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Social Flux at the Naval Establishment at Penetanguishene, Lake Huron, 1817–1834

ABSTRACT

Factors influencing the spatial arrangement of buildings at the Royal Navy establishment at Penetanguishene on Lake Huron are discussed. Excavation at the naval hospital at this site provides new insight into the residential movements of the various social groups at the base. Analysis of stratigraphy and artifacts recovered from the hospital suggests that the assistant naval surgeon and his wife, military officers, and aboriginal people resided in the structure at various times over a 17-year period. Contemporary attitudes toward social and economic status, service rank/rating, and aboriginal people are explored within the context of the archaeological and documentary evidence to explain changes in residential patterning through time.

Social Complexity and Flux

Archaeological investigations at the Lake Huron Naval Establishment at Penetanguishene, Ontario (BeGx-37) (Figure 1) between 1991 and 2001 resulted in the recovery of more than 20,000 artifacts from several structures built and occupied by various groups of people between 1817 and 1834. This program of work, carried out by Wilfrid Laurier University students under the direction of the author, has concentrated on a part of the naval base referred to as the South Complex (Triggs 1992, 1994, 1998a) (Figure 2). Geographically, the South Complex is situated at the extreme south end of the base, distant from the north end by approximately 500 meters (Figure 3). It is precisely the peripheral relationship of the study area to the larger base that is key to understanding the social dynamics operating at the Naval Establishment in the early decades of the 19th century. Archaeological and documentary evidence examined below suggests that the nature and function of the South Complex changed through time in response to a variety of factors. For each social group examined, residential location is shown to have been a function of demographic changes, relations between naval and military personnel, social and economic status, ethnicity and prevailing contemporary attitudes toward native people in Upper Canadian society.

As will be discussed, the notion of *social geography*, defined as the distribution of social groups on the landscape as influenced by such factors as social and economic status, military rank/naval rating, gender, ethnicity, and other distinctions perceived by the population, is a useful concept for interpreting the archaeological and documentary evidence at the Naval Establishment. A wealth of written material exists for the years 1817 to 1834. Official correspondence and personnel records have been particularly useful in reconstructing the population at the base at various points in its history. Additionally, the various maps, watercolors, and contemporary naval surveys of the Naval Establishment in the 1820s (Wylie 1977) provide the necessary data for developing the geographic approach discussed below.

Archaeologically, the stratigraphic record associated with the naval hospital is represented by a compressed (35 cm on average) and complex series of layers, features, and interfaces (Harris 1989), which comprise the stratigraphic sequence. The more than 100 stratigraphic contexts at the naval hospital alone have been periodized using the available documentary records such that calendrical dates have been assigned to each period of occupation. The resulting chronology of the naval hospital, built up using the stratigraphic record, serves as the basic framework within which the written record is assessed. As is so often the case in historical archaeology, no single source in itself provides the necessary data with which to adequately address a research question, and a true understanding can only be achieved by combining both the archaeological and the documentary information.

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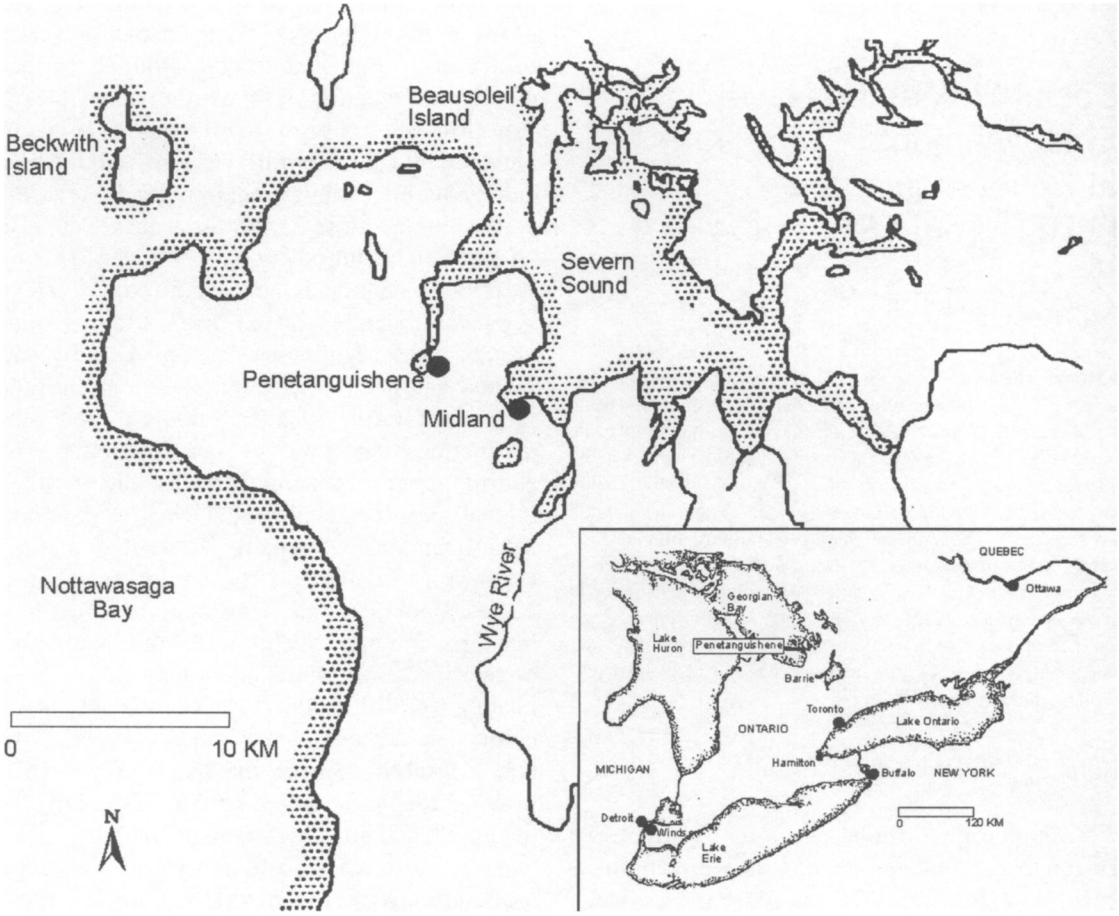

FIGURE 1. Penetanguishene on Georgian Bay, Lake Huron.

Archaeology of Social Groups

The archaeological investigations of past societies from the perspective of gender (Conkey and Spector 1984; Scott 1991; Spector 1991; Little 1994, 1999; Starbuck 1994), ethnicity (Babson 1990; Cheek and Friedlander 1990; Upton 1996), and socioeconomic position (Miller 1980, 1991; Garrow 1987; Ackermann 1991; Paynter 1999; Wurst and Fitts 1999) have met with varying degrees of success. A common problem in these studies is the inability of the archaeologist to state with confidence which group of people—defined on the basis of socioeconomic class, ethnic group, and gender—used a specific artifact or class of artifacts. These problems stem from the fact that gender, socioeconomic position, and ethnicity are so intertwined that it is difficult to make such distinctions when examining archaeological assemblages. This can be a problem even when investigating the elite groups in society for which documentation exists, but the problem is compounded when the disenfranchised, non-elite, or less-powerful groups in past societies (for which sparse documentation exists) are the subject of study, (Beaudry et al. 1991; Milne 2001). Elizabeth Scott (1991, 1994) has approached the problem of identifying these types of social groups through the perspective of gender. For Scott (1994:8) the triumvirate of gender, race, and class are cultural phenomena made more complex by crosscutting social divisions such as religion, age, and nationality. Despite the problems inherent in detecting who were the users of material culture in the past, an archaeologist working on any historic period site must at the very least be aware of

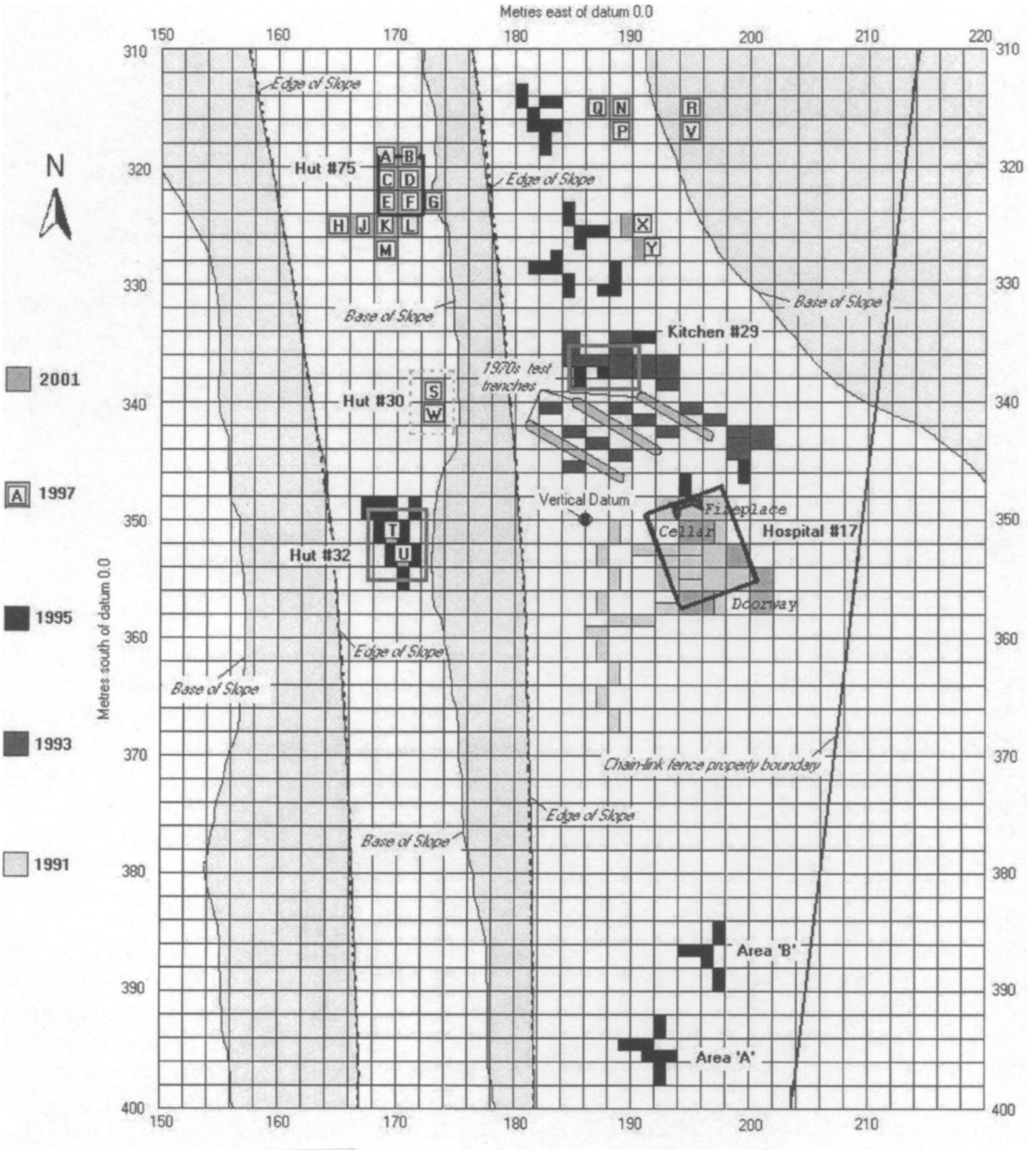

FIGURE 2. Archaeological site plan of South Complex showing areas excavated 1991–2001.

the diverse composition of the community under study in order to begin to achieve some understanding of past social dynamics.

David Starbuck (1994) is one of the first researchers to approach this problem in his examination of gender in a military setting in Revolutionary War camps. Women and children are recognized as comprising as much as 25% of the population at military camps from this period. Despite the contribution of so large a segment of the population to the archaeological record at a military site, equating artifact types and activity areas with gender, age, and ethnicity have not proven totally effective. One of the problems is that both men and women were consumers of the same material culture (Starbuck

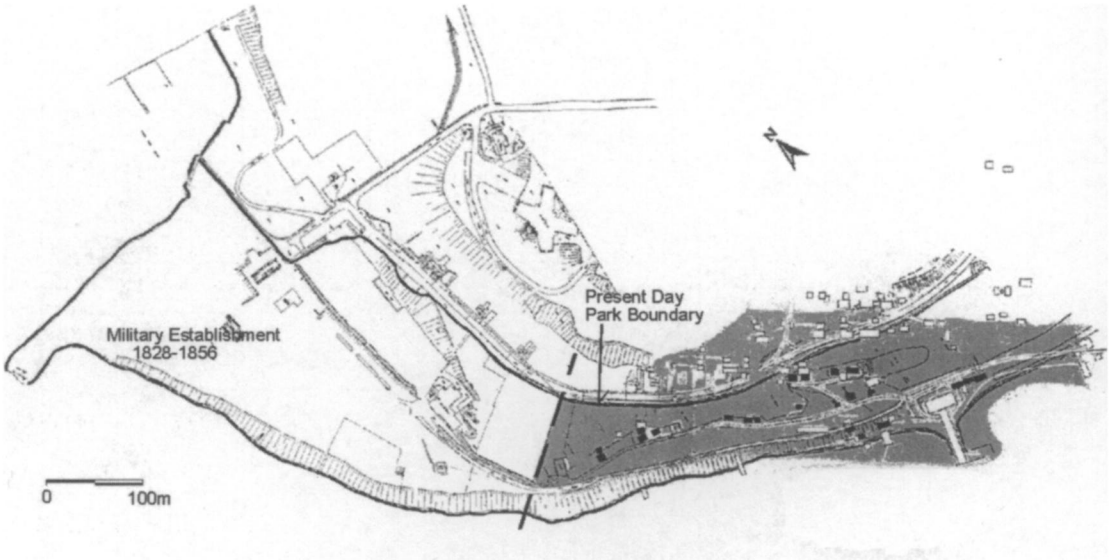

FIGURE 3. Plan of the naval and military establishments at Penetanguishene.

1994:117). As well, artifacts such as jewelry and other clothing items (thimbles, straight pins, hat pins, needles, brass or copper rings, small buckles, and hawkbells) suggest female use, but some of these were quite commonly used by men in the absence of women, and many of these objects functioned as items of adornment for both men and women in aboriginal society during this period (Starbuck 1994:125–26). While Starbuck's comments reflect the reality of the situation for most military contexts, the wealth and variety of historical sources together with the archaeological evidence at the Naval Establishment offers promise for exploring this issue further.

Social Environment at the Naval Establishment

The Naval Establishment at Penetanguishene on Lake Huron has been viewed historically as a base, primarily, where sailors, soldiers, and officers were stationed. In fact, the composition of the community at Penetanguishene was characterized by a social diversity more characteristic of the larger population centres in Upper Canada at this time. The society at the Naval Establishment during the early decades of the 19th century was composed of military officers and their wives, children, and servants; naval officers and their families; regular British army soldiers; civilian laborers or artificers, some with their wives; native men with wives and children; Métis, fur traders, and several notable people: e.g., John Galt, Lt. Henry Bayfield, and John Franklin. At any given time, members of the above sectors of the population were part of distinct, culturally defined social groups, living together within the larger Anglo-European class-defined culture.

In addition to social diversity, another characteristic of the Naval Establishment was the constantly changing composition of the community. During the period 1817–1834, personnel (officers, seamen, soldiers and artificers and their families, and civilians from Drummond Island) were posted to the base for varying periods of service, such that the population was in a perpetual state of flux. For the people at the base, a sense of impermanence was undoubtedly pervasive, a state quite uncharacteristic of a more settled community. It is difficult to say what effect this may have had on the daily interaction among the various members of each social group, but there is archaeological evidence to suggest that transience affected the organization of the community. Paradoxically, the *establishment* was characterized by a sense of impermanence; the population was fluid, but the infrastructure

(residences, facilities, work places) remained constant. As will be demonstrated, the social environment at any given time was manifested in the settlement patterns at the base. Aspects of social geography, such as residential mobility and permanence and the composition of the many resident social groups, are used to examine this phenomenon.

Social relations between the various groups at Penetanguishene are also well documented. Officially, relations between officers and enlisted men were defined by strict rules, and breaches in protocol were punishable in some cases by severe measures. Rank privilege was reinforced by clear, socially defined rules characteristic of the rigidly defined class society of 18th- and 19th-century Great Britain. Although there could be a relaxation of the rules of conduct under extraordinary conditions, under most circumstances these rules defined life at the base. Indeed, throughout its 17-year existence, the naval society was defined by a type of social geography reflected by such phenomena as the geographic separation of officers from soldiers by manmade barriers and natural topography, and the distribution of personnel, based on military and naval rating/rank, economic/social status, and ethnicity.

The community at the base represented a microcosm of English society at the turn of the 19th century. A class system was very much in evidence, and it can be said that a person's options in Georgian society were limited and largely determined at birth by reference to occupation, education level, ethnicity, religion, and gender. Superimposed on this civilian social system was the hierarchical ordering imposed on naval and military personnel. Superficially at least, a result of this system was a rigidly defined social hierarchy that sought to preserve as much of the underlying social system as possible. Interaction between officers and enlisted men, and among members within each of these categories, was determined by rank and enforced by regulation. Undercurrents of social distinction along lines of ethnicity and language (e.g., Anglophones and Francophones) and aboriginal people also may have served as a means of inclusion or segregation. When these variables are considered, it would be fair to assume that daily interaction between members of the community would have been restricted and subject to a complex set of rules governing individual behavior, some of which were codified and others a result of social conditioning.

In addition to the various ranks of naval and military personnel assigned to the base, another class of people attached to the establishment and employed by the navy as contractors were the artificers. These men were engaged in the many duties required by the constant maintenance of wooden ships. Most of them were not professional seamen and therefore could only be recruited voluntarily. Some of the more important artificers were granted the status of warrant officers at the discretion of the post captain (Pope 1998:53). Carpentry was the artisan skill most often found among this class of seamen. Other categories of artificers at Penetanguishene included the shipwright, blacksmith, and sawyer. Gross annual pay varied, depending on the number of days and months worked each year (artificers worked an 11-1/4 hour day usually 6 to 6-1/2 days a week [NAC 1815, 1816,1820a]), but on average the lowest paid artificers earned a little less than the annual pay for the assistant naval surgeon, while the highest paid men earned more than most warrant officers.

The last category of people attached to the navy were the women who could travel aboard ship and who also could accompany officers or a small number of seamen to their posts (although their numbers were restricted by regulation). In some situations, women were the epitome of English gentility such as the commanding officer's wife and sister-in-law, while in other cases women were employed as cleaning staff and as surgeon's assistants.

Naval Establishment at Penetanguishene

The history of the Naval Establishment at Penetanguishene begins with the Battle of Lake Erie in September 1813, when the British lost their naval superiority on the Great Lakes. After this decisive naval engagement, the British realized that in order to secure a supply line to Michilimackinac and other northwest posts, a naval dockyard was needed on the Upper Great Lakes. Although work began on the shipbuilding yard in spring 1817, the Rush-Bagot agreement was signed shortly thereafter, restricting British and American arms on all of the Great Lakes. After this date, all warships were to be

laid up in ordinary (decommissioned, de-rigged, and stripped of their armaments), with the result that Penetanguishene was relegated to serve as a storage depot and dockyard for vessel repair to keep the ships in a state of readiness.

Only a few buildings seem to have been constructed during the period 1817 to1819. By this time there was a sawpit, steam kiln, and blacksmith shop present. A more complete record of buildings at the post begins in 1822 when an official inventory of buildings by Captain Samuel Roberts and Assistant Surgeon Clement Todd reported the condition of 18 structures, some of which were already showing signs of dilapidation. This appears to have been a constant concern at the small post, as is indicated by a litany of dispatches requesting funds for building repairs. Even the commanding officer's (Captain Roberts) residence was "cramped, drafty and flooded in wet weather ... [and] much time and labor was required to keep the place in an acceptable state of repair" (Folkes 1980:16). In 1820, the hospital, the assistant surgeon's, and the senior lieutenant's houses received repairs, and chimneys were replaced in both the seamen's and the military barracks (NAC 1820b). Considering that the structures were scarcely three years old at the time of the survey, the rate of building deterioration at the settlement was alarmingly rapid.

The population of the Naval Establishment varied from year to year, but by far the greatest number was stationed at the base between 1817 and 1820. Personnel were assigned to the Yard, Ordinary or the Extraordinary. In 1817 the Yard consisted of the clerk-in-charge, storeporter, and quarterman of shipwrights, all civilian personnel, and six shipwrights. Twenty-five civilians were on the muster lists comprising 17 extra shipwrights, 2 smiths, 2 sawyers, and 4 oxen drivers. The "Ordinary" consisted of the commanding officer, Captain Roberts, two lieutenants, the second master, Assistant Naval Surgeon Todd, one boatswain's mate, and two able-bodied seamen. The "Extraordinary" were composed of 25 able-bodied seamen. A small military detachment, the 68th, consisting of 20 people (17 privates, a corporal, sergeant, and a lieutenant) was also stationed at the base to guard the naval stores. At various times, supernumeraries were listed on the muster and pay lists. These included the naval surveyor, a midshipman, boat crew, domestic servants (boys, second class), women, children, and civilian artificers. Finally, a fur trader, tavern owner, and civilian contractor, together with untold numbers of aboriginal families and Métis, represent a large segment of the population for whom sparse documentation exists.

This small population was reduced in the coming years during periods when the Royal Navy was experiencing financial difficulties. These naval reductions, referred to in much of the official correspondence at Penetanguishene, affected all posts, fleets, and personnel in the Royal Navy. As early as 1821, Captain Roberts was cautioned not to undertake any new works or purchase goods without written orders. All previously sanctioned improvements were canceled at this time. By February 1822, the admiralty decreed a wide reduction in all naval depots in the Canadas with the result that much of the Penetanguishene station was abandoned by summer 1822. At this time the lieutenant, assistant surgeon, three seamen, two servants, and a small detachment of the 66th Regiment (a military guard replacement for the 68th) were all who remained at the post.

Despite cost reductions in the navy, the military arm of the Crown continued to be a constant presence at the post as soldiers from various regiments were rotated through the base, usually on one- or two-year schedules. The duties assigned to the regimental guard were to protect the considerable stores of the ordinary and dockyard and act as a disciplinary force for civilian personnel attached to the post. Fatigue work, also a responsibility, became burdensome throughout the 1820s as the soldiers were increasingly called upon to transport goods by boat to other posts in the region, repair and maintain buildings, build and repair roads, and act as mess servants and boats' crew for official visitors. During the period 1820–1830, the complement of military personnel (enlisted men and 1 or 2 subalterns) fluctuated between 17 and 33, although 20 was the typical complement (Milligan 1978:6). Women and children listed on the muster rolls range in number from 2 in 1817 to 19 in 1826.

In contrast to the military personnel, naval personnel in residence at Penetanguishene between 1822 and 1828 were much fewer in number. The 1822 muster list specifies only 11 people at the

base at any given time (excluding an unspecified number of women and children). This number dropped to four for each succeeding year up to 1828 when only a commanding officer, medical officer, storeporter, and a single shipwright were in residence. During this period the presence of only one shipwright artificer on the navy muster lists best exemplifies the naval reductions compared to the earlier period when dozens of artificers, civilian contractors, and naval personnel were listed. This did not result in a shortage of workingmen at the base, however, since these duties were evidently taken up by the military soldiers on fatigue duty. Throughout the 1820s the population at the base was augmented occasionally by people such as John Franklin and his expedition members in 1825 and the Morgan and Hawkes survey team of 1822. Also, unspecified numbers of natives, fur traders, and merchants probably visited the post, but there is no indication in the written record of where these people may have been quartered within the numerous naval-built residential huts constructed between 1817 and 1820.

In the fall of 1828, the military complement at the naval base was further strengthened by the addition of 35 soldiers of the 68th Regiment of Foot. The arrival of the detachment at Penetanguishene represented an officially sanctioned transfer from the British naval depot at Drummond Island that had been ceded to the Americans in consequence of a boundary agreement. The men of the 68th were accompanied by other military officers and personnel, including a staff assistant surgeon, deputy assistant commissary general, clerk, and issuer, together with an officer, interpreter, and blacksmith attached to the Indian Department. Fur traders, Métis, women, and children were included in the Drummond Island contingent. This new influx of people spurred changes in the spatial organization and administration of the post. Correspondence between military and naval authorities decries the poor treatment of the soldiers and military officers. Letters describing uninhabitable accommodation or the complete absence of quarters, inadequate provisions, and other complaints about the naval authority's mishandling of the military transfer are rife. In fact, these latest complaints continued a history of strained relations between the navy and military since the very inception of the post.

The arrival of the Drummond Islanders also meant a new focus on the native allies who had figured so prominently in the latest war with the Americans. Although at times the native allies were viewed as a potential threat to the security of the British posts, soon after their arrival in 1828, land was cleared for an "Indian encampment." Official correspondence at this time also pointed out the need to construct sheds for the storage of Indian presents and a building suitable for use as a council/meeting house (NAC 1829). Between 1830 and 1835, the distribution of the King's Bounty, gifts given to native allies for the promotion of continued friendship, took place at Penetanguishene. Once a year, presents (cloth, food, gunpowder, muskets, shot, utilitarian items, and articles of adornment) were distributed to the members of various tribes in the upper Great Lakes region (primarily Chippewa, Menominee, Ottawa, and Pottawatomi). The annual ceremony took place in early July following the steady arrival of hundreds of native people in the weeks preceding the event. The scale of the event is truly astonishing, considering that in 1832 gifts were received by 1,586 people, and in 1835, presents were distributed to 2,081 people—more than 20 times the number of military and naval personnel stationed at the base.

The final years of the Naval Establishment witnessed a steady decline in the resources and personnel at the base. The new insurgence of military personnel not only dwarfed the naval contingent but also signaled the end of the post as a naval depot. By autumn 1830, only the commanding naval lieutenant, assistant surgeon, storekeeper, shipwright, and two seamen remained at the establishment. By this time the naval function of the base was quickly becoming irrelevant as the Welland canal linked lakes Ontario and Erie with the upper lakes after 1829. Moreover, the cost of maintaining a large sailing fleet at a time when steam vessels were making sailing fleets redundant meant that the cost outweighed the benefits. The writing was on the wall as attested by a public auction of articles in the naval storehouse in 1831/1832 and the admiralty order that the remaining vessels be broken up. In May 1834, all remaining naval personnel were discharged, thus ending the Royal Navy's presence at Penetanguishene. Between 1834 and 1856, when the last regimental detachment was

recalled, the base at Penetanguishene was strictly a military establishment.

Archaeology at the South Complex

The following analysis of residential movement and social geography hinges on the archaeology conducted at the South Complex, specifically, the naval hospital. Although this structure was used and occupied for only 17 years, a carefully controlled stratigraphic excavation conducted over two seasons in 1991 and 2001 has allowed for a detailed reconstruction of the history of the building by combining archaeological and documentary information. The stratigraphic sequence of the hospital (Figure 4) is represented by the Harris matrix (Harris 1989), which depicts the superpositional relationships of all layers, features, and interfaces. Thirty-one separate episodes (or phases) represented in exterior and interior units associated with the building, have been defined for the naval hospital (Table 1). As illustrated on the matrix, these phases represent unique events arranged in a relative temporal sequence.

During post-excavation analysis, the stratigraphic sequence was "periodized" by combining related phases into periods defined on the basis of both the historical information and the interpretation of the stratigraphy, using primarily the principle of superposition. Importantly, artifacts were not used to define historical periods but, instead, were analysed within the periodized sequence defined by the stratigraphic and historical analyses alone. This approach recognizes the notion that superimposed archaeological assemblages are composed of many different types of finds: those that are indigenous to the deposit (deposited at the time the layer/feature was formed); artifacts introduced into layers/features at a later date (infiltrated); and artifacts that predate the layer/feature in which they are found (residual) (Harris 1989:121).

The significance of this position is that it runs counter to the underlying assumption employed in many types of archaeological analysis, dating in particular, in which it is assumed that assemblages are composed only of finds that are indigenous to the deposit. A test of this archaeological axiom was carried out in a previous analysis of the ceramic assemblages from the various contexts at the naval hospital by John Triggs (1998b). Using computerized seriation in combination with the Harris matrix, it was demonstrated that certain assemblages contained varying proportions of nonindigenous remains that resulted in these contexts being seriated into a relative chronology that was "anti-stratigraphic," i.e., in violation of the law of superposition. The fact that assemblages are not pristine is perhaps not surprising, particularly on sites with compressed stratigraphy spanning only a few years of occupation, but Triggs's (1998b) analysis demonstrated the ramifications of this as far as dating is concerned: namely, that on a stratified site, a relative chronology constructed using the principles described by Edward Harris (1989) supercedes absolute dating of contexts using artifacts alone. That being said, artifact analyses should be carried out after the relative chronology, built up using the records of stratification, has been constructed. In this regard, there is corroborating support for the absolute dates assigned to the periods at the naval hospital in the form of small finds such as datable military buttons, which provide a *terminus post quem* that is in close agreement with the periodized stratigraphic sequence.

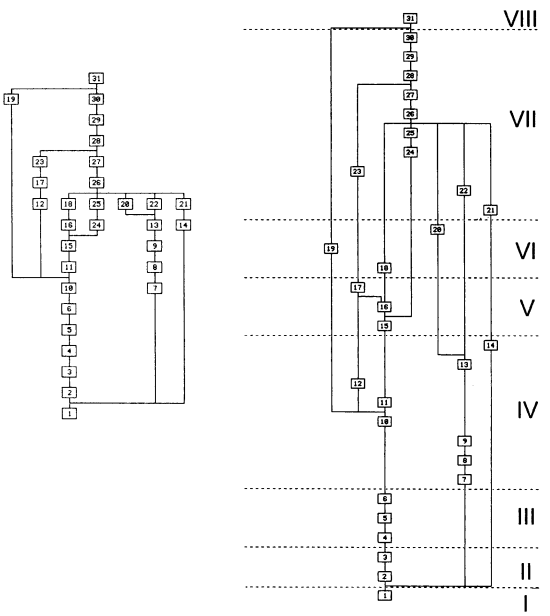

FIGURE 4. Stratigraphic matrix for hospital excavation.

TABLE 1
STRATIGRAPHIC SEQUENCE FOR NAVAL HOSPITAL

Phase	Period	Period Description	Stratigraphic Unit Description
31	VIII	Colluvial sediment accumulation post-1834	Recent accumulation of colluvium
30	VII	Building abandoned and scavenged 1833/1834	Interior/exterior feature
29	VII		Artifact concentration
28	VII		Fill over rubble
27	VII		Interior deposit
26	VII		Rubble
25	VII		Pit fill sediment
24	VII		Fill in interior features
23	VII		Exterior deposit
22	VII		Fireplace destruction interface/chimney collapse
21	VII	Native occupation 1829–1833	Cellar pit fill layers
20	VI	Military officer 1828	Fill within fireplace
19	VI		Ash deposit on west side of hospital
18	VI	Todds' residence 1822–1827	Primary occupation level
17	V	Alterations and repairs 1820–1822	Ridge defining west wall of hospital
16	V		Fill in subfloor feature
15	V		Floor feature construction interface
14	IV	Construction and initial occupation 1817–1820	Cellar excavation
13	IV		Fireplace construction
12	IV		Exterior preconstruction ground surface
11	IV		Primary deposit with floorboard impressions
10	IV		Displaced soil associated with terracing activity
9	IV		Deposit below fireplace
8	IV		Compacted clay layer—exterior
7	IV		Unexcavated deposits
6	III	Historic native	Exterior pit fill
5	III		Pit interface
4	III		Buried a-horizon
3	II	Prehistoric	Fill in prehistoric pit feature
2	II		Pit interface
1	I	Postglacial	Subsoil

The stratigraphic sequence for the naval hospital has been subdivided into eight periods (Figure 4). This detailed archaeological chronology, constructed on the basis of historical and archaeological information together, differs from the spotty historical chronology of the building (Table 2) provided by the documentary evidence alone. For the present analysis, it is the integration of the historical and archaeological data that permit the discussion of social geography. As will be demonstrated, the archaeological investigation of the naval hospital has provided a unique perspective on the building and the various people associated with it. On a larger scale, archaeological analysis of the structure has provided insight into the social dynamics operating at the base at various times between 1817 and 1834.

A synopsis of the stratigraphic events, historical and artifact analyses relating to the Naval

TABLE 2
DOCUMENTARY INFORMATION RELATING TO THE NAVAL HOSPITAL

Date	Description
22 Sept. 1820	"... a log building [,] lined with a shingled roof. Its front is 25 ft. and depth 21 ft. It is in good condition ..."
27 Oct. 1827	"log building lined, shingle roof 25 ft. x 21 ft. now not worth repair" (NAC 1827:Adm.106/2002)
25 Sept. 1829	"... the building originally occupied as an hospital at Penetanguishene besides being ill fitted for that purpose has been for some time used as a quarter for one of the persons employed at the station ... and the only place at present allotted for the reception of the sick is a small hut of one room in which not more than two beds can be placed ..."
4 June 1831	"... the hut appropriated as an hospital has but one room and a partition for a surgery, no kitchen or outhouse and in its present situation quite incapable of forming a hospital establishment with. Nor is there any place where a hospital orderly could sleep or cook ..."
27 July 1833	"At this post I found a very small hospital & a small one is all that is necessary but it was a log house since deemed unfit for the dwelling of a Warrant Officer in the Dockyard—it is indeed no longer habitable in the winter..."

Establishment represented by periods IV to VII is presented below. Periods I to III (dating before 1817) and Period VIII (dating after 1834) fall outside of the period of interest and are not discussed. Artifact summaries discussed below are based upon the Group/Class classification scheme developed by Stanley South (1977). South's classification scheme, a hierarchical ordering of 9 groups composed of 42 classes based on functional categories designed to reflect past human behavior, has been widely criticized in the literature (Joseph 1989:56–57). In some cases, researchers have found it necessary to modify the structure of the classification as more information has become available since its introduction. For example, types such as Colonoware ceramics are now included under the Kitchen Group rather than the Activities Group (originally identified as a trade item). Indeed, in the current analysis, artifacts with a medical function have been added to a new Class 43 to reflect the medical nature of the naval hospital. Other criticisms relate to South's concept of artifact patterning as reflected by differences in the proportions of the various groups making up an assemblage. J. W. Joseph (1989: 55–56) provides a succinct summary of problems identified by others in this regard, although for all its potential pitfalls, the idea of artifact patterning still has its proponents who point to the utility of the classification scheme as a means of organizing and presenting otherwise unwieldy data for comparative study.

In a similar fashion, for the present study, South's classification serves the primary purpose of an organizational framework for the thousands of artifacts recovered from the South Complex. This format allows comparisons between periods and also comparison with previous researchers' work on the site, dating back to the 1970s. The scheme is not used as a means of analysing artifact patterning, although there may be some utility in the idea that such patterning may provide insight into socioeconomic status as suggested by studies on southern plantation sites (Lee Decker 1991: 33). Use of George Miller's (1980, 1991) socioeconomic scaling indices for ceramics would also be useful for this type of study, although the small sherd size of ceramics at the South Complex only allows for estimates of vessel counts and types and not the more precise data required for the application of Miller's technique. Instead, insight into socioeconomic status is suggested by certain artifact types from the Kitchen and Personal groups, e.g., glass stemware, coins, jewelry items, and the archaeological context from which these were recovered.

Period IV (1818–1820): Initial Construction and Occupation of the Hospital

This period is defined by the construction of the hospital and the initial use of the facility by Assistant Naval Surgeon Todd. The hospital is situated on one of seven artificially created terraces on the side of a steep slope rising 30 meters above lake level. Archaeological and historical information together indicates that the hospital was a log building (6.5 m x 7.8 m) (Figure 5), with sills resting directly on the ground. Parallel clay ridges inside the building indicate the position of log sleepers that provided support for the floorboards oriented along the length of the building. A mortared limestone and granite cobble fireplace at the north end of the building provided heat and served as a hearth for cooking. In a watercolor of the Naval Establishment, dated ca. 1820, the hospital is depicted with a north fireplace and three west-facing windows (Figure 6). A concentration of artifacts at the southeast and southwest corners of the building, a pattern suggestive of the Brunswick Pattern of refuse

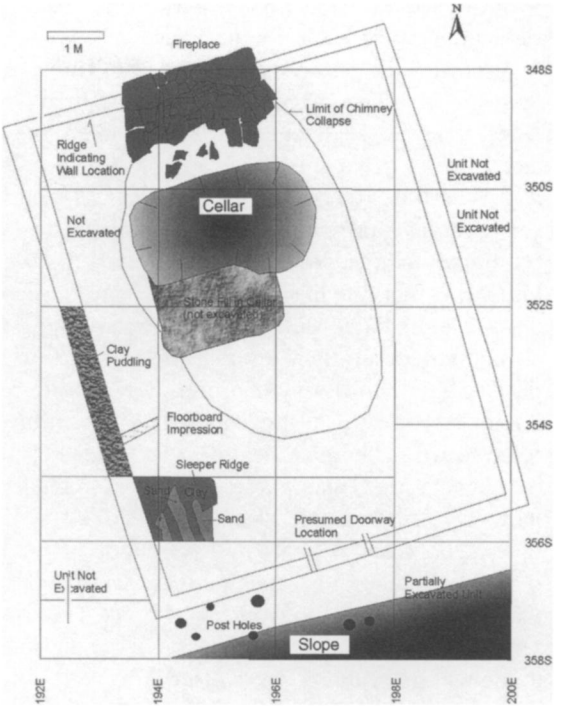

FIGURE 5. Plan of Naval Hospital showing features referred to in text.

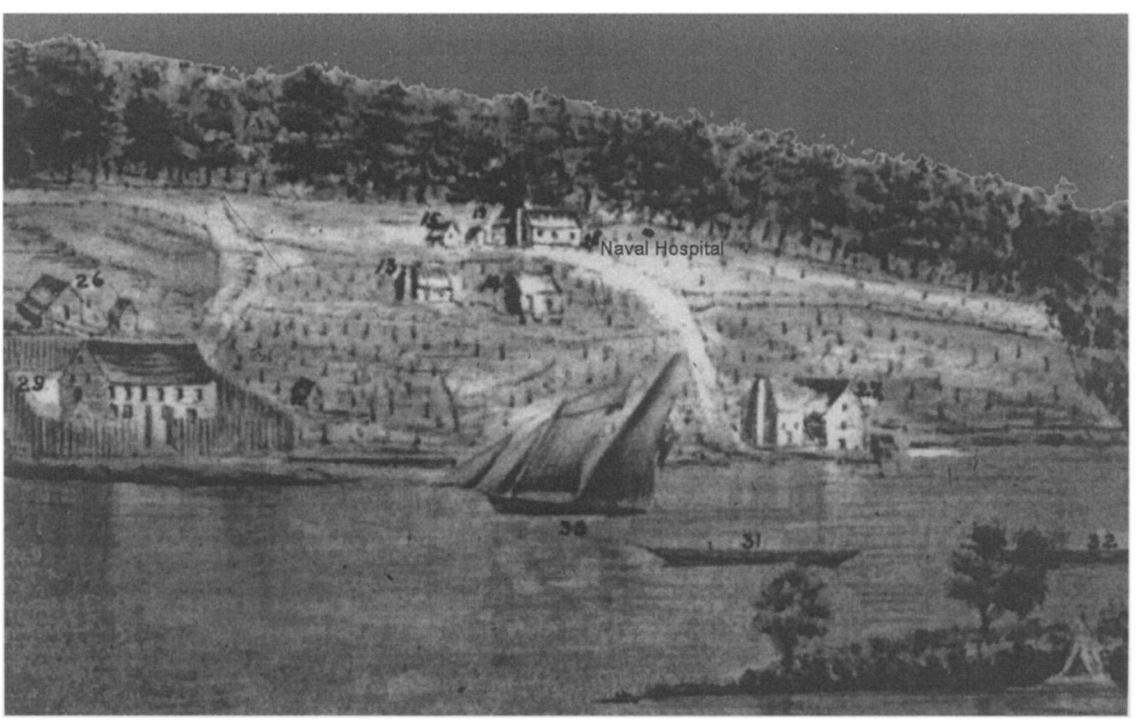

FIGURE 6. Detail of the Bayfield watercolor showing buildings referred to as the South Complex (naval hospital, 28). (Courtesy of Toronto Public Library, J. Ross Robertson Collection: T16591.)

disposal (South 1977:48), suggests the location of a doorway on the south side.

A cellar pit to the south of the fireplace appears to be an original feature, built at the same time as the hospital. The overall dimensions of the cellar are 2.1 m long x 1.5 m wide x 1.6 m deep (accessed by a bench or single step), more than twice the size of another cellar pit found in a nearby artificer's hut (Figure 2, hut 32). In a medical context, the presence of an unusually large cellar in a hospital suggests a function other than simply food storage. A particular school of medicine advocated by Samuel Thomson during the early-19th century, referred to as "botanic healing," stressed the use of plants rather than more traditional remedies used by "professional" physicians (Pernick 1985: 25). The wide appeal of this school of healing is attested to by the number of advocates who were referred to collectively as "Thomsonians" by 1833. In Todd's case, there is good evidence that plants were used for medicinal purposes. James Pringle (1985:26) notes that Todd wrote accounts of the medicinal properties of some of the plants he had collected and that these were forwarded to eminent botanists at the Royal Botanic Gardens in Kew, England. Until paleobotanical analysis of the soil within the cellar is carried out, this interpretation remains speculative although, in view of the fact that the historical evidence suggests Todd had more than a passing familiarity with botanic healing, it is not unreasonable to think that he may have stored his plant samples within the large cellar together with perishable plant foods.

Deposits associated with activities around the building in this phase include an isolated ash deposit, presumably from fireplace cleaning, and a layer of coarse sand found between the clay ridge floor supports. The presence of sand is interesting in light of the observation that sweeping and "dry rubbing" floors with sand was common in both military and domestic contexts (Tordoff 1979:39–40). Water was never used because of the health effects thought to be associated with dampness (Folkes 1980:42).

In general, the majority of the 715 artifacts (Table 3) from Period IV are architectural (nails and window glass), but a significant number of ceramics were also recovered (Table 4). Other items of interest include a quantity of food bone, mostly mammal with a high proportion of fish. Food bone was recovered from exterior deposits mostly, 60% of which was burnt and highly fragmented. Analysis of the faunal sample indicates both domestic and wild species in the assemblage. A variety of materials indicative of a domestic and military occupation were also found, such as smoking pipes, lamp chimney fragments, tools (hammer head, flat file), container glass, musket flints and balls, a glass syringe plunger, straight pins, buttons, a buckle, a boot heel plate, and a clock weight. A collection of objects attributed to aboriginal people includes native ceramic, chert debitage, a brass finger ring, and a hawk bell, all of which were found in secondary contexts represented by the displaced fill from the terracing activity.

Period V (1820–1822): Repairs to the Hospital

This period is defined by alterations to the structure following the initial construction episode, which includes the replacement of a floor plank and sleeper and the addition of clay puddling along the west wall foundation (Figure 7). That the removal of a log sleeper may have been necessary after only two or three years of occupation is suggested by an 1820 reference indicating that the hospital and the assistant surgeon's dwelling were in need of repair.

> Enclosed are three estimates for works to be performed at the Naval Establishment Penetanguishene.
> do ... for do for Asst. Surgeon 25.2.0
> do ... for do for an hospital 33.0.0
> (NAC 1820c).

It is interesting to speculate on the nature of these repairs, although the replacement of the floorboard suggests that rot may have been a problem here as in other locations. Also, the addition of a clay ridge with sloping sides along the west wall points to an attempt to lift the sills off the ground. This puddling ridge was clearly in a stratigraphic position that postdated the construction of the hospital, and its presence indicates repair/maintenance activity representing a considerable expenditure of energy and finances. Other repairs to the structure probably included window replacement as indicated by the quantity of pane-glass shards and putty fragments recovered from the clay ridge context (Table 3).

TABLE 3
ARTIFACT GROUP/CLASS DISTRIBUTION BY PERIOD (SOUTH 1977)

		Period IV		Period V		Period VI		Period VII	
Group	Class	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Kitchen	1	203	28.4	13	8.1	52	9.3	510	20.2
	2							4	0.2
	3							5	0.2
	4							24	1
	6	23	3.2			11	2	78	3.1
	7	0	0	1	0.6	2	0.4	4	0.2
	8							2	0.1
Bone	9	178	24.9	35	21.9	106	19	352	14
Architecture	10	145	20.3	57	35.6	212	38.1	835	33.1
	11	79	11.0	29	18.1	100	18	431	17.1
	12					2	0.4	7	0.3
Furniture	15	7	1.0			1	0.2	10	0.4
Arms	16	3	0.4	2	1.3			9	0.4
	17	2	0.3			1	0.2	5	0.2
	18					1	0.2	2	0.1
Clothing	19	2	0.3					2	0.1
	20					1	0.2		
	21	3	0.4	2	1.3	18	3.2	40	1.6
	23	1	0.1	1	0.6			1	0.0
	24	1	0.1						
	25					2	0.4	8	0.3
	26					1	0.2	10	0.4
	27					2	0.4	2	0.1
Personal	29	1	0.1	2	1.3	7	1.3	8	0.3
Smoking	30	20	2.8	3	1.9	24	4.3	82	3.3
	31	2	0.3					1	0.0
	33					2	0.4	1	0.0
	36	36	5.0					11	0.4
	37	2	0.3					1	0
	39	1	0.1						
Activities	40	2	0.3	1	0.6	1	0.2	5	0.2
	41			3	1.9	2	0.4	5	0.2
	42			3	1.9	2	0.4	13	0.5
Medical	43	4	0.6	8	5	7	1.3	52	2.1
Totals		715	99.9	160	100.1	557	100.5	2,520	100.1

Several other items found in the subfloor context serve to distinguish this phase from earlier phases. These include two pieces of iron grapeshot, fragments of a pharmaceutical bottle with an embossed anchor, a whetstone, and a musket ball, possibly modified for use as a net weight. Both mammal and fish bones are also present in the assemblage, and some fragments exhibit evidence of burning. The ceramic assemblage for the period is comprised of only 12 sherds and a complete Derbyshire stoneware inkwell. Dark blue transfer-printed pearlware, undecorated creamware, and Jackfield make up the rest of the assemblage (Table

TABLE 4
PERIOD IV: CERAMICS

		Period IV		Period V		Period VI		Period VII	
Ware type	Decoration	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Creamware	Undecorated	23	11.3	8	61.5	2	3.8	172	33.8
	Overglaze black transfer							13	2.6
	Banded							2	0.4
Pearlware	Blue transfer	56	27.6	3	23.1	7	13.5	113	22.2
	Blue painted							10	2.0
	Painted early palette							19	3.7
	Blue shell-edge	11	5.4					13	2.6
	Green shell-edge	3	1.5			1	1.9	2	0.4
	Banded					2	3.8	8	1.6
	Undecorated	86	42.4			2	3.8	90	17.7
Refined White Earthenware	Blue transfer					29	55.8	2	0.4
	Edge lined							3	0.6
	Undecorated	3	1.5					1	0.2
Black Basalt	Moulded							13	2.6
Refined Redware	Jackfield	21	10.3	1	7.7	7	13.5	24	4.7
Yellowware	Undecorated						2	0.4	
Derbyshire Stoneware			1	7.7	2	3.8	22	4.3	
Totals		203	100	13	100	52	99.9	509	100.2

4). Clothing articles are represented by two buttons and a silver straight pin. A pewter regimental button with an embossed "68" was also recovered. The 68th regiment was known to have been stationed at Penetanguishene between 1819 and 1822 (and a second period from 1827–1829). One of the most interesting finds was a pair of spectacles with one lens and one arm missing. Finally, a small, braided metallic cord, possibly a jewelry item, and a kitchen knife were also recovered. Both the variety of items and the context in which they were found suggest that this is a secondary subfloor deposit that infilled the depression created by the removal of the sleeper and into which items were discarded.

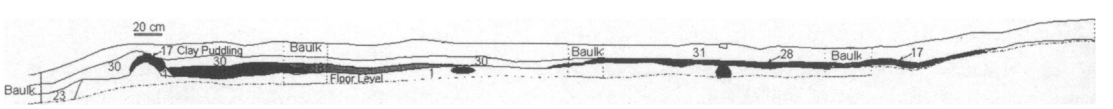

FIGURE 7. East-west cross section (along 354S and 355S) through naval hospital excavation area showing stratigraphic events referred to in text. See Table 1 for description of events not labeled on diagram.

Period VI: Clement and Eliza Todd's Occupation (1822–1827) and the Military Officer (1828)

This period is represented by three primary deposits relating to the occupation of the hospital prior to its abandonment in the early 1830s: a subfloor deposit, an ash deposit in the fireplace, and a small ash dump on the exterior of the building. Written records for this period are ambiguous as to the use of the hospital. One document suggests that a warrant officer may have quartered here in 1829 (Table 2). However, there is no mention of the place being used as a residence for Assistant Surgeon Todd and his wife, Eliza, despite the fact that the more than 500 artifacts recovered from this period provide strong evidence that the hospital was being used for this purpose. In the subfloor deposit, in particular, a diverse collection of items provides some of the best evidence about who was actually living in the structure (Table 3).

Architectural materials comprise 56% of the entire assemblage and include wrought-iron nails of various sizes and window glass. Food bones make up about 19% of the assemblage and include mammal, fish, and bird bones, about one-third of which had been burnt. Ceramics found in the hospital subfloor context are few in number (n=20), representing an estimated minimum of six vessels. Types include Jackfield, blue transfer-printed pearlware, undecorated creamware, a stoneware inkwell, and two refined white earthenware plates with blue transfer-printed motifs (Table 4).

The most interesting finds, however, include a diverse assortment of domestic items: 18 buttons of various materials (brass, bone, ferrous, pewter) and types (e.g., a 68th regimental button, assistant naval surgeon buttons, and a plain silver-plated button). Other clothing-related artifacts include a small pair of women's sewing scissors and a thimble. A half-penny token, marked "Lesslie & Sons York, Kingston and Dundas" on the obverse with a ploughshare on the reverse dates to 1824–1827, and a gold guinea, marked "GEORGE III DEI GRATIA" on the obverse and "1793 .MBF. ET. H. REX. F.D.B. ET L.D.S.R.I.A.T.ET. E." on the reverse, were also found. The guinea represents a considerable sum for the period—21 shillings—relative to the average soldier's pay of 1 shilling a day, less deductions. Several other items are also of interest because they reflect a domestic rather than institutional (hospital) occupation. These include a gold ornamental chain link, a small cameo with a gold-plated front and back, three silver-and gold-plated chain links, and a small brass inkwell with a threaded lip. Other items indicate a range of domestic activities and include a whetstone, clay marble, Jew's harp, lead bale seal, table knife and fork, container glass, smoking pipe fragments, lamp chimney fragments, a brass ramrod pipe sleeve, musket flint, and miscellaneous hardware pieces. Medical artifacts consist of a scalpel, a lead stopper (the end of which is pitted and melted, possibly from contact with corrosive vitriol, an essential component of the assistant surgeon's kit), a pewter dish fragment, a small lump of sulphur (a contemporary remedy for scabies and venereal disease), and pharmaceutical bottle fragments.

Overall, the subfloor assemblage is unusual in the high frequency of personal and clothing items, which are not found in earlier deposits. The quantity of valuable objects (the gold coin and jewelry) indicating high status suggests that the mode of deposition was probably loss rather than intentional discard. Some of these items could easily have fallen through cracks in floorboards to be later covered up by dirt accumulating under the floor. It also appears that some of the artifacts indicate abandonment behavior, where unwanted items, perhaps no longer usable, were simply left behind, e.g., the scissors, thimble, and Jew's harp (with reed missing). Finally, the large proportion of building materials, particularly the nails, could represent the dismantling of the floorboards for reuse elsewhere or the material left behind after the floorboards had rotted. The distinguishing characteristic of this period, therefore, is the range of different processes and behaviors that are represented by the artifact assemblage. Considering the high status items found, and their probable association with the Todds, it seems very likely that these represent objects that were in use during the time the building was occupied.

The fireplace deposit is also interesting in that it may be evidence of the last few days of occupation. Almost half of the assemblage is comprised of mammal, bird, and fish bones,

all of which have been burnt. Two smoking-pipe bowls with Masonic emblems were also recovered, possibly associated with one of the Drummond Island officers who was known to have been quartered in the abandoned naval buildings in this area in 1828, the suggestion being that it was more common for an officer, rather than a soldier, to practice freemasonry. The ceramic assemblage is small, and only 32 sherds representing an estimated 3 vessels were recovered. Two of the vessel types are unique to the period and include a refined white earthenware plate with a cobalt blue transfer-printed motif, and a banded pearlware hollowware vessel together with a more commonly found green shell-edged pearlware plate. The remainder of the assemblage is composed of nails and window glass from the demolition of the building.

Post-excavation analysis of the stratigraphy, documentary evidence, and artifacts suggests that Period VI dates between 1822 and 1828. The recovery of the artifacts within a single deposit, however, makes it impossible to separate the artifacts associated with the various occupants during this period on stratigraphic grounds alone, hence the initial definition of the period as relating to the Todds and the military officer. The recovery of medical items supports the contention that the structure was the hospital and that it served this purpose in the 1820s. However, the presence of other artifacts normally associated with a domestic occupation begs the question as to whom these items belonged. It is known that the structure was occupied by a warrant officer in 1828/1829, but there is nothing in the written record to indicate the identity of other occupants or whether, in fact, the hospital functioned as a residence at all prior to 1828. This notwithstanding, many of the artifacts found in the assemblage are higher status items (black basalt teapot, the gold guinea, brass inkwell, clock parts), and several gender-specific items indicate the presence of a woman or women (small sewing scissors and items of personal adornment). Considering the length of time that Assistant Surgeon Todd was known to have been at the establishment, between 1819 and 1827 (married to Eliza in 1821), most of the material can reasonably be attributed to the Todd's occupation.

Period VII (1829–1834): Occupation by Native People and Gradual Abandonment

Period VII consists of several phases, all of which are associated with the terminal occupation, scavenging, and abandonment of the naval hospital in 1834. One event in this period is marked by the collapse or intentional toppling of the chimney and fireplace. A linear distribution of stones, mapped during excavation, indicated the direction of fall (Figure 5). Stones could be seen originating from the fireplace at the north end of the building and spreading out through the centre of the structure towards the south end. The collapse of the chimney also served to infill the cellar pit described earlier (Figure 5). Other phases were found that indicated the removal of structural timbers. Isolated deposits scattered throughout the interior and exterior of the building were also associated with the destruction as indicated by the presence of varying amounts of limestone building rubble. In one interior unit, linear deposits of sand were found marking the former location of floorboards. The close of Period VII and the beginning of Period VIII is marked by a deposit overlying all units situated on the interior and exterior of the hospital. This layer covered all previous deposits, including the chimney collapse, and probably represents a natural accumulation of colluvium.

More than 2,500 artifacts were found in contexts from Period VII (Table 3). Most of this material probably is associated with the occupation of the hospital specifically, although it was recovered predominantly from secondary fill contexts as opposed to the primary contexts found in periods IV, V, and VI. Defined as it is by the abandonment and collapse of the hospital, Period VII includes activities that served to disperse artifacts over the site. It appears that the site was scavenged for building materials, possibly floorboards and logs, as no evidence of either material was found on the site. (The survival of wood timbers in another South Complex structure indicates that differential preservation does not explain the absence of wood in the naval hospital). Scavenging activity would have resulted in the disturbance of some earlier deposits and the redeposition of artifacts in other locations around the structure. This A-A process (Schiffer 1976) is suggested

by several cross-mends between objects found in primary context in earlier periods with those found in Period VII. However, the best evidence for the very latest occupants of the structure is found in primary context at the base of the deep cellar in the north end of the building (Figure 5).

During the initial excavation in 1991, there was some speculation as to the use of the former hospital by native groups at the end of the building's existence. A small number of artifacts consisting of cord-marked and incised ceramics, incised pendants, lithic debitage, glass beads, and sheet copper artifacts (a tinkling cone and various rolled pieces) pointed to a native presence. Ten years later when the hospital was archaeologically revisited and excavation completed, at the base of the cellar, below and among the collapsed chimney stones, the following items were recovered: 92 glass trade beads (dark blue and white seed beads and tube beads, predominantly) together with a trade silver brooch, silver tinkling cone, native ceramics, and chert debitage. Other artifacts within the pit included large quantities of nails, window glass, ceramics, and container glass totalling more than 1,000 items (Table 5). The presence of so many glass beads in one of the latest contexts, below the chimney collapse, strongly argues for a native use and presence at the hospital just prior to its abandonment.

Several tools and miscellaneous hardware items also appear in various contexts within this period such as hooks, iron bars of unknown function, screws, wedges, sheet metal, an iron ferrule, a punch, awl, file, and a barrel hoop. As with other artifacts in Period VII, similar items were found in earlier contexts, indicating some degree of disturbance. Medical items, for instance, included several types of pharmaceutical bottles, one of which was a fragment of a similar cobalt blue jar found in several units from Period IV

TABLE 5
NAVAL HOSPITAL CELLAR ASSEMBLAGE: POST 1829

Ceramic Ware Types		Ceramic Decoration	
Refined White Earthenware	16	Transfer-printed	32
Pearlware	55	Painted	9
Creamware	9	Pattern Painted	4
Refined Red Earthenware	2	Edged	5
	82	Undecorated	32
			82

Artifact Types			
Bone	347	Nails — Machine Cut	19
Button — Bone	12	Nails — Wrought	225
Button — Ferrous	7	**Native Ceramic**	3
Button — Pewter	1	Percussion Cap	1
Button — Regimental	1	Shako Chin Strap Plate	1
Chert Debitage	3	**Silver Brooch**	1
Clock Parts	2	Straight Pins	3
Container Glass	15	**Thimble**	1
Lamp Chimney Glass	7	**Tinkling Cone**	1
Musket Flint	1	**Trade Beads**	92
		Window Glass	207
		Total	1,032

Note: Bolded entries indicate probable native-used artifacts.

and a scalpel fragment (see Period VI for a similar item). A brass implement, perhaps the inside component of a slide rule was also recovered. Interestingly, in addition to being a surgeon, Todd was also a botanist, mineralogist, and geometrician (NAC 1828a).

Datable military items include four military regimental and two naval officers' buttons spanning a 15-year period from 1822–1837: naval officer (undated), assistant naval surgeon (undated), 76th Regiment (1822–1826), 79th Regiment (1831–1833), 15th Regiment (1834–1837), and the 70th Regiment (1826–1827). The initial date of the 15th Regiment provides a corroborative terminal date for the occupation of the hospital, ca. 1834. Several shako chinstrap plates also point to a military occupation during the late navy period.

As in earlier periods, architectural items are numerous and consist of wrought nails almost exclusively and window glass of varying thickness. Also found were lead musket and pistol balls, along with flints. Faunal bone is represented by more than 350 mammal, fish, and bird bone fragments. Clothing articles are numerous and include almost 40 buttons of various types and materials in addition to several other clothing-related items. Also found were several bale seals, a bone needle case, and a brass buckle. Furniture items are represented by several fragments of lamp chimney glass, a brass tack, a lamp burner, a clock key (another possible clock part found in Period IV was identified as a clock pulley), and a pan lamp hanger.

Personal Group items included two coins and several other related items. A Bank of Montreal halfpenny token dated 1816 and a Wellington halfpenny token dated 1814 were the only two coins recovered. Other personal items recovered were a watch fob, a bone-handled toothbrush, two slate pencils, a clay marble, a copper alloy finger ring, and a spectacle arm. The latter object provides a clear indication of the disturbance to other deposits that must have taken place during Period VII as the hospital was scavenged for materials. The spectacle arm belongs to the pair of spectacles (minus one arm) found in Period IV in primary context under the floorboards on the southwest corner of the hospital. The last few personal objects consisted of more than 80 stems and bowl fragments. With the exception of a couple of "T.D." pipes, all stems and bowls were unmarked.

Items relating to food and beverage consumption include several objects found in earlier periods. Container glass from various vessels makes up the majority of the assemblage and includes several fragments from one or more tumblers, two stemware glasses, and case and wine bottles. Also found was cutlery consisting of two bone-handled "dub-nosed" knives (J. Smith 1975), a fork, and spoon. The ceramic assemblage includes the most diverse assortment of types so far recovered from any period (Table 4), wherein more than 500 sherds represent an estimated 16 different ceramic types. Several of these types are found in earlier periods and include black basalt, undecorated creamware, blue transfer-printed pearlware, hand-painted early palette pearlware, green and blue shell-edge pearlware, Jackfield, stoneware, banded pearlware, cobalt blue transfer-printed refined white earthenware, and blue willow on refined white earthenware. Interestingly, several new types also appear for the first time in this period. These are overglaze black transfer-printed creamware, blue painted pearlware, banded creamware with a mocha design, and yellowware.

Social Geography and Residential Mobility (1817–1822)

The early years, between 1817 and 1822, saw the most activity at the Penetanguishene Naval Establishment. During that time, 77 structures were built, including workshops, storehouses, docks, offices, dwellings, barracks, and outbuildings (Taylor 1977). A contemporary watercolor view of the establishment attributed to Lt. Henry Bayfield depicts a collection of huts and buildings stretching along the shoreline and on a ridge for a distance of about 500 meters (Figure 8). The ridge, actually a series of seven terraces running parallel to the shoreline, rises about 30 meters above the lake where the most distant of the buildings is located about 250 meters from the shore (Table 6; Figure 9). The most prominent built features on the landscape were the naval storehouse [1] and the King's Wharf [2]. The victualing stores (clothing and provisions), ordnance, and naval stores (sails, rigging,

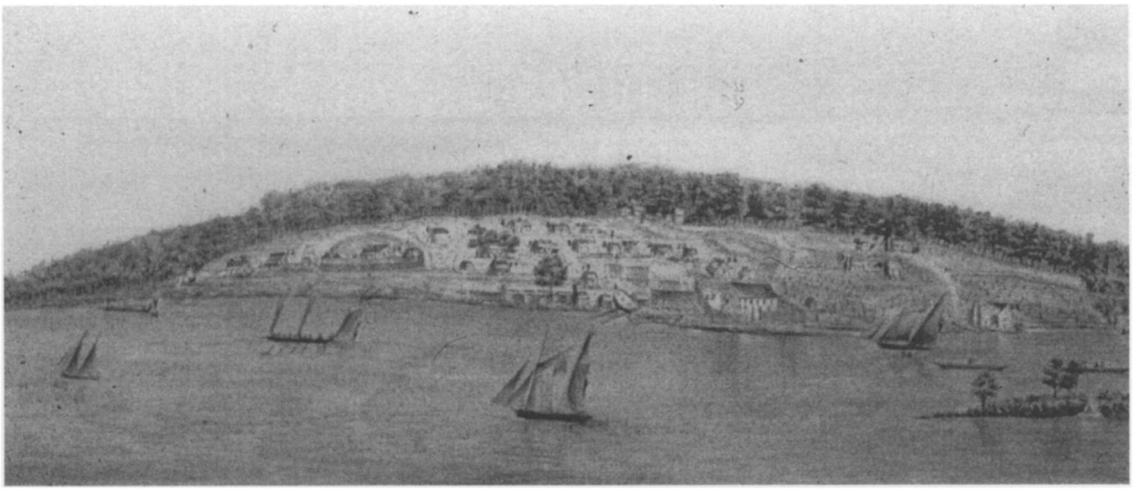

FIGURE 8. Watercolor of the Naval Establishment at Penetanguishene, attributed to Lt. Henry Bayfield, ca.1818–20. (Courtesy of Toronto Public Library, J. Ross Robertson Collection: T16591.)

oars, etc.) were kept in the storehouse. From the depictions and contemporary descriptions, all buildings were constructed of logs, sawn timbers, and planks (laboriously produced in a sawpit in the absence of a water-powered mill), whitewashed, with shingled roofs. Interiors were heated by fireplaces built of stone or Canadian stoves. Other nonresidential buildings present in 1820 included a hospital, guardhouse, two storehouses, a steam kiln, blockshop, blacksmith shop, and offices for various dockyard and ordinary personnel. Other structures were residences for the commanding officer, clerk-in-charge, quartermaster of shipwrights, lieutenant, naval surveyor, and assistant surgeon in addition to barracks for the seamen and soldiers. The setting is summed up nicely by Sir John Franklin who visited the Naval Establishment in 1825 en route to his second Polar expedition and wrote to Eleanor Franklin on 22 April:

> "The storehouse in the Dockyard is large and Well arranged. The dwelling houses of the officers, though small, are very comfortable and so are those of the men which are built on the acclivity of a hill in parallel ranges but separate from each other and the 'tout ensemble' of Penetanguishene as viewed from the water is pretty" (Franklin quoted in Trail 1896:120–21).

Twenty of the 77 structures at the naval base between 1817 and 1822 were residential (Figure 10). These were distributed across the site from north to south in rows or ranges that correspond to the terraces, some natural, and some constructed that ran parallel to the lakeshore. These residential dwellings were located away from the shoreline, while the offices and working buildings/features were found closer to the water on the lower two terraces. The focus of activity was clearly on the shoreline where men performed their peacetime tasks of ship maintenance.

Residential dwellings (Figure 11) have been grouped into three categories corresponding to rating/rank: officers and gentlemen (civilian employees of the dockyard and ordinary), enlisted men, and civilian artificers. Spatial patterning is evident in that the artificers are confined to the south end of the establishment (right), separated from the officers located at the north end and the noncommissioned enlisted men in the centre. Interestingly, the fur trader [37] and civilian contractor [22, 77] are outliers on the periphery of the establishment and are clearly tangential to the community as described above. Thus, it seems clear that residential location during this early period at the establishment was based on naval rating and military rank: a geographic patterning based solely on social factors dictated by military/naval protocol.

Surveys of the Naval Establishment conducted between 1820 and 1829 provide additional data

TABLE 6
INDEX TO SITE PLAN

No.	Description	No.	Description
1	Naval storehouse		
2	King's wharf	40	Shed outside post captain's pickets
3	Temporary log hut	41	Far north dock
4	Sawhouse	42	South dock
5	Temporary work shed	43	Hut behind hospital
6	Blacksmith's shop	44	Clerk-in-charge's kitchen
7	Store cabin and quarterman's cabin	45	Clerk-in-charge's east outhouse
8	Commissariat office	46	Clerk-in-charge's stable
9	Clerk-in-Charge Chiles's residence	47	Clerk-in-charge's west outhouse
10	Artificer's hut	48	Shed at shoreline
11	Post Captain Roberts's residence	49	Shed in store palisade
12	Lieutenant's house	50	Lieutenant's kitchen
13	Lieutenant Bayfield's house	51	Lieutenant's west outhouse
14	Assistant surgeon Todd's house	52	Lieutenant's east outhouse
15	Seamen's barrack	53	Bayfield's kitchen
16	Guardhouse I	54	Bayfield's east outbuilding
17	Hospital	55	Post captain's kitchen
18	Soldiers' barrack	56	post captain's garden structure
19	Storeporter's outbuilding	57	Post captain's flag outhouse
20	Quarterman's house	58	Post captain's southeast outhouse
21	Military officer's house	59	Post captain's northeast outhouse
22	Civilian contractor's house	60	Post captain's central north outhouse
23	Slaughter/lime house	61	Post captain's northwest outhouse
24	Sergeant's house	62	Post captain's west stable building
25	Quarterman's kitchen	63	Quarterman's larger north outhouse
26	Post captain's wharf	64	Quarterman's smaller north outhouse
27	Artificer's hut	65	North hut along quarterman's fence
28	Storeporter's house	66	South hut along quarterman's fence
29	Artificer's hut	67	Hut along quarterman's south fence
30	Artificer's hut	68	Assistant surgeon's west outhouse
31	Hut southeast of seamen's barrack	69	Assistant surgeon's east outhouse
32	Artificer's hut	70	Soldiers' root house
33	Artificer's hut	71	Building south of first soldiers' barrack
34	Block shop	72	Military officer's kitchen
35	Lt. Bayfield's northwest outbuilding	73	Artificer's hut
36	Post captain's stable	74	Artificer's hut
37	Fur trader's residence	75	Artificer's hut
38	Long shed and/or steam kiln	76	Slaughter/lime house outbuilding
39	Middle wharf and slips	77	Contractor's south building

Note. Structure numbers are those used by Taylor (1977).

with which to further investigate the notion of social geography. Building dimensions provided in these surveys have been used to organize residential dwellings according to available living space. A similar type of analysis was conducted by Michael Parrington and colleagues (1984) who demonstrated that space allotments for soldiers and officers at Valley Forge brigade encampments was regulated such that officers received twice as much square footage as the soldiers. The data for Penetanguishene show a greater range of variation, although a similar correlation of

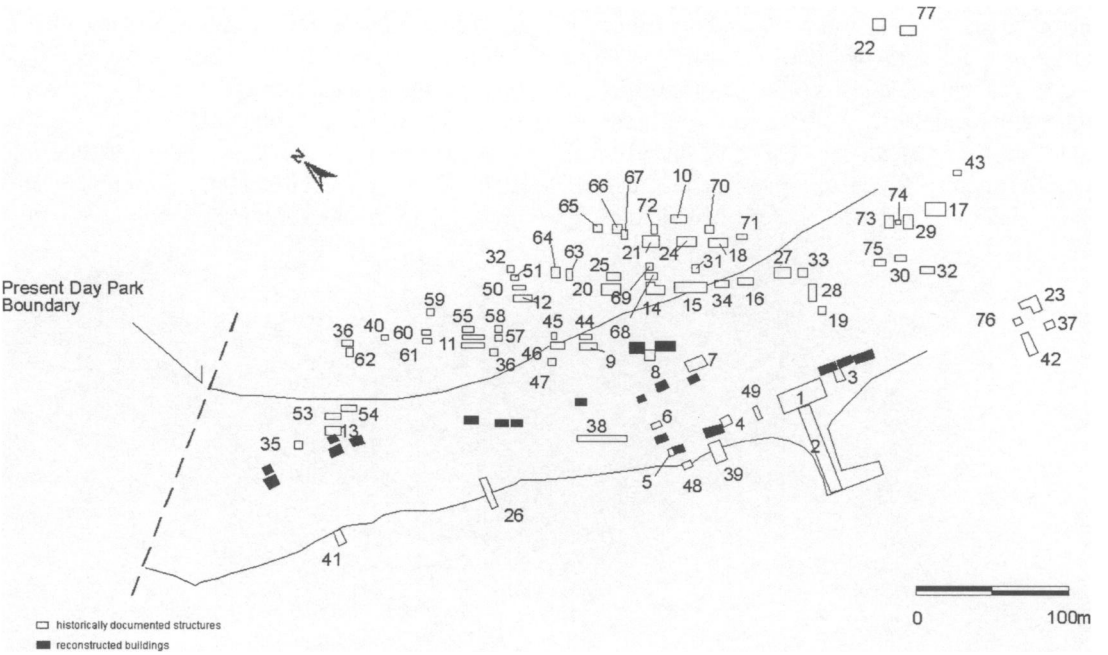

FIGURE 9. Composite of all structures built at the Naval Establishment between 1817 and 1834.

space with rank is evident. The data have been grouped into four categories reflecting square feet per person: Class I: >450 ft.^{2}; Class II: 300–450 ft.^{2}; Class III: 200–300 ft.^{2}; Class IV: <200 ft.^{2} (Figure 12). When plotted on the site map (Figure 13), the classes exhibit spatial patterning along divisions of military rank and naval rating. More specifically, within these

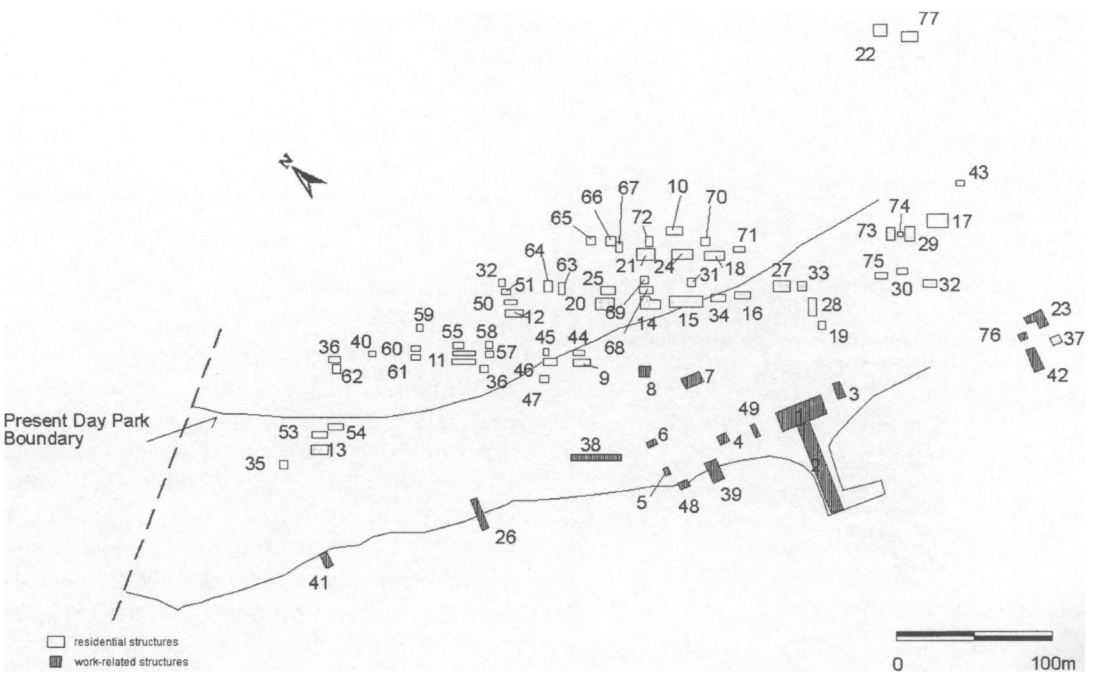

FIGURE 10. Residential and work-related structures built between 1817 and 1822.

general areas, the captain/commanding officer is clearly in a category of his own, while the lesser officers (lieutenants/assistant surgeon) and civilian gentlemen are located to the south. Still farther south are the enlisted men and civilian artificers whose residences show a somewhat less defined spatial patterning. It seems clear that rank/rating are determining factors in the quartering of naval, military, and possibly civilian personnel within specific residences located in each of the three areas defined above (Figure 11).

Determining correlations between economic status alone (disregarding for the moment social status) and residential location has yet to be

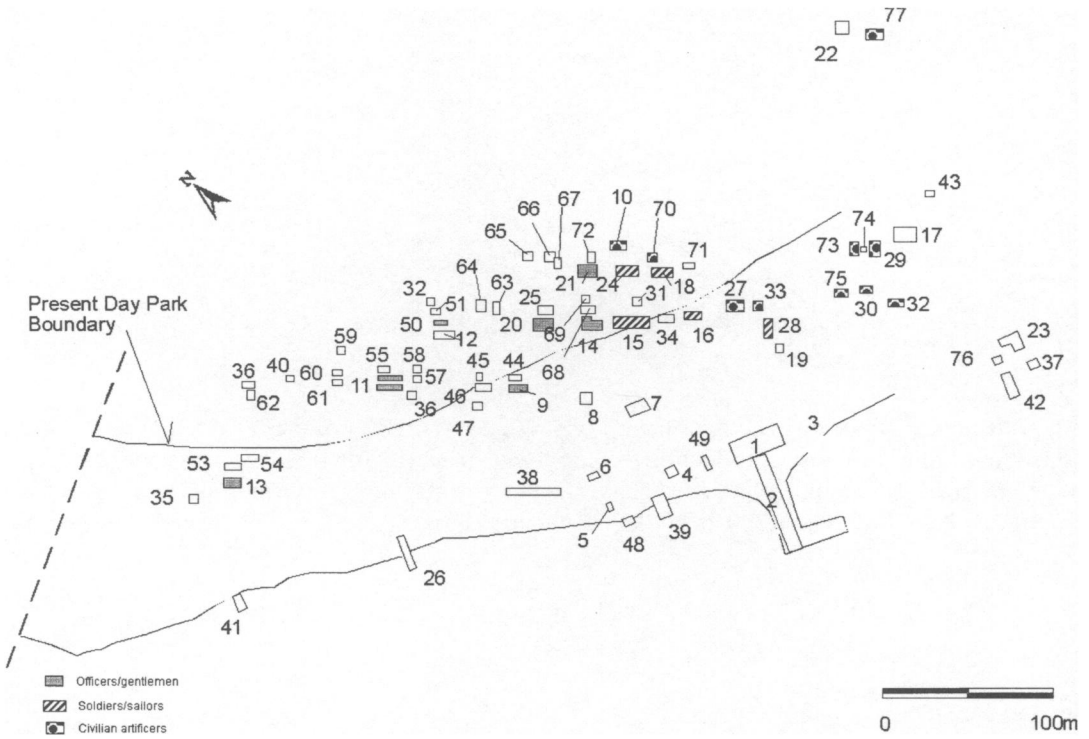

FIGURE 11. Residential structures—distribution according to rank/rating.

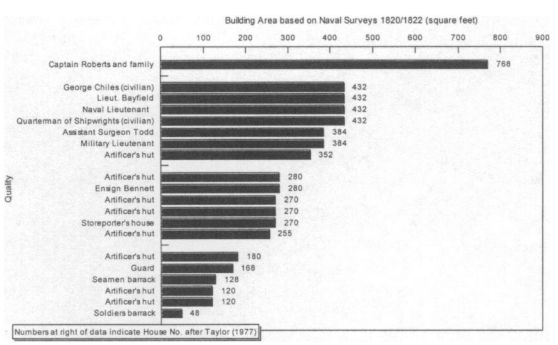

FIGURE 12. Residential space as calculated from surveys of the Naval Establishment, 1820–1829, arranged into four classes.

performed in detail although preliminary analysis of pay lists provides some tentative conclusions. Calculations of gross pay per annum derived from muster and pay lists from the early years at the establishment indicate not only the distribution of pay for various ranks but also the great disparity between those at opposite ends of the list (Figure 14). The difference between the able-bodied seamen and the captain is more than one order of magnitude, £26 compared to £327. Another interesting observation is that the seven lowest paid positions are all British naval personnel, while the next six highest are civilian with one exception—the assistant naval

FIGURE 13. Distribution of residences based on square footage.

surgeon who made slightly more than a civilian sawyer and less than a civilian blacksmith. The two top positions were the naval hydrographer and the commanding officer. The former was Henry Bayfield, commissioned by Commodore Barrie, the highest-ranking naval authority in Upper Canada, with the task of surveying Lake Huron and spying on American positions. The commanding officer, Captain Roberts, was stationed at the post between 1820 and 1822. Interestingly, when these data are examined in terms of residential location, the patterning evident in earlier analyses is entirely absent (Figure 15). This reinforces the idea that residential location at the naval post was influenced almost exclusively by social status as reflected by one's position in the hierarchy of naval and military personnel, rather than a combination of social and economic status as might be expected in urban areas where, for example, economic factors play a more significant role in the composition of neighborhoods in the 19th century (Yamin 1997; Wall 1999).

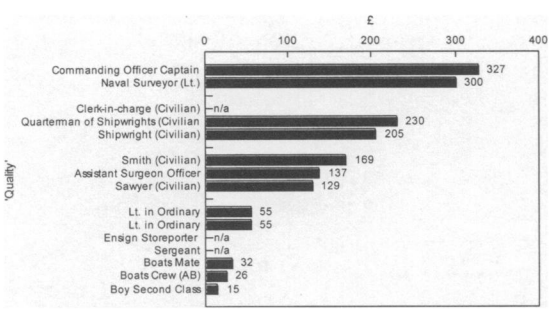

FIGURE 14. Gross annual pay rates for naval ratings and civilians as calculated from muster lists 1815–1820. Pay grades have minimal correspondence with rating/social rank.

Referring to Figure 16, it is clear that pay rates were not correlated with social status in the Naval Establishment society. The categories on the left side of the graph reflect three social classes whose members are arranged in descending order within the hierarchy for each class. Social classes defined by officers/

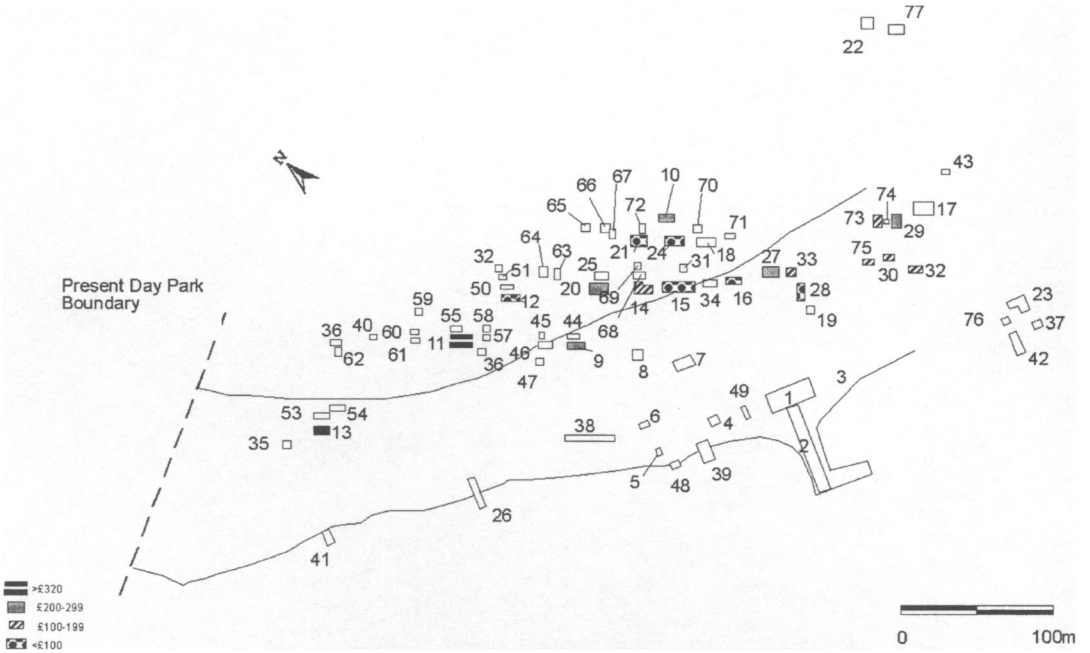

FIGURE 15. Residential distribution based on gross annual pay rates.

gentleman civilians, civilian artificers, and noncommissioned military/navy personnel show variation not only within but also between groups, illustrating that a person's social position may not be a direct reflection of their economic position as determined by pay rate.

Figure 16 also raises another point of interest. A hierarchy based on pay rate is clearly evident within the civilian artificer population at the establishment. Although further research remains to be done, these data beg the question whether residential location within this social group was influenced more strongly by economic factors than were the naval and military community as sawyers, smiths, and shipwrights were all clearly on different pay scales. Another factor influencing residential location may have been ethnicity, as both Francophones and Anglophones appear on the muster lists. Finally, perceived social status distinctions due to other factors such as literacy, for example, may have been operative. Based on the signatures on the pay lists it is clear that some artificers were literate and others had to have a signatory confirm their marks. In the absence of a formal analysis, no definitive statements can be made at this time. It is interesting though that artificers' huts do show considerable size variation, and this may be a function of socioeconomic status. A detailed analysis of assemblages from the three artificers' huts has yet to be carried out, but a cursory examination shows differences in construction, heating (stoves versus fireplaces), and ceramic categories (expensive versus inexpensive varieties and vessel types), suggesting a level of social stratification.

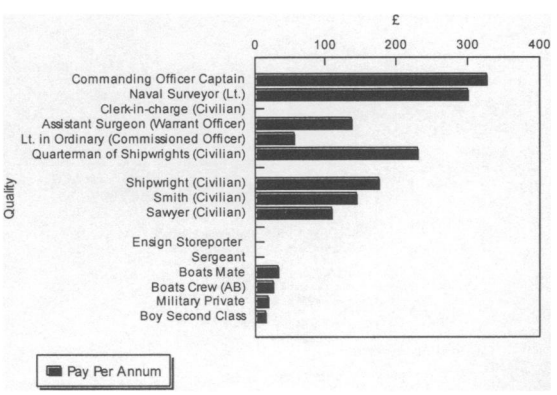

FIGURE 16. Ranking based on social position as defined by naval rating. The three broad categories shown on the left of the graph show minimal correspondence with gross annual pay.

Social Geography and Residential Mobility (1822–1828)

As discussed above, between 1822 and 1827 the Naval Establishment witnessed a dramatic decline in population due to the Royal Navy's efforts to reduce expenditures. During this time most personnel were recalled to York or Kingston, and Penetanguishene's complement was limited to a commanding lieutenant; an assistant surgeon (Clement Todd and his wife Eliza), 3 extra men; 2 boys; 1 storeporter; 1 shipwright; and the military guard consisting of the lieutenant and his wife and a detachment of about 20 soldiers. Such a radical change in the composition of the population might be expected to have had far reaching effects on the nature of social relations in the naval community. Indeed, there is evidence that the rigidly defined stratified society, which had formerly characterized the establishment between the years 1817 to 1822, began to disintegrate.

The documentary record at this time is replete with contradictory views of the naval community. On the one hand, it would appear that after 1822 the Penetanguishene community was still a cohesive social unit in which the members lived a harmonious existence, as again recounted by Franklin on 22 April 1825:

> "There are a Lieutenant of the army with his wife and a surgeon and his wife (in addition to the Lieutenant Commanding) stationed here. These form a social party and cause the time to pass very pleasantly ... I do not think however, that either you or I would relish such a secluded life. If we could convey our library, it would be the very place for me to get through it ... The establishment is ... under the command of a Lieutenant at whose quarters we are hospitably entertained. There are two other officers who are both married. The two ladies and three gentlemen form the whole society. They pass their time however very agreeably and find amusement in fishing, shooting, etc. during the day and occasionally in a game of whist at each others houses in the evening ... " (Franklin quoted in Trail 1896:120–121).

On the other hand, other documentary evidence suggests that life at the base during this period was fraught with strife. In two letters written by the military lieutenant, the hut in which he had to spend his "wretched" years at the base is described as a hovel. Less is known of his replacement, although it seems that the military officers might not have been inclined to socialize with the naval authorities to the extent intimated by Franklin, due to the endemic and pervasive friction between the naval and military authorities:

> respecting Lodging Money ungenerously withheld from me by Mr. Hartney, Barrack Master at York, from the 24 December 1824, to the 8 June 1826, the day I marched from Penetanguishene ... I never occupied any military quarter during the four wretched years I spent at that post, but simply a wooden hovel in the Naval Department neither proof against wind or rain nor would any repairs or alterations in common with the rest of the hovels tumbling to pieces be allowed but at my own expense ... I believe that every officer that preceded me received their lodging money (NAC 1826).

The documentary sources also elucidate shifts in residence occurring at this time (Figure 17). These can be attributed to some extent to the naval reductions and the effect that these cutbacks had on the Naval Establishment society. For example, the storeporter [residence 28] moved into what had formerly been the quarterman's cabin [20]; the naval lieutenant [12] moved into the commanding officer's residential compound [11]; the military lieutenant [21] shifted residence to an unspecified hut; and the military guard moved into the naval barracks [15] (NAC 1828b). The reduced number of seamen may have meant a shift in residence although they also may have occupied the naval barracks as before, along with the newly arrived soldiers.

Another residential move at this time suggests that additional factors may have influenced the decisions to change residence. As discussed, there is convincing archaeological evidence that the assistant surgeon, Clement Todd, and his wife, Eliza, moved from their official residence [14] to the hospital [17]. The real significance of this residential move is seen with reference to Figure 3: the hospital is located in the extreme south end of the establishment on the geographic periphery of the base and in an area formerly occupied by the marginal members of the community, the artificers. A closer look at the South Complex shows that the hospital was situated together with six other huts formerly used by the artificers (Figure 7). Supporting documentary evidence for a residential move by the Todds is provided by the 1827 survey in which the assistant surgeon's official dwelling [14] is described as "generally decayed and

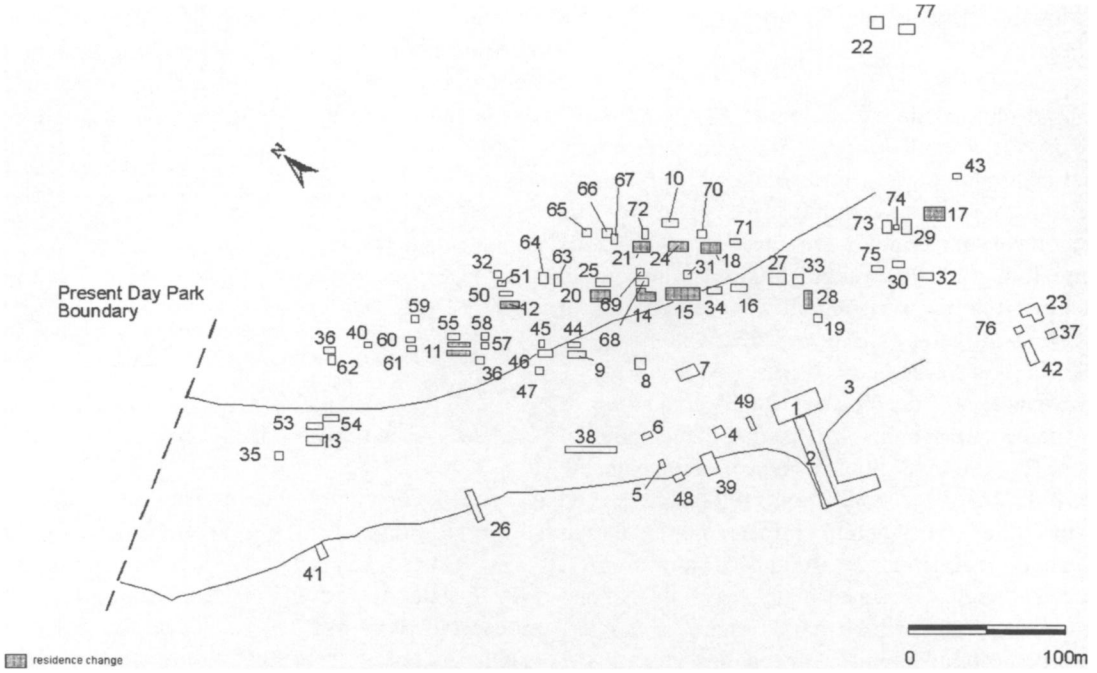

FIGURE 17. Shifts in residence after 1822.

rotten." Although the written record provides no indication that the hospital served as a residence for the Todds, the hospital [17] would have provided a level of comfort as a dwelling not available in the official residence. Besides being well lit and heated, more space (525 ft.^{2}) was available—an area that would have ranked number two behind the commanding officer's quarters. In addition, the proximity of a kitchen [29], requested in 1819 for the official assistant surgeon's residence but never constructed, was an added benefit.

The question of interest is why would Todd have moved to the hospital and used this as a residence? Even if his official residence was in need of repair at times, there is sufficient evidence to suggest that the duration of occupation was longer than would have been necessary for the repairs to have been completed and, in fact, the sheer quantity of artifacts suggests a lengthy occupation, probably several years. Such a move has other implications. As discussed earlier, this area was used by the civilian artificers prior to 1822, and it is highly unlikely that Todd would have lived amongst those whom he may have considered his social inferiors, especially given the nature of the society at the establishment. However, the naval reduction meant that only three extra men and a single shipwright would have been in residence at the establishment. Considering that the seamen's barracks and at least three other artificer huts were available for habitation, it seems unlikely that any artificers would have found it necessary to live in the huts around the hospital. Indeed these may have no longer been inhabitable in any case as an 1827 description suggests, "artificers huts built by themselves [are] entirely decayed and tumbling down" (NAC 1827). If so, then Todd and Eliza may have been living in some solitude on the margins of the base. Although subject to speculation it is tempting to suggest that the newly married couple (Eliza and Clement were married in 1821) may have sought this seclusion for reasons described below:

> [Captain Roberts] bitterly laments the extreme drunken and profligate conduct which prevails throughout his Paradise of Penetanguishene ... the consequence is that the Gentlemen and Ladies get drunk in all weathers and are withal so obscene in their cups that Capt. R's family can not stir out even in the day time without being disgusted (NAC 1821).
>
> by excessive and continual drinking [Lieutenant James Jackson, second in command] has made himself a

> complete bloated beast in person and his mind seems to be no less debased (Harris Papers 1822).

Another important implication of this residential move is that with such a move it might be assumed that there were a limited number of patients. Prevailing attitudes toward disease in the early-19th century had not changed much since antiquity. Treatment of disease was nonspecific, and general remedies were applied for illnesses such as dysentery, diarrhea, scabies, syphilis, pneumonia, pleurisy, typhus, typhoid, malaria, fevers of various sorts, smallpox, and a host of other ailments. Ridding the body of harmful fluids through purges, emetics, bloodletting, and blistering or adding fluids such as wine, rum, brandy, mercury, opium, lead, and other noxious substances were accepted medical techniques—truly the cure in many cases was worse than the disease. The poor understanding of the mechanisms by which disease was spread meant that patients were quarantined in situations where there was even the slightest chance of contagion, and surgeons took various precautions such as wearing waxed linen clothing, breathing through rags, and stuffing cotton batting up their noses. It is for these very reasons that the hospital was located as it was on the extreme margin of the establishment. Given the prevailing fear of disease, then, it seems astonishing that Todd would have chosen such a place as a residence —unless there were no patients. In fact, the muster lists confirm that Penetanguishene's contingent was rarely sick, and treatments were for only minor ailments such as axe injury, insect bites, and frostbite, not the plethora of other deadly diseases that plagued both military, naval, and civilian populations at this time.

Perhaps the single most important point with regard to the social geography of the base during this period is the fact that Todd was able to affect a residential move to the hospital in the first place. Simply by virtue of living on the periphery of the establishment, this meant that the factors governing the social geography characteristic of the earlier period may no longer have been in effect. The change in command structure after 1822 placed Todd in a higher social and economic ranking than the commanding lieutenant. In light of this new position, it is tempting to speculate that Todd simply may have chosen to move to the new location without seeking the permission of the lesser ranking commanding officer. However, in so doing, the neat spatial organization of residences based on rank/rating characteristic of the place between 1817 and 1822 was effectively eliminated. A residential move in this situation suggests a certain degree of social disintegration characterized by a more flexible residential patterning that was not subject to the same previous rules.

Military Officer, Native Occupants, and Gradual Abandonment: 1828–1834

Although the survey of 1827 indicated that several artificers' huts were in an advanced state of decay and should be torn down, these were reoccupied by military personnel arriving in fall 1828. With no accommodations in place, military officers and noncommissioned personnel were quartered in the uninhabitable artificers' huts and former hospital at the extreme south end of the site: "Lieut. Woodin will appropriate three dwelling houses and one hospital for such Officers as may require Quarters, and some of the issuers etc. will be accommodated with the use of a Barrack" (NAC 1828c). As discussed, buttons from the 68th and 71st regiments, stationed at the base from 1827 to 1829 and 1829 to 1834, respectively, found in hospital contexts dating to this period, provide strong evidence for the introduction of the military newcomers to the naval community at Penetanguishene and their accommodation in buildings deemed to be unfit for habitation only a year earlier (Table 2). Strained relations between the military and navy in the first few months may have been one of the factors at play in the decision to house military personnel at the very margins of the establishment. By the next summer, however, approval to construct military barracks and officers' quarters was given and this was done promptly and as far away from the naval end of the site as possible. In the meantime, the military detachment, recently arrived, was quartered in the former seamen's barracks (NAC 1828b).

In the South Complex, the historical record is largely silent for the years from 1829 to 1834, although there is good evidence to indicate who was living in, what would have been

by that time, the completely dilapidated artificers' huts and hospital, "... all the houses are constructed of rotten Wood and ... Windows, Doors and Floors etc. are constantly under repair ..." (NAC 1828d). Fur trade artifacts or "Indian presents" (represented by glass beads, silver tinkling cones and brooches, and various personal items, together with stone pendants, and native ceramics) (Table 5) suggest that the dilapidated structures may have provided a measure of shelter to visiting aboriginal groups at this time. As discussed, these are found in the latest phases of the hospital's occupation, particularly the cellar pit as well as in two other structures in the South Complex [13] and [14] (Figure 7). Although there are potential problems with attributing artifacts to specific groups of people as suggested earlier (Starbuck 1994), the stratigraphic context of the cellar provides supporting information for the identification of some of the artifacts as native-used.

The presence of these objects is perhaps not too surprising considering that Penetanguishene was where the "King's Bounty" was distributed to the loyal native allies. More telling, however, is that the native allies should be seeking shelter, if only temporarily, in huts that were essentially uninhabitable and located at the extreme margins of the new military establishment, which was located at the far north end of the peninsula. Whether this was by choice or enforced by military authorities is unknown, but the prevailing attitudes of racism against native people, particularly in population centres such as York and Kingston, suggest the latter. As early as 1793, Elizabeth Simcoe, the lieutenant governor's wife, describes the Mississauga, an Ojibwa group settled on the north shore of Lake Ontario:

> "There are Mississauga Indians here. They are an unwarlike, idle, drunken, dirty tribe. I observe how extremes meet. These uncivilized people saunter up and down the town all day with the apparent nonchalance, want of occupation and indifference that seems to possess the London beaux in Bond Street" (Simcoe quoted in Briggs 1911:115).

By the first decade of the 19th century, the Mississauga had surrendered most of their land; they had been devastated by two smallpox epidemics that reduced the population by as much as two-thirds and were clearly a marginalized people in distress (D. Smith 1975, 1987). Nevertheless, the Ojibwa remained loyal to the British Crown and made the annual trip to Penetanguishene to receive the King's Bounty.

Conclusions

The notion of social flux, the steady stream of people circulating through the Naval Establishment at Penetanguishene, aptly describes the society that existed between 1817 and 1834. To truly understand this complex phenomenon requires a melding of both archaeological and historical information. Analysis of the early period of occupation at the Naval Establishment between 1820 and 1822 has shown that there was a marked geographic distribution of residences according to rank or rating. Social status associated with a person's place within the hierarchy of military and naval personnel at the base was the prime factor in residential location. Persons attached to the navy and military in a temporary capacity, the civilian population of artificers, a fur trader and contractor, were less influenced in their place of residence according to social status, although economic status, based on a wage structure, may have been a factor in the allotment of residential space. Economic status among military and naval personnel, as measured by annual wages, was less of a factor in residential location than it may have been for the civilian population attached to the base.

During the period of naval reductions in Upper Canada, between 1822 and 1827, the naval base experienced a degree of social disintegration where residential patterning became more flexible and less influenced by social status as determined by rank or naval rating. Differences in the quality of naval and military officers' housing, reflected in several pieces of correspondence, indicate that the military suffered depredations while under naval jurisdiction. Additional evidence for the breakdown of the social geography, so evident in the earlier period, also is apparent in the residential shift of the assistant naval surgeon and his wife to the geographic periphery of the establishment where they took up residence in the former naval hospital. Archaeological evidence offered in support of this assertion, in the absence of written

evidence, provides insight into the society at the base at this time. A dramatic depopulation of the post, together with a change in the power structure and a rapidly decaying infrastructure of housing as a result of the navy's reluctance to make further investment in the post were probably contributing factors in the decision of Todd and his wife to move to an area formerly occupied by the civilian artificer population.

A detailed stratigraphic analysis of the hospital also provides the basis for differentiating the occupation of this building by various personnel between 1817 and 1834. Features and artifacts related to the Todd's occupation at the hospital suggest that Todd may have been aware of current medical writings, including botanical healing. The presence of an unusually large subfloor pit suggests that he may have been an advocate of this school of medical practice. If so, even though Todd was living in a remote outpost of the British empire, he was still connected to the larger scientific community in his botanical studies.

The final years of the hospital from 1828 to 1834 witnessed the reoccupation of the building by a military officer and native people. The quartering of the military personnel was in response to the large influx of military personnel from Drummond Island in 1828. The quartering of a military officer in the hospital is perhaps further evidence of residence patterning according to one's place in the official hierarchy. That the naval and military branches of the service did not always function on an equal footing is suggested by the accommodations in which many of the military officers were placed, i.e., in the former artificers' huts located on the social and geographic periphery of the base in structures deemed to be uninhabitable years earlier. The establishment of a military post at the extreme north end of the harbor, one kilometer distant from the naval end, is another manifestation of the social geography that was evident in earlier periods. During the six-year period when both the military and naval services were at Penetanguishene, each establishment was physically separated from the other, reflecting the distinct branches of the British Crown that were evident in other aspects of administration in the same kind of opposition.

After 1829 material attributed to native people argues for the use of the hospital as a residence or shelter for the various groups who came to the military establishment to receive the King's Bounty. Although little is known of the hundreds of Ojibwa who visited the site for weeks at a time, the recovery of trade beads, ceramics, jewelry, and other items points to their use of the hospital, albeit in a dilapidated condition, in the final years of its existence. Once again, the very presence of native people at the hospital is symbolic of the marginal social position of these groups within the large Euro-Canadian society and the military community at Penetanguishene.

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