Excavations at Fort Meductic, New Brunswick
by Louis R. Caywood
1969
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Appendix: A Study of Some Clay Pipes from Fort Meductic
by Iain C. Walker (1967)
Salvage excavations took place in 1964 and 1967 at Fort Meductic, New Brunswick; the site of a fortified Malecite Indian village where a mission chapel had been constructed by the French in 1717. Conclusive remains of a palisade or other early structures had not survived on the extensively cultivated and eroded site although some tentative evidence was uncovered. Burials, numerous Indian firepits and artifacts of the French contact period were found. Other features excavated at the site included the basement of an Indian schoolhouse built in 1788. Numerous artifacts dating to the Loyalist settlement and later activity were recovered. Fort Meductic had a major role in the early history of the area and thorough archaeological investigations of the site were completed before flooding by Mactaquac Dam.
PREFACE

Archaeological investigations were undertaken at the Fort Meductic site as part of a project by the New Brunswick Electric Power Commission to study remains of historical value along the portion of the Saint John River which would be flooded upon completion of the Mactaquac Dam. Excavations were conducted from June through August, 1964, by the author under contract to the New Brunswick Electric Power Commission while released for that period from the United States National Park Service.

The National Historic Sites Service, of the Parks Branch of the Department of Indian Affairs and Northern Development, which agreed to find an archaeologist for the project and to arrange for publication of a report, also conducted two brief salvage excavations in July and September, 1967. This paper is mainly a condensation of the detailed 1964 excavation report. The results of the 1967 investigations have been added thereby summarizing the results of all of the excavations which took place before the site was finally flooded.
Many contributed to the 1964 excavations and their efforts are greatly appreciated including Mr. Frazer McIntosh and other staff of the Mactaquac Land Office for handling many of the project details; George Long, field assistant, and the excavation crew for their diligent work and Dr. George MacBeath and staff of the New Brunswick Museum for providing research assistance.

The author extends his gratitude to Dr. K.K. Langmaid, University of New Brunswick for soil data; Mr. Iain C. Walker, National Historic Sites Service for the pipe study; and to Dr. Kenneth Kidd, Trent University, for bead descriptions. Artifact identifications were also made by Mrs. Huia Ryder, New Brunswick Museum, for glass and ceramics; Edward McM. Larrabee and staff, Fortress of Louisbourg, for gun parts; and T.M. Hamilton, Miami, Missouri, for gun parts.
INTRODUCTION

Fort Meductic was the principal Malecite Indian settlement on the Saint John River in New Brunswick during the late 17th and early 18th centuries. The village was important to the French for fur trading and as a gathering place from which to attack the New England settlements. A mission chapel was constructed at Fort Meductic in 1717. The village declined in importance after 1730 and was eventually abandoned by 1760. English Loyalists settled along the Saint John River in the late 18th century but the village was sporadically resettled by the Indians who continued to camp there until the mid-19th century.

Local tradition places the site of the fort on Meductic flat which is a level intervale on the west bank of the Saint John River 10 miles south of the town of Woodstock. A late 18th century map shows the fort in lot 5. The only remaining evidence in recent times, however, was an overgrown burial ground preserved in an otherwise cultivated field. In 1890, a slate tablet from the early mission church was found in the cemetery and this resulted in the placement of a historical marker along the nearby highway. A detailed history of the site was compiled by the Reverend W. O. Raymond (1897), but archaeological excavations were not attempted before the Mactaquac Dam project.
The excavations in 1964 were necessarily exploratory because intensive cultivation and erosion had erased all visible signs of any early structures on the flat. The cemetery was cleared and several burials were found. Investigations in the vicinity of the cemetery uncovered concentrations of window glass, handwrought nails and areas of ashes and stains. However conclusive evidence of the mission chapel was not found. A stone feature, thought to be an early fireplace, was also investigated at the cemetery.

Long test trenches were dug across the field and these were expanded into wider excavation areas to investigate any signs of habitation below the plow zone. Many Indian firepits were uncovered.

The only possible evidence of the fortification were stains in the trench walls which may have been the profile of a ditch along the palisade. The direction of this feature generally followed the pattern of the fort in a plan drawn by Raymond. However the "U"-shaped stain was very indistinct in some places and missing in some portions of the projected course.

Excavations in the field uncovered a brick-filled cellar with artifacts indicating an early 19th century occupation. This feature may have been the remains of a schoolhouse built for the Indians in 1788.

A second cellar depression containing building stones
was excavated. It was known as the "trading post" but the date of the structure was not determined.

Artifacts throughout the site were mixed by plowing and there was no clear stratigraphy in the excavated areas. European material was predominant. The earliest artifacts dated to the 17th century and there was much 18th and 19th century material.

The first follow-up investigation by the National Historic Sites Service at the Fort Meductic site took place in August, 1967, when K.A. Coleman tested several portions of the site using mechanical equipment, a back-hoe, to expedite digging. This investigation was partly to determine the nature of a feature which appeared on aerial photographs taken of Meductic flat after the 1964 excavations. It turned out to be a shallow line caused by plowing and no further evidence of Fort Meductic was found.

Another salvage effort was made in September, 1967, in order to find more archaeological evidence before the flat was finally flooded. This time a bull-dozer cut a number of 10-foot-wide trenches through the previously excavated areas and other locations. Although burials and firepits were exposed and additional artifacts were recovered, it was not possible to add any information concerning the old fortification.
HISTORY

The Malecite Indian village of Meductic was probably in existence prior to the arrival of the first Europeans, and the village may have been fortified originally as a means of protection against raiding Mohawks. Since the Malecites partly depended on crops for their subsistence, Meductic, with its abundance of arable land, became their principal settlement. Perhaps more important, however, was its location. The village was only four miles above the mouth of the Eel River, which was part of a principal water route to New England. There was a portage from Fort Meductic to a point above the rapids in the mouth of the Eel River.

The upper reaches of the Saint John were familiar to French fur traders by the mid-17th century. In 1684, René Damours was given the de Clignancourt seigneury which included Meductic. He did not develop the land, preferring to trade with the Indians.

The first resident missionary to the Malecite Indians at Meductic was a Recollet priest, Father Simon Girard de la Place. He was put in charge of the post on the Saint John in 1685 and took up his residence at Meductic where he lived for 14 years. Father Simon was present at the
sigh of Fort Pemaquid in 1689 when an English youth, John Gyles, was taken captive by the Malecites and held about six years at Meductic.

After Father Simon's death in 1699, the Jesuits assumed the missionary work among the Indians of the Saint John River, and Father Pierre-Joseph Aubrey, served the mission from 1701 until about 1709. The next Jesuit to serve the mission at Meductic was Father Jean-Baptiste Loyard. The French government was anxious to keep the friendship of the Indians of Acadia, and Louis XIV gave Father Loyard and the Indians financial help to build a chapel at Meductic, furnishing a number of religious accessories. These included a church bell, a statue of the Virgin, two brass candlesticks and a brass censor. The bell was engraved with a crown surrounded by four fleurs-de-lis, and it was inscribed in French which is translated, "to the Malecites of the River Saint John" (Maxwell 1937:34).

Father Loyard's name appears on a small black slate tablet now in the New Brunswick Museum. It bears a Latin inscription which is translated, "To God, most excellent, most high, in honour of Saint John Baptiste, the Maliseets erected this church A.D. 1717, while Jean Loyard, a priest of the Society of Jesus, was superintendent of the mission" (Raymond 1897: 9). Father Loyard died at the mission in 1731.

In the early 1730s, a party of Acadians migrated up
the Saint John to form the new colony of Sainte Anne close to the small Indian village of Aucpac. Father Loyard's successor, Father Jean-Pierre Danielou, began to serve both missions, and Aucpac, with its neighbouring European settlement, became more and more important while Meductic declined. In 1739, Danielou compiled a census on the Saint John reporting 84 (European) inhabitants at Sainte Anne and not mentioning Meductic at all—so at least there probably no longer were any Europeans at Meductic (Lee 1966:7).

Fort Meductic was apparently abandoned by the end of the war in 1760. A map of the Saint John River dated 1762 shows Meductic as deserted (Lee 1966:9). Father Charles-François Baille noted in 1767 that "the last Indian at Medoctec having died, I caused the bell and other articles to be transported to Ekpahaugh / Aucpac /" (Raymond 1897:16).

In the 1780s, Loyalists from the new United States began arriving on the Saint John. A survey of the valley in 1782 by Captain John Monroe includes Meductic Flat: "here is a fine piece of Intervale in which two or three Indian families live, about the centre of this Intervale are the remains of an old Breast work, sufficient to contain 200 men" (quoted in Raymond 1897: 30).

By 1790, the lands around Meductic had all been granted to the new settlers. The fort itself seems to have been located on Lot 5 (Raymond 1897: 31). On an early map in the
Crown Lands Office, which is undated but believed to date from the 18th century, there is an "X" with the words "French Fort" written above it on Lot 5. In 1787, Lots 5 and 6 were owned by Issac Atwood and were part of his farm known as "Captain Atwood's Estate or farm at Meductic." Houses and out-buildings are mentioned and were probably on the flat.

Around 1788, a school for the Indians was established by Reverend Frederick Dibblee and this may also have been located at Meductic Flat. In a 1790 letter, Dibblee explains, "I have built a good Log House on the Indian Lot, 26 feet by 22" (Raymond 1897:36). Raymond seemed to believe the school house was at the old village site. It is possible that the "Indian Lot" above is Lot 4, once held in trust for the Indians.

In July, 1841, the Indian Commissioner visited Meductic Point where the remains of an old Indian fort and graveyard were pointed out to him. He found only 29 Indians there and recommended that the land be leased and the settlement broken up (Raymond 1897:40). In 1851, part of Lot 27, three miles south of Woodstock, was purchased by the province for the use of the Indians and this land now comprises the Woodstock Reserve.

The Reverend W.O. Raymond of Woodstock compiled much information on Fort Meductic and drew a conjectural plan (Fig. 3). When Raymond visited the site sometime before
1896, the only place where the breastwork was visible to him was along the south and east sides of the burial ground. However, Mr. Hay, the owner, explained to Raymond that when his father had purchased the property there was an earth and stone embankment four or five feet high which ran diagonally from the northwest corner of the graveyard toward the river bank, but this embankment had been levelled (Raymond 1897:5,6).
THE SITE

The site of Fort Meductic was located on Meductic flat which prior to flooding by the dam was a level intervale, over 800 ft. wide in some places, that stretched for more than a mile along the west bank of the Saint John River (Fig. 1). The flat was almost entirely under cultivation in 1964.

The river edge of the intervale was marked by a thin strand of brush and trees along the bank which sloped down as much as 30 ft. to the rocky beach below. The west side of the intervale was bordered by a wooded ridge which rose steeply to higher land overlooking the river valley. The north end of the flat was bounded by Hays Creek which flowed into the Saint John at a rocky shoal. The land here is thought to have once formed a more pronounced point, but erosion had cut away much of the river bank.

The focal point of the site was the cemetery which stood out in the cultivated field as an overgrown tangle of brush and trees. This area measured more than 60 ft. in diameter (Fig. 4). A large wooden cross placed in the cemetery in 1925 read "Site of Ancient Indian-French Graveyard R I P" (Fig. 2). Under the brush an earthen embankment less than 3 ft. high bordered part of the east and south
side of the cemetery. At the northeast corner of the cemetery there was a group of stones (Fig. 6) which had been uncovered just before the 1964 excavations and braced by a wooden frame by Dr. George Clark, who was of the opinion that it was the fireplace of the "priest's house."

The land surrounding the cemetery was quite level. A topographical map shows variation only from 118 ft. to 120 ft. There is a dip below the ridge on the west side of the intervale and the elevation of the field also decreases to the south. The vicinity of the graveyard is the highest land and is known to have become an island when spring floods covered other areas.

An interesting feature was noted at the extreme north end of the intervale where a narrower field projected toward Hays Creek. This was a pile of roughly shaped building stones contained in a depression located on a ridge about one-quarter mile northwest of the cemetery. The origin of this cellar depression was unknown except that the owner, John Love, explained it was traditionally referred to as the "Trading Post." It was also noted that two springs flowed from the escarpment on the west side of the intervale, one of them opposite the cemetery at a distance of about 800 ft. The second spring was more than one-quarter mile to the south.
THE 1964 EXCAVATIONS

Archaeological Plan

Areas to be excavated at the upper intervale of Meductic flat were determined as follows. Obvious features such as the cemetery and cellar depressions were investigated first. Locations where local informants indicated that numerous artifacts or other signs of occupation had been plowed up in the field were also explored. In addition, the location of the fortification, chapel, and other features as indicated on Raymond's 1896 plan were tested (Fig. 3).

The site area including the cemetery and surrounding field was surveyed in a 100-ft. grid system for control during the 1964 project. Test trenches and pits were given numerical designations in order as these were begun. The trenches were numbered through 35, and 11 test pits were dug.

When occupational evidence or important features were exposed in a test trench or pit, the latter was expanded into a larger excavation area to follow and uncover the feature of interest. These excavation areas were given alphabetical designations A through L. Artifacts were collected, cleaned and marked with field catalogue numbers
daily as the excavation progressed. The numbered specimens were recorded in a log book which included a brief description of the item and the provenience.

Since much of the digging was exploratory, many test trenches and pits were involved and activities shifted from one part of the site to another throughout the summer as discoveries were made. Some areas were unproductive while other locations required more extensive work. In some cases it was necessary to return to test trenches abandoned earlier and deepen them. The following account summarizes the excavations and findings. The site plan (Fig. 4) shows the locations of the 1964 test trenches, pits and excavation areas.

**Trench 1, Areas B and D**

The initial digging began with test trench 1 located in the field along the south side of the cemetery. The purpose was to investigate the nature of the soil and search for evidence of former occupation. This trench was started northwest of the cemetery and ran in an approximately east direction toward the river for a distance of 300 ft. The trench was 3.0 ft. wide and completed to an average depth of 1.5 ft. below the ground surface.

Trench 1 revealed a plow zone of dark grey soil about 6 in. deep in this part of the field which rested on a finer yellow-tan sand. Some thin black stains were exposed
near the west end of the trench and these were traced by expanding the excavation in this area into excavation area B. Another dark stain crossed the floor of the trench opposite the cemetery and it was investigated by digging excavation area D. This feature was a grey, hard-caked substance about 6 in. in diameter. This substance was exposed later at excavation area J where it was identified as a natural formation resulting from leaching.

Testing East of Cemetery

Trench 2
A wide path was cleared through the trees, brush and vines directly east of the cemetery for disposal of back-dirt at the river bank. Test trench 2 was first dug down this slope from the edge of the field to the river bank below. The exposed profile of the river bank indicated that much evidence of former occupation had been eroded away by the spring freshets and redeposited at lower levels. Fire-burned stones were uncovered and numerous artifacts were found in the trench and along the gravel beach below.

Excavation Area A
In the field directly above test trench 2, there were traces of a firepit which had been exposed by previous amateur digging at the site. This location was designated as excavation area A and expanded by clearing away the sod and earth to a depth of 6 in. Charcoal, burned stones and
burned earth indicated occupation, while artifacts included a trade axe and a knife.

**Testing North of Cemetery**

Trenches 3, 4, 5, and 6

Test trench 3 began exploration in the field about 200 ft. north of the cemetery where numerous artifacts were reported by the owner, John Love, to have been plowed up over the years. This trench was dug for a length of 170 ft. in an easterly direction toward the river. After removing the plow zone soil, the excavators uncovered a black streak near the west end of the trench at a depth of 1.0 ft. below the ground surface. This proved to be a zone of charcoal flecks about 0.2 ft. thick which appeared to have resulted from human habitation.

Test trench 4 was opened parallel and 20 ft. south of test trench 3 to determine if the streak continued in that direction. The feature appeared in trench 4, and therefore test trench 5 was dug further to the south to continue tracing the course of this charcoal stain. It was found in trench 5 where a small pile of burned stones, probably an Indian firepit, was also uncovered. Test trench 6 was dug parallel and further to the south of test trench 5, but the streak did not extend that far.

**Excavations Areas C and F**

The results of test trenches 3, 4, and 5 indicated that this
area would be worth additional investigation. Excavations north and south of test trench 3 were designated as excavation areas C and F (Fig. 7). These areas together eventually resulted in a large excavation measuring approximately 45 ft. by 85 ft. and averaging a little more than 1.0 ft. in depth. Test trench 8 was dug down the nearby riverbank and backdirt from these areas was disposed of there.

Thirteen features of interest were uncovered. These consisted of six firepits; four areas where there were concentrations of fire-burned rocks, two post moulds and a large irregular charcoal-stained area. The firepits consisted of orange fire-burned earth, ashes and small burned stones. The firepits measured from slightly less than 1.0 ft. to more than 2 ft. in diameter with an average depth of 6 in.

The charcoal streak first uncovered in trenches 3, 4, and 5 and numerous other streaks and stains were traced in areas C and F in an attempt to find the outlines of possible wigwams. The entire surface was carefully trowelled but no evidence of structures could be found associated with the firepits, and the origin of the only two post moulds was not determined. It was evident, however, that this area had been extensively used by the Indians.

Trench 7, Excavation Area G
The area of the field just north of the cemetery was first
explored by digging test trench 7. This trench ran in an
easterly direction toward the river and was taken down to a
depth of 1.0 ft. below the ground surface. Although the
first 100-ft. segment revealed nothing of interest, post
moulds and other features were found toward the eastern
end of the trench and this section was expanded into
excavation area G.

Post moulds were uncovered in excavation area G until
a total of 18 were located in a pattern of an irregular
circle about 13 ft. in diameter. These post moulds, which
averaged 2 in. to 3 in. in diameter, were 1.0 ft. deep from
the bottom of the excavation. Every post mould except one
appeared to be slanted slightly toward the centre of the
circular pattern they formed. These post moulds were probably
from a wigwam.

A firepit was found inside the circle near the east
side. Just outside of the west side of the circle there
was a large oval concentration of burned river pebbles.
This area of pebbles measured 5 ft. by 7 ft.

The Cemetery

While excavations were in progress at other parts of the
site, the cemetery was cleared of brush except for the
larger trees. At the northeast corner of the cemetery
there was the stone structure which Dr. Clark thought
represented the fireplace of a house for the early mission
priests (Fig. 6). At the southeast corner of the cemetery, two earth ridges met at a right angle. One ran about halfway along the east or river side of the cemetery and the other ran about halfway along the south side. The embankment was from 2 ft. to 3 ft. high and measured from 3 ft. to 4 ft. wide. These earthen walls gradually decreased in height away from the intersection.

Northwest Corner

Explorations in the northwest corner of the cemetery began with test trench 10 which ran perpendicularly to test trench 7 and proceeded into the cemetery. Window glass and burned hand-wrought nails were recovered. A 10-ft. square area on the west side of the trench was carefully trowelled to seek additional evidence in this portion of the cemetery which was designated as excavation area H.

This northwest portion of the cemetery was extensively dug in hopes of finding remains of the chapel which Raymond thought was located in this vicinity. In addition to test trench 10, test trench 15 cut into the cemetery in this area. Two post moulds were found on the floor of trench 16; and as a result two short trenches, 19 and 20, were dug between trenches 16 and 10 to intercept any additional posts, but no others were found. Test pit 7 was dug to a depth of 5 ft. while part of trench 15 along with trenches 16, 19, and 20 were deepened to 3 ft., but no indications of a chapel foundation were found.
Northeast Corner

Excavations at the northeast corner of the cemetery were to investigate the stone fireplace there (Fig. 6) in an attempt to find evidence of a building associated with it. The fireplace, which measured 7 ft. by 4.5 ft., had been thoroughly exposed by Dr. Clark in May, 1964, when he removed the soil around it and braced it with wooden framing.

Test trench 11, which was started at a right angle from trench 7, crossed over the stones. Dark stains and reddish burned earth were revealed on the north side in the adjacent field area. On the south side, a layer of hard grey clay was exposed at a depth of 6 in. which extended 10 ft. from the fireplace. More dark stains and reddish coloured earth were found and the trench was expanded into area K, on the east or river side of the fireplace, and area L on the west side. As these areas were excavated, concentrations of thin broken window glass, hand-wrought nails and spikes were recovered. The artifacts, along with various areas of fireburned soil and ashes could possibly have resulted from the burning of a log building but no clear architectural evidence was found.

Burials

Test trench 15, which was dug to search for evidence of the chapel, was also extended through the cemetery and
deepened in an effort to find burials. Five-foot-square pits 8, 9, 10, and 11 were also dug for that purpose. A burial was found at test pit 8 near the east side of the cemetery and was completely exposed but not removed. The skeleton appeared to be that of an adult female about 30 years of age. It was an extended burial with the head pointing toward the west. There was evidence of rotted wood and rusted hand-wrought nails which indicated interment in a wooden coffin. No personal objects were present although there were traces of copper stain near the bones. Five other burials were found in test pits in the cemetery but these were not excavated.

The Embankment and Ditch

Trench 11

Excavations to determine the nature of the earthen embankment along the south and east sides of the cemetery began with an extension of trench 11 over the south ridge. The dark humus and soil were carefully removed to expose any remains of palisade posts if they existed along the crest. However, no such evidence was found and it was decided to expose a profile of the embankment in relation of the surrounding ground surface by digging a deep trench through it. A new section of trench 11 was therefore begun in the field south of the embankment to approach it from the outside at a right angle. As this excavation proceeded toward the embankment,
a U-shaped discolouration appeared on both walls of the trench just outside the ridge at a depth of 2 ft. to 3 ft. below ground surface (Fig. 9).

The bottom of the U-shaped stain was very dark and the area above consisted of spotty grey soil which contrasted markedly with the light yellow natural soil. It appeared that the darker stain represented the bottom of a ditch and the disturbed soil above was redeposited fill. The conclusion drawn was that this feature which we referred to as the "moat" represented a borrow trench from which sand had been removed to build the embankment.

If the embankment at the cemetery was indeed the remains of the "breastwork" from Fort Meductic as indicated by Raymond, it seemed that outlines of a ditch along the original palisade had been found. It was possible therefore that evidence of the fortification could be traced below plow zone in the extensively cultivated field.

The ditch was traced westward by removing the disturbed earth overlying the darker stain (Fig. 10). This operation was designated trench 11A. The ditch which was parallel and adjacent to the south cemetery wall became gradually shallower and finally disappeared as did the embankment.

Trench 13, 14, 21 and Area I

A search was made for evidence of the ditch at the east
cemetery ridge by digging trench 13 westward into it. Outside of the ridge at a depth of 3.5 ft., some stones were encountered and another trench was dug northward perpendicular to trench 13 in order to investigate this feature. The combination of these trenches was designated as excavation area I. These stones, mixed with charcoal, apparently had fallen into the ditch, or represented the remains of a firepit. The U-shaped outline of the ditch appeared on the walls of the original trench 13 and also on the walls of the north-south trench at area I, indicating that the ditch had made a right angle turn toward the river at this spot.

Test trench 14 was excavated across the projected course of the ditch between the cemetery and the river to verify its progress eastward from area I. Test trench 21 was later dug in this vicinity for the same purpose. Evidence of the ditch was found in both trenches but it was less distinct and much shallower in trench 14.

Evidence of a ditch found in excavation area I and trenches 14 and 21 was particularly significant since Raymond's plan shows the outline of the fortification taking this course from the cemetery to the river. It seemed possible, therefore, that the outline of most of the south side of the fort had been found.

Trenches 7, 15, 17, 18

Attempts were made next to find evidence of the ditch along
the west side of the cemetery. Trench 15 was deepened and extended on the west end. Trench 7 was also deepened and extended westward. However, the U-shaped stain did not appear. Trenches 17 and 18 were dug in the field to the north of the cemetery in order to intercept the diagonal wall of the fortification along the course shown in Raymond's plan. No evidence of the ditch occurred in either of these trenches.

Trenches 3, 5 and 22
Several of the trenches dug earlier were deepened to see if the ditch feature might be intercepted west of trenches 17 and 18. Traces of a dark stain were found in trenches 3 and 5. Part of this apparent ditch fill was dug out for its length between trenches 3 and 5. This operation was designated as trench 22. Evidence of the ditch was not as substantial south of trench 5. At first no sign of the ditch could be found at trench 6; however, when it was deepened to 4 ft. a thin layer of fire-burned earth appeared on the south wall but no indications were found on the north wall of the 3-ft.-wide trench. The evidence here was therefore quite slight and illustrated the difficulty of tracing this feature.

Trenches 30 and 31
Trench 30 was dug south of trench 6 across the anticipated route of the ditch feature, but no evidence of it was found.
Trench 31 was dug on the other side of trench 6 to the north to see if there was additional evidence of the ditch between trenches 5 and 6, but the U-shaped stain did not appear.

Trenches 23, 25, 29
The segment of the ditch discovered at trenches 3 and 5 and dug out at trench 22 appeared to border excavation areas C and F, and it seemed that the firepits exposed here could represent living areas just inside the limits of the fortification. The next step was to continue tracing the route of the ditch northward, and trench 23 was opened across the anticipated route in that direction. No signs of the feature were found. Trench 24 was dug to the east of trench 23 and the stain appeared on the south end of this trench, indicating that the ditch had changed direction and turned toward the river somewhere past trench 3. Trenches 25 and 29 were placed in this vicinity. The U-shaped stain appeared in trench 29 but not at trench 25, which left a gap at the corner of the turn.

Trenches 27, 28, 32, and 34
Four trenches were dug east of trenches 29 and 24 to intercept the outline of the ditch as it proceeded toward the river. The feature was found in all of these trenches 27, 28, 32, and 34. Its outline was quite clear in the wall of trench 34 but did not appear in trench 32 until it was
considerably deepened. Here burned stones were revealed at a depth below 6 ft. It appeared that the outline of the north wall had been traced to the river where evidence of its continuation had been cut off by erosion which would also destroy evidence of the east wall.

Ditch Summary

The moat-like feature, consisting of dark stains and disturbed fill which possibly represents a ditch associated with a palisade, appears to follow the outline of the fortification indicated by Raymond's plan (Fig. 3). The feature was quite distinct in places but barely discernable in some trenches and missing altogether in major portions of the projected course. No direct evidence of a palisade was found associated to prove its origin.

In tracing the direction of the ditch feature, from south to north, its occurrence in trenches 14, 21, 11, and 11A possibly indicates the south wall of the palisade which juts out to include the cemetery. There is no evidence of the west wall until test trench 6 is reached north of the cemetery and the slight stain was found on only one side of the trench. The ditch was not found in trenches 15, 7, and 30 which leaves a major gap between trench 6 and trench 11A.

The ditch was not found in trench 31 but good indications were found in trenches 5, 4, and 3 and the fill was removed for part of its length in trench 22. The firepits and features
in excavation F would have been located inside the possible
west wall at this vicinity.

The ditch feature was not found in trenches 25 and 23.
Evidence was found in trenches 29 and 24 which indicates a
turn toward the river to the east. The stains in trenches
29, 24, 27, 28, 34 and 32 possibly mark the north wall of
the fortification.

Evidence of the east wall of Fort Meductic was not found.
This side was parallel to the river and that portion of the
site was probably eroded away. The land here is known to have
once formed a more pronounced point into the river.
Testing South of Cemetery

Trench 12 and test pits 1-4

Test trench 12 was dug southward from test trench 1 to explore the area on that side of the cemetery. No firepits or other evidence of occupation were uncovered below the plow zone in the 100-ft.-long trench. It was decided to dig some 5-ft.-square test pits. Test pits 1, 2, and 3 were dug near the river edge of the field but revealed nothing of interest. However, when test pit 4 was dug to a depth of 1.0 ft., a dark layer of charcoal stain 0.2 ft. thick appeared. This was over an equally thick layer of mixed orange fire-burned earth, charcoal flecks and ash.

Excavation Area E

The dark layer found in test pit 4 appeared to represent a surface where there had been occupation. The feature was investigated by expanding test pit 4 into excavation area E (Fig. 8). A roughly rectangular stain of charcoal and fire-burned earth was exposed which measured 55 ft. long in a north-south direction and 31 ft. wide in an east-west direction. The area was carefully trowelled to find possible wigwam or other features but only two post moulds were found. These measured 3 in. in diameter and were less
than 1.0 ft. deep. Two parallel stains similar to the one found earlier in excavation area D were identified by Mr. K.K. Langmaid, Pedologist, University of New Brunswick, as natural formations resulting from leaching.

When the overburden was removed to expose the dark layer numerous artifacts were recovered. These included pipe stems, fragments of copper, and English ceramic sherds. Two narrow trenches were dug through the dark layer at right angles to each other to determine its depth and whether any evidence existed at greater depths. It appeared that the area had been in use for a long time, but there were no firepits such as those in excavation areas C and F.

Test Pit 5 and Trench 35

Two other minor tests in the area south of the cemetery are test pit 5 and trench 35 which are not shown on the site plan. Pit 5 was a small test hole dug on the beach at a location east of test pit 3. Test trench 35 was located in the field about 175 feet south of excavation area E. This trench was to investigate an area with a vegetation change but nothing of interest was found.
The Schoolhouse

Trench 9 and Test Pit 6
Late in the season a roughly rectangular patch of lush grass was noted in the field about 50 ft. west of excavation area J. This area, about 20 ft. by 30 ft., became especially distinct because of the absence of daisies which were blooming in the surrounding field. Test trench 9, which was 5 ft. square, was dug through the grassy patch to a depth of 15 in. but nothing was found. Test pit 6, was dug deeper in the trench near the edge of the area and eventually brick fragments, glass, pottery, cut nails and other artifacts were unearthed.

Excavation Area J
Test trench 9 and test pit 6 were expanded into excavation area J to uncover whatever features might be associated with the artifacts. This excavation resulted in uncovering a rectangular area of bricks and rotted beams at a depth of 3 ft. below the ground surface (Figs. 11, 12). It was a basement depression which measured 22 ft. by 26 ft., and was found to be lined with upright wooden slabs. These measurements are particular interesting because they are the same dimensions as those given for Reverend Dibblee's
schoolhouse, which is thought to have been constructed at the site around 1788.

The bricks may have been part of a fireplace. The remains of large horizontal beams showed a pattern which indicated the framework that had supported the floor of the house. From the size of the knots, some of the beams must have been 8 in. to 10 in. square. Rotted beams, bricks and rocks continued to be found to a depth of 6 ft. below the ground level.

Artifacts found in the basement excavation area J indicated that the final use of this structure was during the early 19th century. Two half-penny tokens with dates of 1812 and 1815 were included. The many pieces of English earthenware found would date to the last part of the 18th century and the first half of the 19th century.

The "Trading Post" Cellar

Excavations were made at the "trading post" located on a ridge near Hays Creek at the north end of the intervale about one-quarter mile northwest of the cemetery (Fig. 1, 13). Many of the grey stones contained in the depression showed evidence of having been roughly shaped and they were not similar to the usual fieldstone found on the intervale and river shore. It appeared that the depression was a cellar that had become filled when the structure above collapsed. From the quantity of stones inside the depression
and many which had apparently been thrown down a nearby slope, it seemed evident that the walls had been built almost entirely of stone.

Excavation of the cellar began by removing loose stones from the centre of the depression and working toward the edges so the cellar walls might be found if they were still in place. A horse skeleton was removed. The stones became so entangled in roots and earth that it was difficult to remove them and a trench was started outside of the depression and dug toward it to find the cellar limits. The trench intercepted a soil change indicating the edge of the original cellar excavation. Inside this disconformity at the bottom there was a line of rotted timbers.

When the depression had been cleared to a depth of about 4.5 ft. the earth was found to contain much ash and charcoal, seemingly indicating that the structure above had probably burned. Bricks were found in the fill of the north end of the cellar at a depth of 3 ft. to 4.5 ft., including four complete specimens and fragments of about 20 other bricks. The structure may have had a brick-lined fireplace. Pottery sherds, glass fragments, nails, clasp knives and a metal button marked THE KING'S AMERICAN REGIMENT were found in the cellar fill. The button would date to the late 18th century.

The cellar walls were lined with upright wooden slabs which generally measured 2 in. thick and 8 in. wide. These
had been placed in a shallow trench with their rounded sides facing away from the interior of the cellar. The cellar was found to measure 9.5 ft. by 11.5 ft. The floor plan revealed that the cellar had been dug with a 5-ft.-square projection on the southeast corner, perhaps to accommodate a stairway or ladder.

To complete the excavations, test trenches were made away from the cellar to search for the remains of house foundation, additional artifacts, or other features. No definite foundation lines of a structure were found but the area west and north showed evidence of burning. Ashes and fire-burned earth were found about 6 in. below the ground surface and formed approximate north-south and east-west lines from 5 ft. to 6 ft. from the cellar outline. A line of post moulds was revealed 5 ft. from the east cellar wall. The house above the cellar would have measured approximately 20 ft. by 22 ft.
ARTIFACTS

Numerous artifacts were recovered during the 1964 excavations at Fort Meductic. Most of the artifacts were of European origin and included many small fragments of metal, glass and ceramics. The earliest material which dates from the 17th and early 18th centuries would represent the period of French contact with the Malecites. Artifacts of the late 18th century and early 19th century are abundant and result from occupation after the settlement of the Loyalists in the area.

Unfortunately there was considerable mixture of the earlier and later artifacts at the site due to the many years of farming and plowing; however, the artifacts reflect somewhat on the material aspect of acculturation among the Malecite at Meductic and indicate the major periods of activity at the site.

Metal

Gun Parts

Gun parts, although not numerous, were among the more interesting metal artifacts at Fort Meductic since many of these could be dated. Some of these gun parts were cleaned and identified at Fortress Louisbourg through the courtesy of Edward McM. Larrabee. T.M. Hamilton, Miami, Missouri, also made identifications.
Specimens of flintlock parts include the following:

Me 5 A badly damaged lockplate, front end, from a civilian gun, most likely a smoothbore. The plate had a separate pan (Fig. 19g).

Me 297 Sear from a military lock (Fig. 19f).

Me 482 A broken frizzen from an early Brown Bess, 1720-1730 (Fig. 19d).

Me 576 Trigger guard, possibly from a French Infantry musket, model 1717. The front finial was broken off and a new one filed out. All later models had swivels, so this specimen must have been from a model 1717 or earlier (Fig. 19a).

Me 1143 A cock from a sporting gun (Fig. 19b).

Me 1244 Sideplate from a flintlock (Fig. 19i).

Me 1399 Possible front end of a cheap triggerguard (Fig. 19h).

Me 1404 Sideplate identical to one from Michilimakinac and now in the collection at Michigan State University at East Lansing (Cat. Nos. 1642 and 1647, two parts). This is similar to but not
identical to a sideplate used on the French Infantry Officer's fusil, Model 1767. Another similar sideplate was used on a pre-1717 French musket (Fig. 19d).

Me 1410 Frizzen from a civilian lock (Fig. 19c).

Me 1523 Buttplate fragment (Fig. 19e).

Me 175 Iron ramrod tailpipe.

In addition to the iron gun parts there were several brass objects that were from guns. These included the bent remains of two possible ramrod loops (Fig. 20a, b) an escutcheon, and a tailpipe-and-swell (Fig. 20c) from a flintlock. Two sections of a triangular bayonet were included. Two honey-coloured gun flints were also found.

Ball and Shot

One lead ball (ME 183) was found which measured .58 calibre and weighed .341 grains. Nineteen shot were screened from area C. The diameters were 0.11 in., 0.13 in., 0.15 in., and 0.18 in. All of the shot were out-of-round and slightly flattened on one side, and some had a small indentation or dimple in the flattened area.

Harpoons, Fish-hooks and Eel Spear

Iron spearheads or harpoons, fish-hooks and a large eel spear are examples of fishing equipment excavated at Fort Meductic (Fig. 21). Two harpoons have holes in the
base for fastening the iron points to a toggle head. These could be used for spearing salmon during the annual summer run upstream. The barb was still present on two of the three iron fish-hooks found. The large iron eel spear or leister weighed 2 lb. 3 oz. It had a spear-shaped central shaft and three barbed points on each side.

**Edged Tools**

Examples of four trade axes were found, three of which are illustrated (Fig. 15). A blade fragment (not shown) was analysed and found to include a section of steel plate welded into the edge. Nine knife blades were recovered. Some were tanged and probably used for table service. Two clasp knives were included. One specimen of a wedge razor blade was recovered (Fig. 18f).

**Nails**

Nails account for the largest proportion of the artifacts recovered (Fig. 14). Concentrations of wrought iron nails and spikes were found during excavation at the cemetery for the possible chapel and priest's house. The lengths were 1\(\frac{1}{2}\) in., 2 in., 2\(\frac{1}{2}\), 3 in., and 4 in. Both wrought and cut nails were found in the basement structure at area J where heavy handmade spikes from 5 in. to 7\(\frac{1}{2}\) in. long were also recovered. Both wrought and cut nails came from the "trading post" excavations. Nails from area J, the school house basement, measured 1\(\frac{1}{2}\) in., 1 3/4 in., 2 in., 2\(\frac{1}{2}\) in., 3 in., 3\(\frac{1}{2}\) in., and 5 in. in length.
Hinges, Latches, Hasps, and Keys

Three butt-end hinges came from the cemetery and one butterfly hinge was found near the stone fireplace. Portions of nine broken latch parts and a sliding bolt holder were recovered. Three broken hasps were found (Fig. 17d-f). Two iron cabinet keys were also recovered (Fig. 17a,b).

Miscellaneous Iron and Steel Objects

Six fragments of cast iron cooking vessels were found. Two two-tined tanged forks were also recovered. Six examples of awls showed evidence of having wooden handles and one still had an iron ferrule around its central portion. One curved iron object probably represented a U-shaped steel or strike-a-light. Other iron objects included a jew's harp, barrow hoop and wire fragments, two S-hooks, and an iron ring.

Iron objects also included a large-headed tack. An iron arrow point measured 1\(\frac{1}{2}\) in. long. One iron hoe was the only agricultural tool. One complete steel trap jaw was found which measured 6 in. between the threaded jaw posts.

Coins

Four copper coins came from Meductic flat. They are described below with notes from Breton (1894).

Me 426 Half Penny Token. Issued from 1812 through 1815.
Me 906 Front inscription: VICTORIA NOBIS EST. No date.
Me 996 Difficult to distinguish inscription on back of coin. Half Penny Token or One Penny Token.

Me 1527 PROVINCE OF NOVA SCOTIA, HALF PENNY TOKEN 1832. 800,000 of these tokens were issued. There were seven varieties of which there were a number of counterfeits.

Buttons

One of the most interesting finds was a gilt button of THE KING'S AMERICAN REGIMENT. The button is marked "S. F." (superfine) on the back. Land grants in New Brunswick were made to soldiers of this regiment in 1787. A similar button from Fort Erie on the Niagara River has been described by Calver and Bolton (1950: 130). One brass ball button, was recovered. A small plain cast pewter or white metal button with pressed-in brass wire eye was included. A second cast button (fig. 20i) was the type used by both the military and civilians from about 1760 until the close of the American Revolution (Olsen 1963: 551).

Miscellaneous Copper and Brass Objects

Copper objects included a container lid which was 5½ in. in diameter. Two copper tinklers were found. One still held the knotted remains of cedar root string inside. Two brass handles (Fig. 20d, e) were from hunting knives or bayonets. Two knife handles were included (Fig. 20f, h) and a small brass cruxifix 1¼ in. long was found.
Miscellaneous Lead Objects

Items made of lead included two discs with holes in them which could have been used as fishing sinkers. A child's ring without the setting which was either lead or pewter was found.

Ceramics

Many ceramic fragments were found. Most were small pieces. This included fragments of milkpan-shaped vessels composed of a coarse earthenware body covered with a lead glaze. One half of such a vessel was recovered at the "Trading Post" site. It measured 17\(\frac{1}{2}\) in. in diameter and 3\(\frac{3}{4}\) in. high.

English creamware was the most common variety of ceramics excavated from the site. The white earthenwares of English origin included transfer and blue-edged and green-edged examples.

A single sherd of salt-glazed stoneware with a seal showing a New Brunswick origin and one fragment of blue painted, tin-glazed earthenware were included in the ceramic inventory.

Glass

Bottles and Tableware

Specimens of glass were sent to Mrs. Huia Ryder, New Brunswick Museum, for identification. These include the pieces identified below:
Me 36,37  Pieces of a wine bottle made between 1775 and 1825.

Me 38  Part of bowl of a clear wine glass, possibly 18th century.

Me 253  Octagon bottle.

Me 1339  Push-up base of early 18th century bottle. The blue color over the green may indicate that the bottle had been buried in soil containing traces of manganese.

Me 1505  Dark green rum bottle dating from the last quarter of 18th century.

Me 1568  Fragments of a light green tapered gin bottle, mold blown, dating from the early 19th century.

Me 1575  A portion of an ornamented glass jug, green and white in color (mottled), identified as being made in 1878 to commemorate the visit of the Marquis of Lorne to Canada.

**Window Glass**

Fragments of very thin window glass were found in small quantities in connection with the excavations for the possible chapel and priest's house, the "trading post"
and the possible school house. None of this glass was modern and it could all date to the 18th or 19th centuries.

Glass Beads

Twenty glass beads were found in the various areas of the excavations. The beads were studied by Mr. Kenneth Kidd of Trent University, Ontario, who compiled the description of the specimens below:

- **Me 21** Wire-wound. Heart-shaped. Semi-translucent pale blue. 10 x 9 mm.
- **Me 105** Wire-wound. Heart-shaped. Semi-translucent deep blue. 9 x 11 mm.
- **Me 336** Wire-wound. Globular. Semi-translucent pale blue. 9 x 10 mm.
- **Me 337** Wire-wound. Short globular. Densely opaque blue. 7 x 9 mm.
- **Me 338** Wire-wound. Globular. Semi-translucent medium blue. 14 x 14 mm.
- **Me 640** Wire-wound. Cylindrical, layered glass. Nearly opaque white core; semi-translucent rose-pink overlay. Shape somewhat irregular. 9 x 6 mm.
- **Me 729** Wire-wound. Heart-shaped. Semi-translucent pale blue. 9 x 9 mm.
Me 730  Wire-wound (?). Globular. Semi-translucent cinnamon. 11 x 12 mm.

Me 808  Wire-wound (?). Ring-shaped. Densely opaque black with tiny flecks of gold. It is really impossible to determine if this is wire-wound, but it appears to be. 2 x 4 mm.

Me 809  Wire-wound. Ring-shaped. Layered glass. Very pale green semi-translucent core with opaque white overlay. Apparently the core was drawn and the wire-wound surface applied later. 2 x 3 mm.

Me 818  Drawn glass. Cylindrical. Layered glass. Semi-translucent green core, black overlay (opaque) and coral red opaque exterior. Highly glazed. 4 x 9 mm.

Me 833  Wire-wound (?). Globular. Opaque white. 7 x 8 mm.

Me 834  Bone button (?). Discoidal, elliptical in outline. 1.5 x 10.5 x 8.5 mm.

Me 922  Wire-wound. Ring shaped. The glass in this bead is heavily patinated and at present appears opaque whitish. The colour of the
original metal cannot be determined without
damage to the specimen. Shape somewhat
irregular. 6 x 13 mm.

Me 1219  Wire-wound. Flattened heart shaped, like a
kernal of Indian corn. Semi-translucent
cinnamon. 13 x 15 mm.

Me 1245  Drawn glass. Globular. Semi-translucent
medium blue. Somewhat irregular in shape.
8 x 7 mm.

Me 1246  Wire-wound and tumbled. Ring shaped. Semi-
translucent sky blue. Somewhat irregular
in shape. 2 x 3 mm.

Me 1456  Wire-wound. Large ring shaped, and somewhat
irregular. Opaque white glass core with an
overlay of a slightly less opaque white glass.
It may be that the core is a drawn bead, and
has been given a wire-wound surface.

Me 1257  Wire-wound. Ring shaped. Semi-translucent,
very pale greenish white. 11 x 14 mm.

Me 1416  Wire-wound. Ring shaped. Semi-translucent
amber. Somewhat irregular. 7 x 13.5 mm.
Me 1436 Wire-wound. Barrel-shaped. Semi-translucent green. Considerably weathered, hence the mode of manufacture difficult to ascertain. 4 x 5 mm.

Clay Pipes

Fragments of clay pipes were submitted to Iain Walker, then of the Fortress of Louisbourg, National Historic Park, for examination. Walker's study is given in the appendix. He identified examples dating from the middle of the 17th century to the middle of the 19th century.

Bricks

Bricks were found at the "Trading Post" and the school house areas. They probably were used in fireplace construction. Bricks at the "Trading Post" measured 2 in. by 3-3/4 in. by 7-7/8 in. The school house bricks at area J measured 2 in. by 4 in. by 8 in.

Stone

Four stone objects of Indian manufacture were recovered from the excavation. Three of these (Fig. 22) were circular flat grinding stones. The fourth objects was a sandstone pipe bowl in the process of manufacture.
1967 EXCAVATIONS

July

The first follow-up investigation was conducted by K.A. Coleman from 4 to 22 July 1967 (Coleman 1967). One of the reasons was to investigate a feature which appeared on the aerial photograph (Fig. 1) taken after the 1964 project. This feature appeared as a zig-zag line enclosing much of the north end of the flat and it was thought that it might be the remains of a palisade trench. Trenches were dug by hand and back-hoe across the depression, but it appeared to be only a surface phenomenon. It was later concluded that the feature was probably a pattern of dead furrows from plowing.

Coleman also carried out investigations in the cemetery vicinity excavated in 1964 to obtain more data. This included trenches at the stone feature thought to be a fireplace and also trenches in the suggested locations of the possible chapel and priest's house. No structural evidence of the buildings could be found.

Some of the 1964 trenches were refaced and several new trenches were dug in the possible fort area north of the cemetery. Coleman felt that the U-shaped stain features here were natural and not the results of a palisade ditch.
At the north end of the site, the back-hoe trench cut through this U-shaped stain and the excavators trowelled down to the black line seeking post moulds which would reveal a palisade, but none were found (Figs. 24, 25).

**September**

Salvage archaeology was carried out by E.A. Wylie to more positively establish the identity of the site before it was flooded (Wylie 1968). This consisted of trenches averaging 10 ft. wide with a maximum depth of 18 in. Nine trenches in the north field, where excavations were conducted in 1964, failed to find evidence of structures (Fig. 23). An Indian burial was uncovered by the river bank southeast of the cemetery and a firepit and scattered artifacts were found north of the cemetery. Trenches were also cut in the lower field south of the earlier excavations. Two firepits and one skeleton were found.
SUMMARY AND CONCLUSION

Most of the evidence of Indian occupation was uncovered at excavation areas C and F north of the cemetery where many firepits were found. Firepits were also uncovered nearer the cemetery at excavation area A and excavation area C where there was also a group of post moulds in a circular pattern.

Excavations in the field south of the cemetery resulted in the uncovering of a brick and beam-filled basement at excavation area J. The dimensions of the structure and date of the artifacts indicated it was probably Reverend Dibblee's school for the Indians built in 1788. Excavations nearby at area E uncovered an elongated concentration of charcoal and fireburned earth of an undetermined origin.

The cemetery which was the least disturbed portion of the site was investigated. One fully exposed Indian burial had evidence of a coffin. Other burials were noted but none were removed. Although wrought nails, window glass and various stains were found in excavation area H, there was no architectural evidence of the 1717 mission chapel as shown in the northwest portion of the cemetery by Raymond's plan. The vicinity of the stone fireplace was investigated in excavations areas K and L at the northeast portion of the cemetery. Wrought nails, thin window glass and concentrations
of ashes were found here which could have resulted from the burning of a building, but no foundation or clear architectural remains were present.

A feature in the soil stratigraphy, consisting of dark stains and disturbed fill which might have represented a ditch associated with the palisade, was the only probable evidence of the fortification. This feature was exposed in many of the trenches and generally followed the outline of Fort Meductic indicated by Raymond's plan. Although this feature was clear in some places, it was missing altogether in major portions of the projected course. It appeared that part of the south wall was found in trenches 14, 21, 13, 11 and 11A; part of the west wall was found in trenches 6, 5, 4, 3 and 22; and the north wall was found in trenches 29, 24, 27, 28, 34 and 32.

In addition to investigations in the field near the cemetery, a stone-filled cellar depression known as the "trading post" was excavated at the north end of the flat near Hays Creek. The date of this structure was not determined.

Further salvage excavations were conducted in 1967 by Coleman and Wylie of the National Historic Sites Service. Mechanical equipment was used to cut trenches through portions of the site including some of the areas excavated in 1964. Artifacts and various features were found but no additional evidence of the fortification or early structures were uncovered.
Local tradition and documents dating as early as the 18th century place the location of Fort Meductic at the north end of the flat where the old burial ground was preserved in the otherwise extensively cultivated flat. Fort Meductic had a major role in the early history of the area and it was important to determine as much as possible about the nature of the site. The excavations in 1964 and additional salvage work in 1967 investigated whatever archaeological evidence could be found at the site before it was flooded.
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1 Aerial view of site taken in August 1964. "A" marks location of Fort Meductic excavations in vicinity of the cemetery. "B" marks the location of the "trading post" excavations at north end of the flat. (Hunting Survey Corporation, Ltd. Montreal, Quebec) (RD-259 B).
2 Large wooden cross placed at old burial ground in 1925 to mark the site of Fort Meductic (7E-2 X).
Plan of 1964 Fort Meductic excavations. These excavations are in field marked "A" on aerial photo (Fig. 1).
Black slate tablet found in cemetery in 1890.

(New Brunswick Museum)
DEO
OPT. MAX
IN HONOR D. IO A. BAB
HOC TEM POS. AN. DC
M. DCCVII
MALECITÆ
M. P. IOA. LOYARD SOCIES
SACERDOTE
P. DANIE
LOU
6 Stone fireplace foundation adjacent to the cemetery.

(Photo by Mike Saunders, Woodstock, N.B.)
Excavation areas C and F. Firepits and burned rocks represent living areas.
Excavation area E. Ropes mark the outline of the charcoal stained area (7E-59 X).
Profile of "U"-shaped area of disturbed earth seen in wall of trench 11 outside of the south embankment of the cemetery. This moat-like depression was thought possibly to be a palisade ditch from the fortification (7E-53 M).
10 Fully excavated ditch (trench 11A) outside south embankment of cemetery (7E-54 M).
Excavation of basement at excavation area J.
Possibly Dibblee's schoolhouse.
12 Scattered brick, rocks and rotted remains of wooden beams in basement at excavation area J (7E-65 X).
Excavations at cellar of the "trading post" site. Cellar depression is at right. This excavation is marked "B" on aerial photo (Fig. 1) (7E-53 X).
Wrought nails and spikes. The longest spike (14d) measures approximately 7½ inches.
15 Three of the four axes excavated in 1964.
16 Knife blades. The longest (16h) measures approximately 9 inches.
17 Miscellaneous metal artifacts

a–b, cabinet keys

c, strike-a-light

d–f, hasps
18 Miscellaneous metal artifacts

a, c, e, spoon handles
b, d, forks
f, razor
g, oxen shoe
19 Iron gun parts

a, trigger guard (Me 576)
b, cock from sporting gun (Me 1143)
c, frizzen from civilian lock (Me 1410)
d, frizzen, early Brown Bess, 1720-30 (Me 482)
e, buttplate fragment (Me 1523)
f, sear, military lock (Me 297)
g, lockplate (Me 5)
h, triggerguard front end (Me 1399).
i, sideplate, flintlock (Me 1244)
j, sideplate (Me 1404)
20 Brass objects

a, b, possible flattened ramrod loops

c, tailpipe

d, e, knife or bayonet handles

g, possible triggerguard finial

h, knife handle

i, button
21 Harpoons, fish-hooks and spear

a-d, harpoon heads

e-g, fish-hooks

h, eel spear (leister)
22 Flat grinding stones.
23 Excavations at Fort Meductic in 1967. Aerial view shows wide trenches from salvage bulldozing investigations by Wylie. Burial ground is in lower center portion of photo. 1964 excavation areas are overgrown. Long, narrow trenches are from Coleman's 1967 backhoe digging (7E-43 M).
"U"-shaped depression marked by black lines which was exposed in 1967 by Coleman. It is located at north end of the 300 ft. long back-hoe trench seen in the lower portion of the aerial photo (Fig. 23) (7E-11M).
Another view of "U"-shaped depression (Fig. 24). Excavation at west side of trench (left) is where Coleman trowelled down to the black lines looking for post holes (7E-12M).
Appendix: A Study of Some Clay Pipes from Fort Meductic
by Iain C. Walker (1967)

The following fifteen clay pipe fragments from Fort Meductic, New Brunswick, were submitted to the writer for examination by Mr. Louis Caywood, the excavator, in the summer of 1964, through Mr. Edward McM. Larrabee, at that time Senior Historical Archaeologist, Fortress of Louisbourg.

Me 135: stem fragment with rouletted decoration bordered by impressed pendant triangles; bore diameter 6/64".

Me 155: bowl fragment, heel and stem fragment: indecipherable mark on left side of heel, W on right, raised; bore diameter 4/64".

Me 243: complete bowl with very beginning of heel or spur; an encircled TD with decorative motifs above and below impressed on bowl facing smoker; bore diameter 5/64".

Me 289: bowl fragment and base; bore diameter 5/64".

Me 330: stem fragment with W·MORC- raised on a recessed panel; bore diameter 5/64".

Me 375: heel, and stem fragment; N(?) on left side of spur, M on right, raised; bore diameter 6/64".

Me 475: spur, and heel fragment; bore diameter 4/64".

Me 864: spur, and stem fragment; two small round knobs on either side of spur; bore diameter 5/64".

Me 865: spur, and stem fragment; bore diameter 4/64".

Me 945: spur, and stem fragment; what looks like a mark appears on the left side of the spur, but it is probably a fortuitous mark in the mould - the other side of the spur is smooth; bore diameter 4/64".
Me 950: heel, and bowl fragment; an inverted U on left side of spur, S on right, raised; bore diameter 4/64".

Me 952: spur, bowl fragment and stem fragment, W on left side of spur, V on right, raised, bore diameter 4/64".

Me 1100: complete bowl and part of stem; bore diameter 5/64".

Me 1141: wall fragment of bowl; decorated with raised flutings and ribs, flowers and leaves.

Me ----: spur, bowl fragment and stem fragment; T on left side of spur, D on right, raised; bore diameter 4/64".

Me 1188: crudely made stem fragment of orange-brown clay; bore diameter 7/64".

Me 1248: less crudely made stem fragment otherwise similar to above example; bore diameter 8/64".

The only direct evidence of dating from this material comes from Me 330 (Fig. 1), the stem bearing the name W. Morgan on it; Me 243 (Fig. 2), the bowl with the decorated TD impressed on it; and the un-numbered fragment with the same letters raised on the spur.

An example of the first, marked W·MORGAN·LIVERPOOL came from the Anthony Hay site, Williamsburg, Virginia, together with a small group of ceramics and glass of the period 1760-80 sealed by a layer of rubble containing artifacts of the last quarter of the eighteenth century (A. Noël Hume 1964). Although full names on stems are known by 1670 (Oswald 1960: 50; 1961: 56) the putting of the marker's name in full on the mould, often with their
town of manufacture, appears to have been introduced not much before c.1800 (Oswald 1960: 50; 1961: 56; Atkinson 1962: 188). Oswald (1960) does not list a William Morgan from Liverpool though a number of other Morgans there are noted in the late 1700's and early 1800's, but Omwake (1965a: 16-7) says that the William Morley of Liverpool noted by Oswald in 1767 is in fact William Morgan who began making pipes in that year and that the William Morley noted by Oswald in 1803 was William Morgan (Junior), son of the other, who became a freeman in 1803. At present, therefore, the fragment from Meductic could have been made by either Morgan and would thus be datable to sometime between 1767 and the first quarter of the nineteenth century. In view of the Williamsburg evidence, name and place of maker, moulded on the stem could be rather earlier than Oswald and Atkinson have suggested.

The letters TD on clay pipes have an extraordinarily extensive range in time and space; and the writer has published a preliminary study of these pipes (Walker 1966a). However, the design on this example is known from both American and British sites of the American Revolutionary War in the 1770s (Wilson 1961: 130; Calver 1931: 93) and from other contexts dating as early as the 1750's (quoted in Omwake 1965b: 18-9). At Louisbourg (Walker: MS) they occur in contexts of 1755 and later. The fragment with these letters on the heel belongs to the same type, or more accurately, series of types, as sub-varieties can be detected. Me 243 is rather unusual in that the plane of the top of its bowl is not parallel with the line of the stem (fig. 3 left): by the eighteenth century English pipes almost invariably had the plane of the top of the bowl parallel to the stem, or virtually so, but the bowl shape here is basically of Oswald's type 9 (Oswald 1961: 60). At Fort Michilimackinac, Mich, this particular type appears to be among the earliest types of the original TD pipes and datable to 1755-65 (Omwake 1962: 1-2).
The fluted bowl fragment (fig. 4) has a plaster-like texture which is probably a relatively late feature. Fluted ornamentation on pipes seems unlikely much before the last quarter of the eighteenth century (Omwake 1957b: 20): its earliest occurrence appears to have been in France (Duhamel du Monceau 1771: figs. 21, 29). They have not so far been encountered at the Fortress of Louisbourg, but have been found at Fort Michilimackinac (Petersen 1963: 3, figs. 15, 17) which may indicate their general introduction between the end of military occupation at Louisbourg (1768) and that at Michilimackinac in 1781. Fluted bowls are most common c. 1780-1820 in Virginia (I. Noël Hume 1963: 262, 264-5). They were found at Fort Atkinson, Neb, 1820-7 (Omwake 1964a: 19) and at Kipp's Post, N.D., c. 1826-30 (Woolworth and Wood 1960: 272-3; 253-5; Omwake 1964a: 19). Ones found at Kingston-upon-Hull, England (Sheppard 1912: 35), and York, England (O'Neill 1961: 379, fig. 1 nos. 21, 22; 381), were attributed to the early nineteenth century and similar ones in north-east England are dated 1780-1840 (Parsons 1964: 236). At Portland Point, New Brunswick, examples were assigned to the second quarter of the nineteenth century (Omwake 1957b: 22) as was an example from Fort Lookout Trading Post II, S.D. (Miller 1960: 66, 81) where the pipe material closely paralleled that from Portland Point. At Fort Laramie, Wyo., they were attributed to a period straddling the middle of the nineteenth century (Wilson 1961: 130), and they occurred at Fort Vancouver, Wash, occupied from 1826 to 1860 (Caywood 1955: 59-60, fig. 16). Fluted bowls similar to the Fort Meductic example came from Penetanguishene, Ontario, a military establishment occupied between 1826 and 1856, and Fort Fetterman, Wyo., 1867-82 (Omwake 1964a: 19; 1965a: 17). They occur in England from c.1780 onwards (Oswald 1960: 52; Parsons 1964:
236 fig. 1, of Atkinson 1964: 76, 78). Bowls of this type need not have been made in England, however - they were certainly being made in Scotland, and in Canada in the second half of last century.

Me 1100 (Fig. 3 right) is a good example of Oswald's type 9c: this was a version of type 9 apparently made specifically for the North American market without the spur or heel that is almost invariably on English pipes of this type. Oswald dates type 9 to c.1680-1730 (Oswald 1961: 60), although in North America at least, type 9 and its variants and derivatives appear to have been universal long after this period and certainly as late as c.1780 (I. Noël Hume 1963: 262). This example most closely resembles a type dated by Noël Hume to 1680-1740. The type is known from Louisbourg, though so far only rarely and not from any closely datable context.

Taken at its face value, the evidence might indicate occupation - probably discontinuous - from as early as the first half of the eighteenth to as late as the second half of the nineteenth century. Me 1100 seems certainly to indicate some occupation during the first half eighteenth century, though in the absence of any other evidence at present no more can be said. Me 243 indicates occupation during the second half of the eighteenth century and almost certainly before c.1780, and Me 330 is datable to the period c.1770-1830. Me 1141 could date to anywhere between c.1775-1875 - in the absence of other evidence it might be taken as confirming the evidence of Me 243 and Me 330 that the major period of activity on the site lay in periods straddling 1800 by some thirty years in either direction; on the other hand it might indicate an appreciably later occupation.
The only other certain marks, WV and US, are not listed either in Oswald's list of English makers (Oswald 1960: 55-102) nor among more recent additions to this list (Atkinson 1964: 75-81; Parsons 1964: 249-54), and the fragments are certainly not Dutch in style - these letters are not recorded at Gouda, the principal centre of the Dutch industry (Helbers and Goedewaagen 1942). They possibly belong to an unknown English maker, but may have been manufactured elsewhere. If they date to the nineteenth century they could have been manufactured in Scotland, particularly in Glasgow from where there was a major trade in pipes to the New World last century (Fleming 1923: 236-7); or in the United States (Anonymous 1962; Petersen 1963: 3; Omwake 1964a: 4-5 - there is considerable variance among some of these accounts); or even in Canada (Sackett 1943: 70; Wilson 1961: 130-2; Walker 1966c, 1967).

Regarding Me 375, only two English makers with the initials MM and one with the initials NM are known (Oswald 1960: 83; Parsons 1964: 252) - Nicholas Martinmore was working in Bristol in 1722, Margaret Marshall in Gateshead in 1787-9 and Michael Martin in Woolwich, London, in 1847 - but there are a dozen makers with the initials WM between 1700 and 1856 (Oswald 1960: 84; Parsons 1964: 252) and in view of the lack of detailed dating evidence it is not practical to identify a maker for this pipe. Again, the maker need not necessarily have been English. However, the style is certainly not Dutch - Helbers and Goedewaagen do not list the letters MM, NM or WM at Gouda, though Helbers subsequently noted (Omwake 1965a: 5) that the mark WM was in use at Gouda in 1726, later surmounted by a crown, until 1809. However, quite apart from the fact that Dutch pipes are recognizably different from English, even in quite small fragments, Dutch marks are impressed on the pipes in a distinctively characteristic way.
The two stem fragments, Me 1188 and Me 1248 (Fig. 5), are quite outside the usual run of clay pipe material. They appear to be the same as those found at Pemaquid, Maine, where they are particularly common on what is believed to be a trading post of the first half of the 17th century (Camp 1966). Those at Fort Meductic could thus belong to the 17th century occupation at the site — possibly to the pre-European period — and it seems likely that they came by trade up the Penobscot valley. Similarly coloured pipes, also with large stem bore diameters, come from 17th century Virginia (Harrington 1951; Cotter 1958: passim; Noël Hume 1963: 266) where they appear to be locally made — among the earliest Jamestown settlers was a pipemaker (Oswald 1960: 65). However, after examining Pemaquid examples, Noël Hume (quoted in Camp 1967) noted that the texture of the clay of these examples was different from that of Virginia red clay pipes and was of the opinion that the former were not Virginia exports.

In February 1967 another, larger, sample of pipe material from Fort Meductic was sent by the excavator to the author. Most of this material, however, comprised small bowl fragments; the material amplifies, but does little to change, the conclusions drawn from the initial material.

Me 238: bowl fragment; fine rouletting round rim.
Me 323: bowl fragment; leaf decoration up mould line on side away from smoker.
Me 324: bowl fragment; part of encircled TD with motif below letters.
Me 480: bowl fragment; fine rouletting round rim (cf Me 238).
Me 525: stem fragment; similar decoration to Me 135; bore diameter 5/64".
Me 571: bowl fragment; fluting.
Me 577: spur, and bowl fragment; fluting on bowl.
Me 626: bowl fragment; fluting and leg of a bird.
Me 692: bowl fragment; fluting.
Me 693: bowl fragment; fluting.
Me 717: stem fragment with rouletted decoration and lines of touching circles bore diameter 5/64".
Me 975: bowl fragment; fluting and bird (cf Me 626).
Me 991: bowl fragment; fluting and branches; bore diameter 4/64".
Me 990: bowl fragment; fluting.
Me 1013: bowl fragment; part of Prince of Wales feathers-like motif on mould line facing smoker.
Me 1031: bowl fragment; similar decoration to Me 1141.
Me 1082: bowl fragment; similar decoration to Me 1141.
Me 1083: bowl fragment; fluting and foliage.
Me 1106: heel, stem and bowl fragment; fluting; bore diameter 5/64".
Me 1111: bowl fragment; foliage.
Me 1112: bowl fragment; area below rim decorated with a band of raised vertical lines.
Me 1134: bowl fragment; fluting and grape-like cluster.
Me 1145: bowl fragment; branches and part of TD probably inside shield.
Me 1157: stem fragment; similar decoration to Me 135; bore diameter 5/64".
Me 1359: bowl fragment; fluting and foliage up mould line side away from smoker.
Me 1395: bowl fragment; fine rouletting round rim (cf Me 238).
Me 1561 or 1562: heel, stem and bowl fragment; letter resembling I on left side of heel, E on right, raised; bore diameter 5/64".
Me 1562 or 1561: heel, stem and bowl fragment; no visible mark of left side of heel, mark resembling three very small hollow circles in horizontal line, raised; bore diameter 6/64".
Area J, no catalogue number: stem fragment; similar decoration to Me 717; bore diameter 4/64".
Area J, no catalogue numbers: three bowl fragments, two with fluting and one with foliage, including up mould line on side facing smoker; this last has a bore diameter of 4/64".

Unknown area, no catalogue number: heel and bowl, and stem fragment; what appears to be an I sideways on left side of heel, possibly K on the other; bore diameter 5/64".

Unknown area, no catalogue number: spur, bowl and stem fragment; letter IP raised inside a double circle on right side of bowl; bore diameter 4/64".

Of the above material, relatively little is closely datable; the amount of bowl fragments with typically 19th century decoration noted should not be taken as implying that a disproportionate amount of the Meductic material was in fact of that period, for undecorated bowl fragments, not listed, comprise at least as large an amount. However, it does indicate a very definite occurrence of 19th century material in the area. Examples of the motif found on examples Me 626 and Me 975, for example, occur on a number of occasions at Coteau-du-Lac, a fort on the St Lawrence at the Quebec-Ontario border, where the occupation is mainly 19th century. Unfortunately, closer dating cannot be given.

The initials IE on fragment Me 1561/2, if such are the letters, are those of 19 makers listed by Oswald as working between the last quarter of the 17th century and the middle of the 19th (Oswald 1960: 68-9). From the appearance of the heel, it seems unlikely that this fragment would date to the earlier half of this period, but beyond that nothing can be said.
The unlocalized specimen with the initials apparently reading IK has its bowl complete (Fig. 6). Typologically this bowl is of Oswald's type 9 (Oswald 1961: 60, 61) and most closely approximates a cross between two types both dated by Noël Hume (1963: 261) to 1720-80. Unfortunately, Oswald lists no known makers with these initials, or indeed any with surnames beginning with K. (The only two listed by Parsons (1964: 252) are mid-19th century in date, and are certainly not the makers of the example here).

Fragment Me 324 has a rather poor version of the classic early TD mark of 1755-80 (Walker 1966a). One example of this particular style is known to the writer from Louisbourg: it did not come from a datable deposit, but it did come from an area known to have had post-1760 occupation. No example of this particular style occurred in the 1755-60 material studies by the writer at Louisbourg (Walker MS) but other examples of plagiarism of these letters did and the numerous other variants occur, clearly very shortly after the initial use of the letters TD (Walker 1966a). It is therefore reasonable to suggest that this fragment from Meductic represents a pipe datable to the 1760s or 1770s.

Enough of the bowl of the unlocalized pipe with the IP cartouche (Fig. 7) remains to date it typologically. Its shape is that of an Oswald type 9a, dated by Oswald to 1680-1730 (1961: 60, 61), with traces of the bulged shape of the pre-type 9 pipes evident. It should date probably to 1680-1720. Of the 57 makers noted by Oswald as having these initials (1960: 86-7) at least 20 would fall into this period. The use of raised circular cartouches on the side of the bowl - almost invariably in the right side as the smoker looks at it - appears to be more common on English pipes found in North America than on those found in England: however, those which do occur in England appear to be restricted to the West Country (Gloucestershire, Somerset and the surrounding area) and do
include examples of the letters IP (Oswald 1959: 60). However, there are 11 makers with these initials from Bristol alone over the period in question, so that there appears little profit in enumerating them all.

The three bowl fragments with fine rouletting round the rim - Me 238, Me 480, and Me 1395 - are Dutch, and appear to be of 18th century material, although fragment Me 238 is unusually thick and might conceivably be later. On the whole, the presence of Dutch material on a non-Dutch site suggests the presence of French settlers and/or traders.

The rouletted stem Me 135 (Fig. 8 upper) and Me 717 (Fig. 8 lower) are similar to types found at the Fortress of Louisbourg, Nova Scotia, 1720-60.

It can thus be seen that the above material parallels, though with perhaps fewer details, the earlier material studied: the majority of identifiable material suggests a later 18th and 19th century occupation, while one example - this case the bowl with the IP cartouche - suggests early 18th century occupation.

The use of rouletted lines on stems, as found on examples in both samples sent the writer, is known in England during the second half of the seventeenth century: Llewellyn Evans of Bristol who gained his freedom in 1661 and was still alive in 1691 used two bands on either side of his initials and a band of diamonds (Omwake 1958: 10-11; 1963: 40-2, Pl. IIB). A similar form of decoration with the letters IF has also been found. As Evans was an apprentice of a James Fox of Bristol who gained his freedom in 1654 (Omwake 1957b: 6; 1962: 19), it is highly probable that the stems lettered IF belong to Fox. The fragments with rouletted decoration from the John Howland House at Rocky Nook, Kingston, Mass, and datable to the period 1650-80 (Deetz 1960a: 9th page, 5th page fig. 1, 10; 1960b: 4) may well have come from these two makers.
However, similar if not identical decoration was used by the Dutch: Dunhill (1923: 222) illustrates a late seventeenth century Dutch pipe with this decoration and several fleurs-de-lys; and at Fort Ticonderoga, N.Y., several Dutch and German stems show banding of different types round the stem, one with fairly close parallels being marked IN. GOUDA (Gifford 1940: 123, 130-1 figs. 27-8, 36-9). Further, at Louisbourg, rouletted stem decoration, bordered, as is example Me 135, with impressed triangles, occurs with a bowl bearing a Gouda mark—the crowned ES (Walker 1966b); and rouletted decoration without edging also occurs there on bowls of the same appearance and shape without marks (at least on the parts that survive). Stems with rouletted decoration bordered by or incorporating a run of circles have not been found with Dutch bowls, but a stem with rouletting bordered by PLENS at one end and GOUDA at what is probably the other end has been found at Louisbourg. At Fort Michilimackinac (Omwake 1965b: fig. V, 17) the same decoration edged with C:D:ROOS and GOUDA occurred. A bowl of Dutch shape, unmarked, with a slightly different rouletting on the stem edged with what appears to be a lattice pattern at one end, has also come from Louisbourg. Rouletting is included on an extremely baroque late seventeenth century Dutch clay pipe probably from Gouda (Brongers 1964: 46) and along with edging similar to the circles and also zig-zag lines or triangles, on other Dutch stems (Douwes 1964: 367).

A stem with rouletting and lines of circles and triangles came from London: its suggested date was c.1660-70 (Atkinson 1965: 251 fig. 5, 252) though the reasoning seems doubtful. At Louisbourg rouletted stems appear to be more common during the earlier part of its occupation, particularly in one where perhaps half the material was Dutch, which may be significant as the French, who occupied it between 1720 and 1745 would have been more likely to have obtained pipes from the Dutch
than the English, while the English who occupied the Fortress between 1745 and 1749 and again after 1758 certainly would not have obtained many pipes from the Dutch. Stems with rouletting and the lines of circles were also found at Fort Michilimackinac, Mich, (Petersen 1963: fig. 27) occupied by the French from c. 1714 to 1761 and by the English from then until 1781, and some were found at Santa Rosa Pensacola, Fla, (Omwake 1964b: 15-6, 26) where most of the pipe material was Dutch. The site was occupied by the Spanish between 1722 and 1754.

However, hundreds of such stems were found at the mission site of St. Francis Xavier IV, Caughawaga, opposite Montreal, Quebec, datable to 1696-1719, but here, although the French might have been expected to trade with the Dutch rather than the English, the stems were associated with hundreds of bowls bearing the marks of Bristol, England, makers (quoted by Omwake 1964b: 31-2). This certainly appears to confirm the contention that such decoration was being used by Bristol makers during the second half of the seventeenth century at least. Further, French sites in Alabama and Louisiana have no Dutch pipe material but plenty of English (quoted by Omwake 1964b: 32). It would thus appear that rouletted decoration was being used by both Dutch and English makers, the latter probably differing in that they used the lines of touching circles as well, while the Dutch edged their bands of rouletting with impressed triangles (cf Douwes 1964: 367; Walker 1966b). Thus examples Me 135 (Fig. 8 upper), Me 525, and Me 1157 here are likely to be Dutch, while Me 717 (Fig. 8 lower) and the uncatalogued example from area J are likely to be English.
In the nineteenth century at least, heavy ridged decoration moulded on the stem seems to have been popular among French, Dutch and German makers to judge from the way pipes made in northern France by Peter Dorni c.1850 with this type of stem (Omwake 1961: 12-15) were being copied at Gouda c.1880 (Sackett 1943: 77, 78 fig. 2; Omwake 1961: 14; Fairbanks 1964: 48, 49) and Hohr, near Koblenz (Gifford 1940: 131, 123 fig. 27).

The Harrington (1954) and Binford (Maxwell and Binford 1961: 107-9; Binford 1962: 19-21) methods of statistically dating pipe stem fragments were applied in order to compare their results with the above evidence, though both Harrington and Binford noted that their systems broke down towards the end of the eighteenth century. Further, 25 specimens - excluding Me 1188 and Me 1246 as being statistically meaningless - is a very small sample, especially as several hundred other stems were subsequently recovered from Fort Meductic and these could alter any calculations quite profoundly. A. Noël Hume (1963: 22-5) has shown that while it appeared to take a minimum of 900 to 1000 fragments to obtain a consistently stable date (plus or minus six months or less) by the Binford method - increasing percentages were taken at random from a deposit of over 12,000 fragments - sites in Virginia which had terminal dates before c.1760 gave good results whether the number of stems was 17 or 190. Later sites, whether with 31 stems or 485, gave inaccurate results, and increased in their inaccuracy (by giving dates too early) into the nineteenth century.

The Fort Meductic material studied by the writer was measured with the ungrooved ends of drill bits - Omwake (1965a: 14) has noted that this is the only accurate way of measuring the bores, as the grooved end permits a certain amount of play which allows that end to penetrate a short distance when the butt end would not.
Experiments at Louisbourg (Walker 1965: 60-64) suggest that by using the grooved end, the dates obtained even from taking the drills that fitted most comfortably were between two and five years earlier than those obtained from using the blunt end; while dates using the tightest fit — that is, when a bit entered only partly way into the stem — were between 11 and 18 years earlier than those obtained by using the blunt end. However, in one area at Louisbourg the dates obtained by using the ungrooved ends were between 10 and 15 years later than was indicated by the historical evidence, and the indirect evidence from the pipes themselves, indicated. It seems likely that this was caused by a large amount — perhaps as much as half — of the material in question being Dutch. Harrington (1954: third page) specifically excluded such stems as they had smaller bores than English pipes of the same period. Harrington also noted that Dutch pipes appeared to be shorter-stemmed than their English contemporaries, and this too could affect dating calculations, although Omwake (1957a: 2; 1965a: 15-16) has suggested that there was no appreciable difference in bore diameter between Dutch and English pipes.

The following diagram records the application of the Harrington method to the material sent the writer.

![Diagram showing the application of the Harrington method to the material sent the writer.](image)
This would indicate a date early in the 1750-1800 period, and the Binford formula gives a median date of 1756 for these figures.

At the beginning of this century, drawings of some pipes found on the site of Fort Meductic were published (Kain 1903) (Fig. 9). Of these, nos 4 and 7, which seem to be of identical design, appear to be very similar to the fragment illustrated in Fig. 4, and undoubtedly belongs to the nineteenth century.

Nos 2 and 3 are also fragments of identical pipes, the bowls having fluting, branches, sheaves of grain, and astride the mould line facing the smoker an antlered deer. Again, such baroque decoration is typically 19th century (cf Oswald 1960: 52), though the writer does not know of any exact parallels to the motif here. Kain notes that at the time when he was writing, a clay pipe-making firm, name of Poole, was still manufacturing at Saint John, N.B.

No 1, however, is of typical eighteenth century shape, closely resembling a type illustrated by Atkinson (1965: 253 fig. 6 No 3, 254) and dated by him to the beginning of the eighteenth century. Atkinson lists a large number of makers' initials appearing on either side of the spur and surmounted by a crown (as here), including the initials WB and VM, but unless the second initial on the pipe illustrated here is known, not even a tentative identification can be made. Pipes with initials crowned in this fashion occur on London pipes that typologically cover the period c.1680-1760 (Atkinson 1965: passim), and they occur on pipes at least as late as the latter date at Louisbourg (Walker 1966a: 95 figs. 9 and 10, 98-9; Walker MS). The bowl shape shown by Kain, however, suggests a date in the early 1700s.

The left side of the fragment (No 5), with G on the right side of the heel would need to be known before identification could be attempted - if the letter on the other side were W it would be datable to the last 30 years or so of the eighteenth century, being in fact an apparent copy of the TD pipes of the period (Walker 1966a: 98-9).
The bowl fragment (No 6) with what appears to be the letters LE on the side facing the smoker, however, could belong to the second half of the seventeenth century, for the style of mark appears to be English rather than Dutch (the letters are illustrated, surmounted by a crown, in Helbers and Goedewaagen (1942: Plaat VIII) on an eighteenth century board illustrating makers' marks, but they are not mentioned in the text) and there is only one known English maker with these initials, Llewellyn Evans, who worked in Bristol from 1661 until at least 1691 (Omwake 1957b: 4-7). The bowl shape, as much of it as can be judged from the drawing, agrees with this dating, as does the apparent line visible below the mouth of the bowl, if this line is the rouletted or incised line usually found on English (and Dutch) pipes of this century. However, at Portland Point, N.B., these letters were included in a decorative motif (Walker 1966a: 100; Omwake 1957b: 4-7) while the letters on this example are plain.

In view of the other evidence, the Binford date of 1756 is rather early, although occupation material of the first half of the eighteenth century, of which Me 1100, the example with IP on the bowl, and some of Kain's material, are indications as evidenced, could be responsible for this. However, by the nineteenth century, dates from the Binford formula are the better part of a century too early - at the Post Office Site, Williamsburg, Va, datable to 1817-20, the Binford date was 1751 (A. Noël Hume 1963: 23), at a site on Mackinac Island near Fort Michilimackinac where hearths datable to 1805 gave a reading of 1732 (Binford 1962: 20) and at Kipp's Post, N.D., a date of 1758 was calculated for a site occupied between c.1824-1830 (Omwake 1964a: 16). As the evidence of Me 243, Me 330 and Me 1141, the relatively large number of decorated bowl fragments, and the majority Kain's material, suggests the major occupation to have been in the 1770-1830 period, probably continuing or recurring later,
It is quite possible, if the majority of the Meductic material is later 18th century and 19th century, as it certainly appears to be, that the Binford and Harrington methods are not applicable to the Fort Meductic material.

Finally, however, we have to consider the bore diameter evidence from the remaining pipe fragments excavated but not examined by the writer. In all, stem bore diameters of 478 fragments (excluding the crudely made red stem fragments) were measured by the excavator (letter to writer dated 18th January 1966), giving the following proportions:

<table>
<thead>
<tr>
<th>Bore Diameter</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/64&quot;</td>
<td>55</td>
</tr>
<tr>
<td>5/64&quot;</td>
<td>329</td>
</tr>
<tr>
<td>6/64&quot;</td>
<td>76</td>
</tr>
<tr>
<td>7/64&quot;</td>
<td>9</td>
</tr>
<tr>
<td>8/64&quot;</td>
<td>9</td>
</tr>
<tr>
<td>TOTAL</td>
<td>478</td>
</tr>
</tbody>
</table>

It is likely that these figures indicate occupation - either continuous or sporadic - over a fair length of time. Bore diameters of 8/64" had gone out by c.1680 and those of 7/64" by c.1710 (cf Walker 1965: 63) - none of the latter are known to have been found at Louisbourg, where the earliest material studied occurred in historically datable contexts of the 1720s, this agrees with Harrington's observation that this bore diameter does not occur after c.1710. On the other hand, 5/64" bore diameters - by far the most common here - were only appearing c.1680, and 4/64" bore diameters only c.1700. Assuming that the 8/64" and 7/64" bore diameter stems represent the same time period here, a date in the middle of the 17th century is indicated for these examples. The small number of fragments would indicate only minor trading of pipes. The proportions of 6/64", 5/64", and 4/64" bore diameter fragments suggests a major occupation of the site in the first half of the eighteenth century, and the Binford date from the examples of these three bore diameters only is in fact 1739. (The Binford date for the entire 478 fragments is 1735). However, there is not a big enough gap between the figures from these fragments and those of the 17th century fragments to preclude the possibility that the latter might not belong to a period immediately previous to, and bearing a continuous relationship
with, the first half of the eighteenth century; in other words, there might have been a minor contact between Europeans (or European trade-goods) and Indians in the last quarter of the 17th century which blossomed into a major trade in the first half of the 18th century. As can be easily seen, this evidence is much more in accord with the historical evidence than the evidence of the pipes actually examined by the writer. However, the latter evidence still indicates 19th century occupation material on the site, so that it is fair to say that the entire pipe evidence from "Fort" Meductic indicates Europeans and/or their trade goods on the site for some 200 years: In round figures, from the middle of the 17th century to the middle of the 19th century.

The historical evidence indicates that "Fort" Meductic was a fortified Indian village at Meductic, New Brunswick, in existence before the arrival of the first Europeans in 1671. Various reports of the last part of the seventeenth century and the first part of the eighteenth indicate it was the chief village of the Malecite Indians, and in 1717, the French built a church there. By 1782, however, it is described as "remains of old Breast work" and though the Indians returned for a few years following the establishment of a school at nearby Woodstock, they soon began to move north. It thus seems likely that the period which saw the greatest contact between Europeans and the Indians would be the first half of the eighteenth century. The evidence of the pipes available to the writer for study, however, hardly bears this out, and the relatively large amount of nineteenth century material must presumably be attributed to later, white settlement in the area.
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Woolworth, A.R. and Wood, W.R.

1 Stem fragment (Me 330) marked W·MORG[AN]

2 Bowl (Me 243) marked TD.
3 Bowl (Me 243); bowl and stem part (Me 1100).

4 Bowl fragment (Me 1141) decorated with raised flutings and ribs, flowers and leaves.
5 Stem fragments (Me 1248 and Me 1188) of orange-brown clay.

6 Pipe bowl and stem part (Me 1) apparently marked IK.
7 Pipe bowl (Me 2) marked IP.

8 Rouletted stems (Me 135 upper, Me 717 lower).
Drawings of some Fort Meductic pipes by S.W. Kain, "Trade Pipes", *Acadiensis* Vol. 111, No. 4, 1903