148 Base of a stove, Charlton Island.

Plate 149 Northeastern corner of Nixon's warehouse, Charlton Island.

Plate 150 Tile wall, blacksmith shop, Charlton Island, looking west.

Plate 151 Nixon's settlement, Charlton Island: foreground, Thomas Kildale's blacksmith shop; background, Nixon's warehouse.
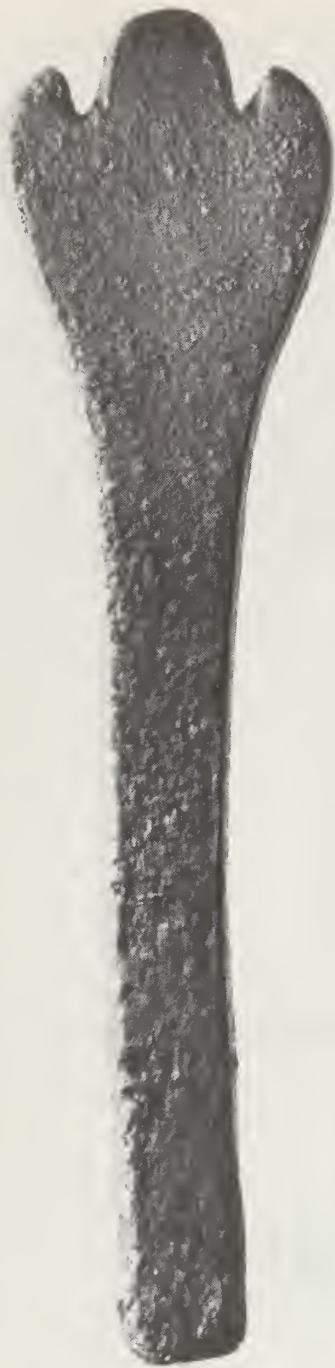
Plate 152 Latten spoon handle (No. 33), Charlton Island.
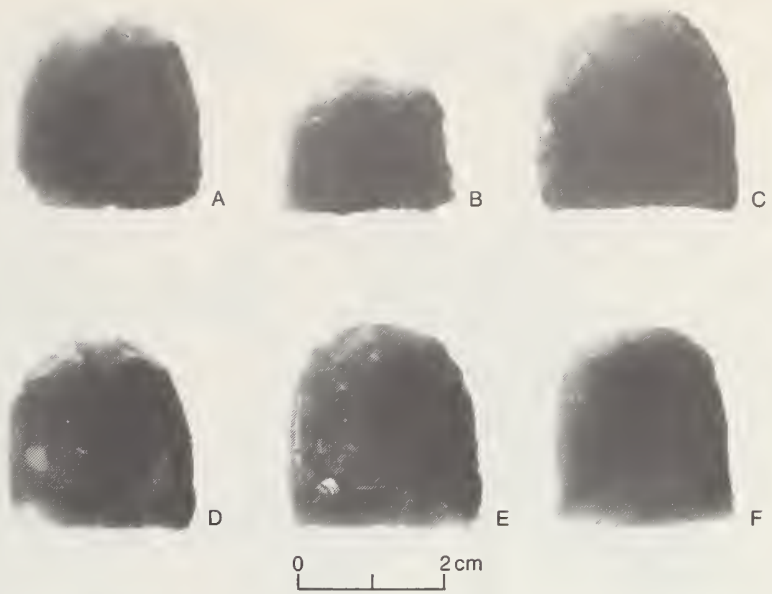
Plate 153 Gun-spalls, Charlton Island: *A* No. 304; *B* No. 306; *C* No. 305; *D* No. 303; *E* No. 309; *F* No. 308.

Plate 154 Gun lock (No. 206), Charlton Island.

Plate 155 Gun lock (No. 206), after cleaning, Charlton Island.
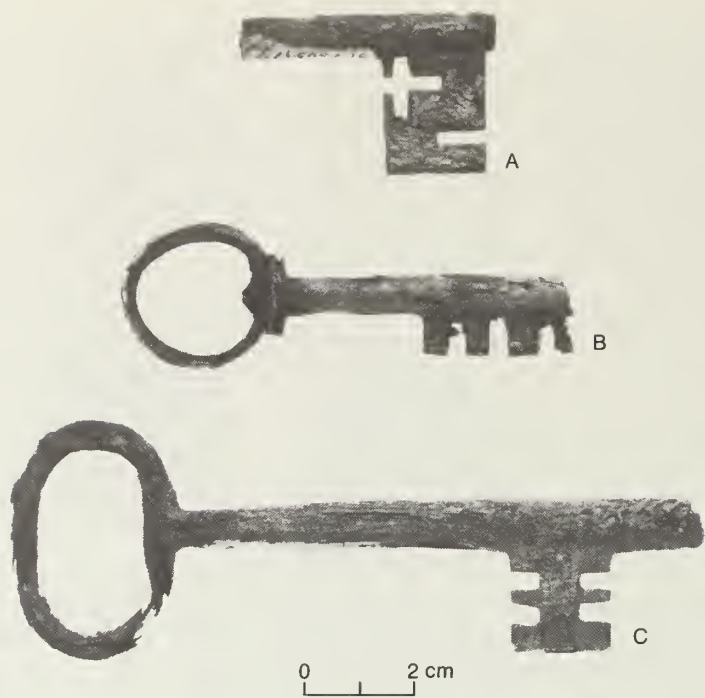
Plate 156 Iron keys, Charlton Island: *A* No. 177; *B* No. 176; *C* No. 178.
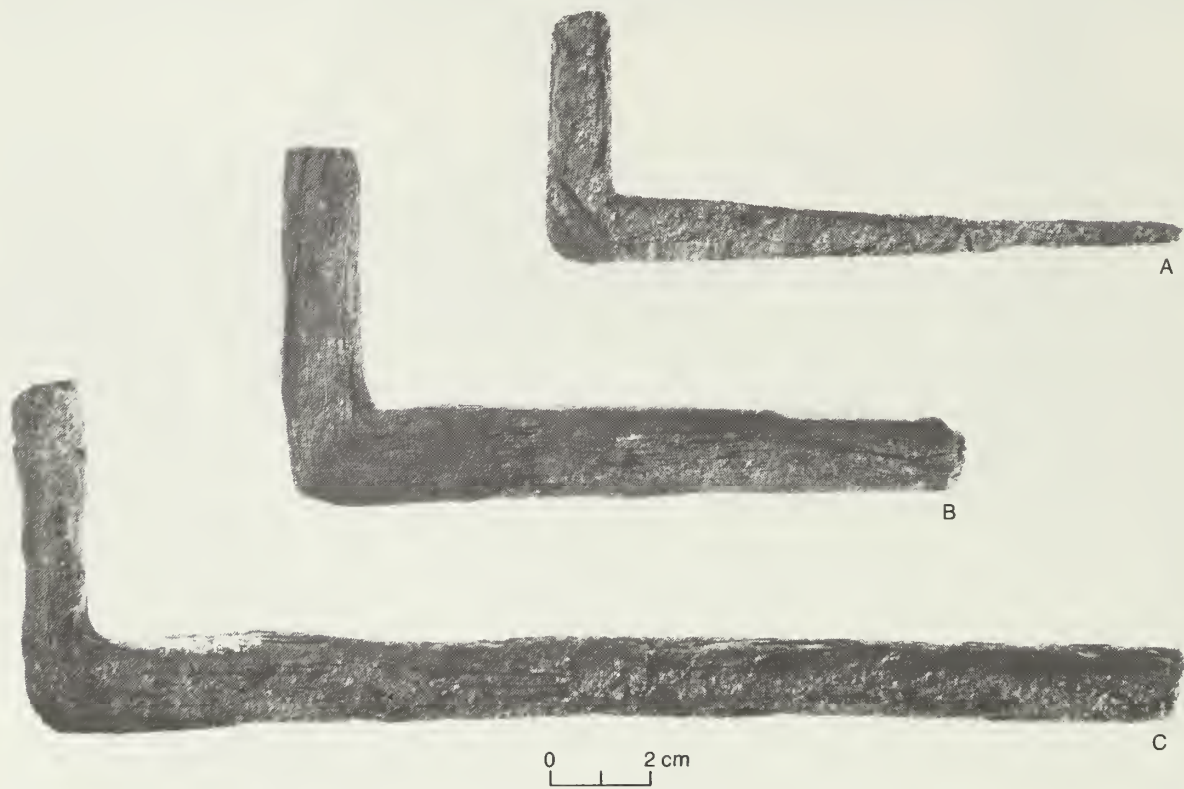
Plate 157 Pintles, Charlton Island: *A* No. 116; *B* No. 202; *C* No. 203.
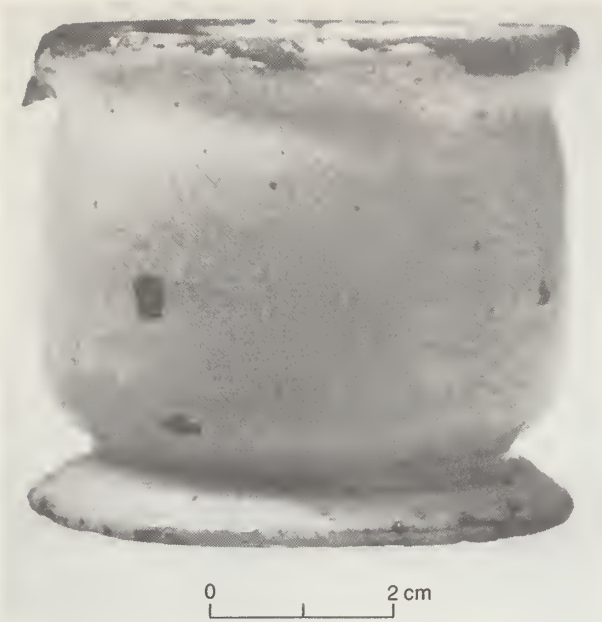
Plate 158 Apothecary jar (No. 329), Charlton Island.

Plate 159 Brass kettle-lug (No. 211), Charlton Island.

Plate 160 Copper strap (No. 212), Charlton Island.
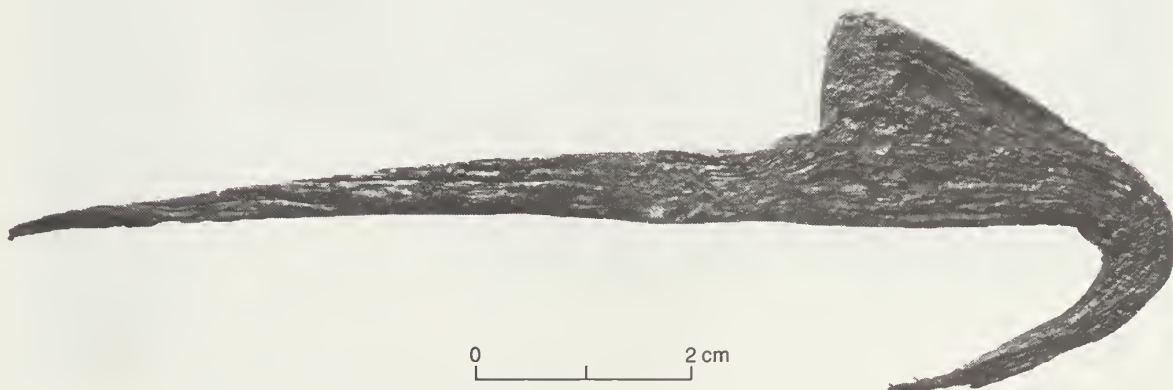
Plate 161 Door catch (No. 198), Charlton Island.

Plate 162 Brass artifacts, Charlton Island: *A* drawer pull (No. 321); *B* catch (No. 215).
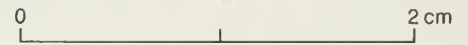
Plate 163 Common pin (No. 216), Charlton Island.
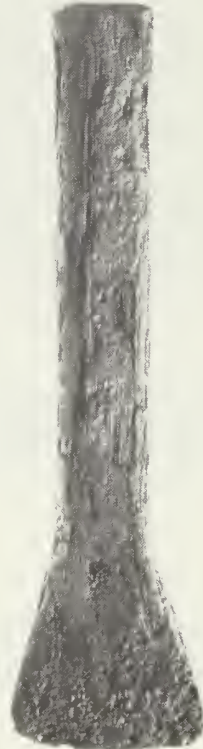
Plate 164 Iron tools, Charlton Island: *A* marlinspike (No. 204); *B* cold chisel (No. 201); *C* cold chisel (No. 119); *D* cold chisel (No. 118); *E* caulking iron (No. 117).

Plate 166 Kaolin pipes, Charlton Island: A No. 269; B No. 268; C No. 128; D No. 232; E No. 247; F No. 229.

Plate 165 Iron auger (No. 120), Charlton Island.

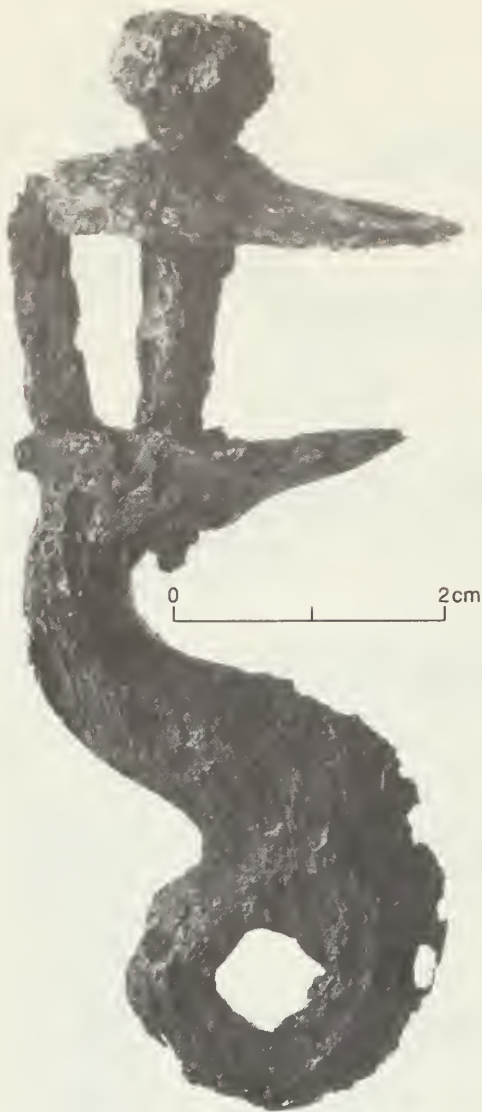Plate 167 Brass ladle (No. 126), Charlton Island.

Plate 168 Gun cock (No. 103), Charlton Island.

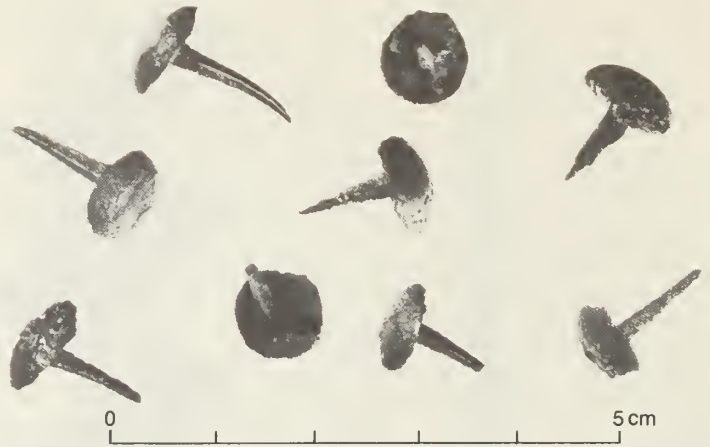Plate 169 Gun-spall (No. 129), Charlton Island.

Plate 170 Brass tacks (No. 124), Charlton Island.

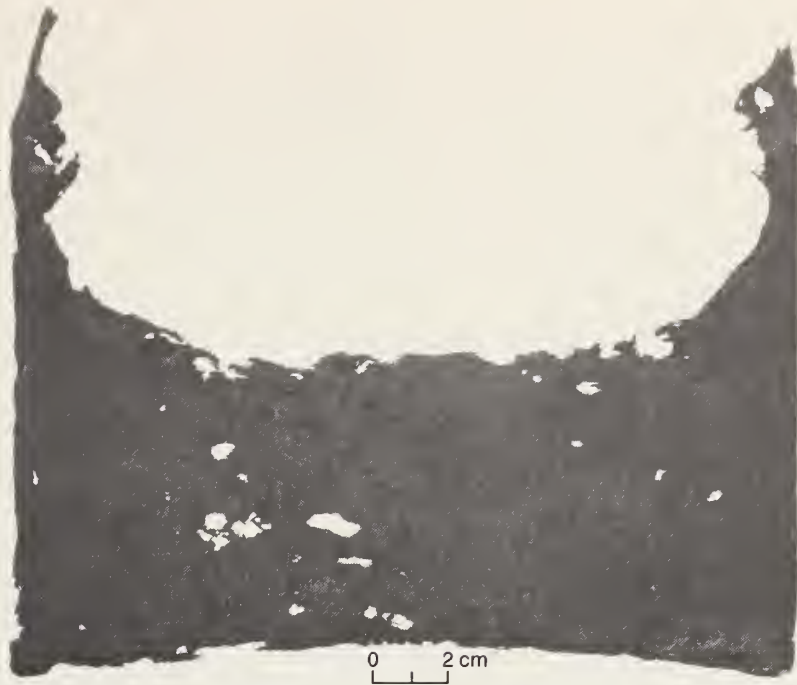Plate 171 Adze blade (No. 106), Charlton Island.

Plate 172 Iron shovel blade (No. 100), Charlton Island.

Plate 173 Copper strainer (No. 125), Charlton Island.