Faunal Analysis of the Draper Site

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PREFACE

The Draper longhouse referred to as Structure 2 has offered an opportunity to study the domestic aspects of a single swelling unit in greater detail than any such unit excavated to date. While it is immediately clear that pottery and lithic material are traditionally of greater value in delineating social and economic foundations of the human group, there are certainly other marks of that group which involve the collection of animal foodstuffs and whose remains we can examine for such marks.

What must be borne in mind during faunal analysis is that while food bone does represent one sector of the artifact inventory (all material deposited by human agency, altered or not, is artifactual), it is not generally a diagnostic part of the assemblage except as it indicates exploitative patterns – and then only in a general way. Patterns of bone deposition within an occupational context may also be of limited value as, for instance, bone-working does not leave recognizable detritus of the type that results from stone-knapping; too, bone is likely to be rearranged and disturbed by human intervention (in housecleaning or in choosing raw material for tools or ornaments) or by canine interference. The effects of this latter indulgence can be affirmed in the present study but not measured. Further, it is of dubious value to segregate, say, deer and bear limb bones since they obviously do not carry the same distinctive values as projectile points and scrapers – given that they be defined as artifacts.

It is most unfortunate that the entire floor area was not excavated, due to the occurrence of large trees and shortness of time. One comment which holds true in the present study is the very evident concentration of material at the west end of the structure. By comparison, the two hearth areas within the house at 22–24N and at 26–30N are more or less associated with 865 portions of bone and shell refuse; the hearth areas included within the house between 40–47N are associated with 1373 portions, not including the possible midden squares at 48–50N, just beyond the end wall. The large area remaining unexcavated at the centre of the structure no doubt harbours a further store of bone, situated, as it is, upon another hearth area.

Several interesting patterns arise from the current investigations. One involves the treatment of scrap bone by dogs, a point alluded to earlier in this section. With more excavation from within houses and from middens, a comparison of proveniences of the peculiarly affected bone would give a clearer impression of the role of domestic animals in the daily scene. A pattern which escapes explanation is the paucity of fish bone. In the White site assemblage, over 50% of the bones were of fish origin, while at Draper we find less than 8% of the remains are fish. If these two sites are in reality contemporaneous, and culturally linked, why should we find such a difference in the importance of fish? Possibly, the difference does not reflect site function.

In defining the area, and thus the material, to be considered, the study was guided by the necessity to deal with only the house structure and its immediate environs. With reference to Figure 1, it was decided that the house and environs should be represented by faunal remains from 85 2-metre squares; those NOT included are as follows: C, D, I, J, P, Q, X, AI, AO, and BU. In addition, there are four units in a trench along 29–30E which were faunally examined but which are included only as noted. Those squares designated BC, CO, CP, CQ, and CS *ARE* included, however tenuously – despite the existence of a midden in CQ – because there is really no way of segregating the data; the proximity of the midden argues that it served the house and is, therefore, integral to its history.

The above letter designations for squares are for the convenience of the analyst, and while they may have been substantially more convenient on a site-wide basis for the researchers than the system of metric coordinates, their use ends here; coordinates are cited in the remaining text where necessary. Further, when individual bone specimens are identified, they have been given a number (e.g. 1282:6). The first number designates a bag into which bone material from a single level of a 50 cm subsquare unit was placed during the excavations; the second indicates the specimen number within that lot number. Both are recorded in the faunal analysis catalogue in the possession of the National Museum.

Comparison of the data from the 1973 excavations with material from previous work cannot be effected here. None of the bone from Ramsden's initial diggings (Ramsden, 1968) has been thoroughly examined to my knowledge, and subsequent recoveries by the OAS crews up to 1972 have been left virtually untouched. In future it is suggested that the bone removed prior to 1973 should receive analytical treatment particularly that from Structure 1; additionally, consideration should be given to comparative indexing of bone recovered from individual structures, precedence for which appears in Stewart's handling of intra- and inter-house faunal remains at Nodwell site in Bruce County, Ontario (Stewart, 1974).

Tables I–VII give particulars of material identified in the faunal assemblage of the 1973 work at the Draper site. Since the material examined includes both intra- and extra-house bone, two listings are provided, one for the house alone and one for the entire sample.

Taxonomic references and order of listing both in the tables and the text are given according to Conant (1958), Godfrey (1966), Peterson (1966), and Scott and Crossman (1973).

ZOOLOGICAL DESCRIPTIONS OF THE FAUNAL REMAINS

Mammalian Remains.

Mammal bone was easily the greatest component of the faunal assemblage, providing just over 3500 pieces from the interior and environs of the house; an additional 300 portions from other test pits were also examined. Twenty-one wild species plus human and domestic dog are included to fill out an impressive list which features a least estimate of 10 individual deer – easily the backbone of the subsistence economy of the house (see Tables I and II).

Hare and Rabbit

The family Leporidae is one difficult of separation; apparently, both the Snowshoe Hare and the Eastern Cottontail are present at Draper, the former being more

Table I Distribution of Animal Remains from the Draper Site 1973

	IN HOUSE				TOTAL			
	# Bones	Percent	# Indiv.	Percent	# Bones	Percent	# Indiv.	Percent
Mammalian	3518	85.4	49	66 2	3816	85.2	52	65.8
Avian	100	2.4	11	14.9	120	2.7	13	16.5
Fish	340	8.3	10	13.5	357	8 0	10	12.7
Reptile(Turtle)	40	1.0	3	4.1	42	0.9	3	3.8
Amphibian	1	tr	1	1.4	3	tr	1	1.3
Invertebrates	119	2.9	—	—	123	2.7	—	—
Indeterminate	-	—	—	—	17	0.4	—	—
Total	4118	100	74	100	4478	100	79	100

Table II Mammalian Distribution and Frequency of Occurrence in the Draper Site, 1973.

	In house		Total	
MAMMALIAN	# Bones	# Indiv.	# Bones	# Indiv.
cf Snowshoe Hare *(Lepus americanus)* . . .	12	2	12	2
cf. Cottontail Rabbit *(Sylvilagus floridanus)*.	1	1	2	2
Hare/Rabbit (Leporidae).	19	2	22	2
Grey Squirrel *(Sciurus carolinensis)*.	1	1	1	1
Red Squirrel *(Tamiasciurus hudsonicus)* . . .	4	1	4	1
Woodchuck *(Marmota monax)*	41	4	44	4
Eatern Chipmunk *(Tamias striatus)*.	2	1	2	1
Beaver *(Castor canadensis)*.	37	3	41	3
Deer Mouse *(Peromyscus* sp.)	4)			
Meadow Vole *(Microtus* sp.).	2)	5	10	5
Mouse spp	4)			
Muskrat *(Ondatra zibethicus)*	17	2	17	2
cf. Domestic Dog *(Canis familiaris)*.	122	3	136	3
cf. Timber Wolf *(Canis Lupus)*	11	1	12	1
Dog/Wolf *(Canis* sp.)	14	—	15	—
Red Fox *(Vulpes vulpes)*.	2	1	3	1
Grey Fox *(Urocyon cinereoargenteus)*	2	1	3	1
Fox sp. (Vulpinae)	3	—	3	—
Black Bear *(Ursus americanus)*	57	2	60	2
Raccoon *(Procyon lotor)*.	12	1	12	1
Mink *(Mustela vison)*	2	1	2	1
Marten *(Martes americana)*.	2	1	2	1
Fisher *(Martes pennanti)*	4	1	4	1
Otter *(Lutra canadensis)*	3	1	3	1
Weasel Family (Mustelidae)	1	—	1	—
Unidentified Carnivore (Carnivora)	10	—	11	—
Whitetailed Deer *(Odocoileus virginiana)*. . .	822	10	929	11
Eastern Elk *(Cervus canadensis)*.	4	1	4	1
Human *(Homo sapiens)*	11	3	22	4
Unidentified Mammal	2292	—	2439	—
Total	3518	49	3816	52

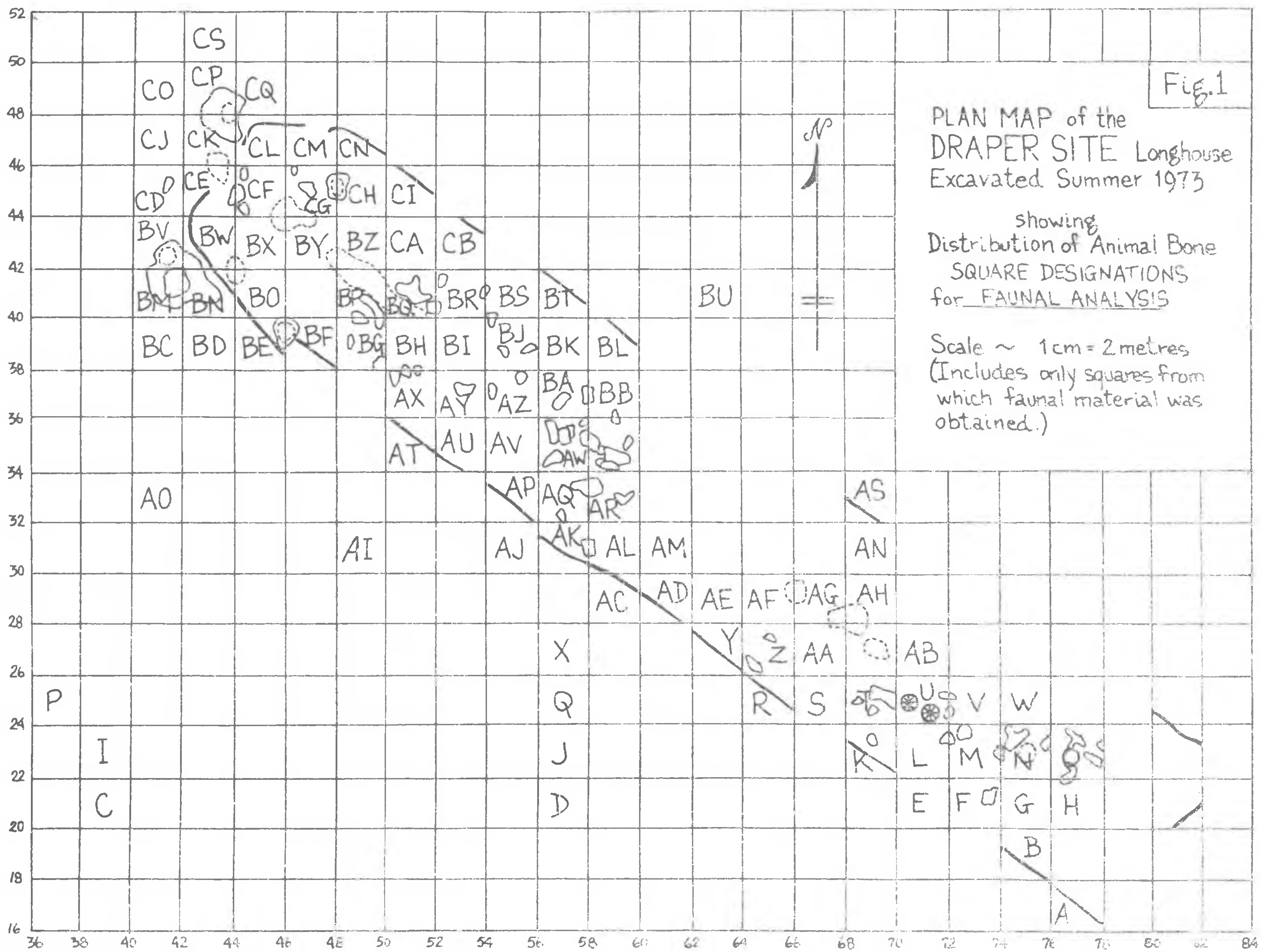

Fig.1

PLAN MAP of the DRAPER SITE Longhouse Excavated Summer 1973

showing Distribution of Animal Bone SQUARE DESIGNATIONS for FAUNAL ANALYSIS

Scale ~ 1 cm = 2 metres (Includes only squares from which faunal material was obtained.)

numerous. Additionally, twenty-two portions are assigned only to family level. Thirty-two of thirty-six items occur in association with the house. According to Peterson (1966), both species are within current distribution range.

Squirrels, Chipmunk, and Woodchuck:

Representatives of the squirrel family are not numerous. The two tree squirrel varieties – Red and Grey – and the Chipmunk account for a mere seven bones all of which occur in the house context.

The woodchuck is the 4th most numerous mammalian species by simple bone count (44) and is represented by four individuals. Only three items do not occur in the structure (see Figure 2). That this animal is common here is little surprising, given the abundance of open field for maize agriculture and the loamy soil occurring throughout the region, being ideal for woodchuck tunnelling (see Bowman, this volume). Perhaps for this very reason, some of the bones are of intrusive, post-occupational occurrence.

Beaver:

This ever-present creature is known from forty-one bone portions which indicate the presence of at least three individuals. If beaver were important in trade, we might have expected to recover more evidence, but one cannot extrapolate village economy from one house and besides, the timing is premature for the high pressure of trade with Europe. Thirty-seven items were recovered from the house (see Fig. 3).

Mice and Muskrat:

The genera of *Peromyscus* (Deer Mouse) and *Microtus* (e.g. Meadow Vole) are accounted for, collectively yielding a complement of ten bones and five individuals. Deriving any significance from these is difficult since, as with woodchucks, mouse remains could be intrusive. No doubt the Indians were much bothered by these vermin and probably ate them on occasion.

Muskrat, a fine fur-bearer, provided a minimum of two individuals from seventeen bone and tooth portions, all from within the structure.

Dogs, Wolves, and Foxes:

Material referred to the genus *Canis* may include both dog and wolf but assignments to each species are provisional, based on the weakest of criteria, namely size. Thus, small *Canis* bone – 136 portions – may be Domestic Dog, comprising three individuals, and larger *Canis* bone – twelve portions – may be Grey Wolf (*C. lupus*) (see Fig. 4).

In a later section, discussion will involve the rather high occurrence of bone which has been chewed and possibly swallowed by carnivorous animals. While it would be impossible to prove the source of these modifications, it is probable that the majority of the changes were caused by domestic Indian dogs. The bone material identified as "cf. Dog" is not impressive as their imputed activity indicates.

Both Red and Grey Foxes are present in the remains. In some cases, the identifications are provisional, as is the case above. Altogether, nine bones derive from fox, one of each species at best estimate.

Black Bear:

This animal, essentially an inhabitant of the forest, is rarely absent from Iroquoian site faunal assemblages, either because it represented an economically valuable meat source, or because it had ritual importance, or both. As with most large animals, the identificable remains far outnumber the count of individuals; sixty items of bone and tooth derive from a minimum of two animals. Of these, seventeen (28%) were phalangeal portions, one bearing cut marks (see Figs. 5 and 13).

Raccoon:

Another primarily woodland species, the raccoon occurs sparingly in the assemblage, consisting of twelve portions of at least one individual; all items were recovered from the house structure.

Weasel Family:

The Mustelidae consist of important fur-bearing species which, in the current analysis, include Mink, Marten, Fisher, and Otter. With no recurring bone elements, the minimum numbers of each stands at one. As with raccoon, they are all woodland creatures but the mink and otter have marked affinities for aquatic habitat.

While we cannot be certain of the population sizes of these animals in pre-contact times, it is evident that the Pickering area of the 20th century is poorly represented in all of these species, but particularly marten and fisher (Peterson, 1966). Certainly, they are not extinct but their ranges have experienced marked reduction along the southern boundaries.

It is probable that the category of "Carnivora sp." contains several other portions belonging to the Mustelidae but comment is limited by the difficulty in identifying those bones.

Whitetailed Deer:

Standard mainstay of an Iroquoian longhouse food economy is the deer. The total assemblage examined contains 929 portions of deer bone representing at least eleven individuals. Actually associated with the house structure are 822 bones and teeth from at least ten animals –

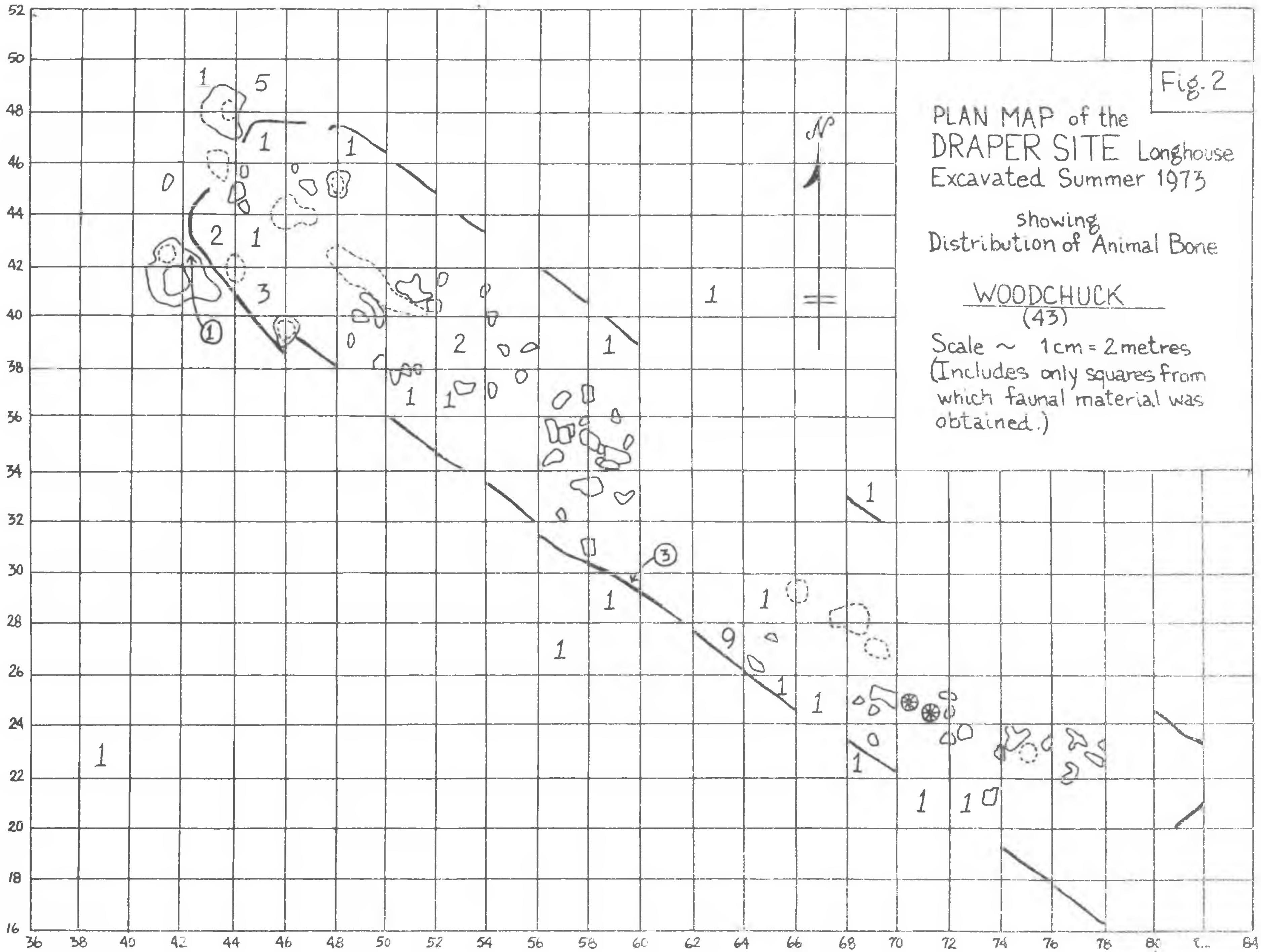
Fig. 2
PLAN MAP of the
DRAPER SITE Longhouse
Excavated Summer 1973
showing
Distribution of Animal Bone
WOODCHUCK
(43)
Scale ~ 1cm = 2 metres
(Includes only squares from which faunal material was obtained.)
N

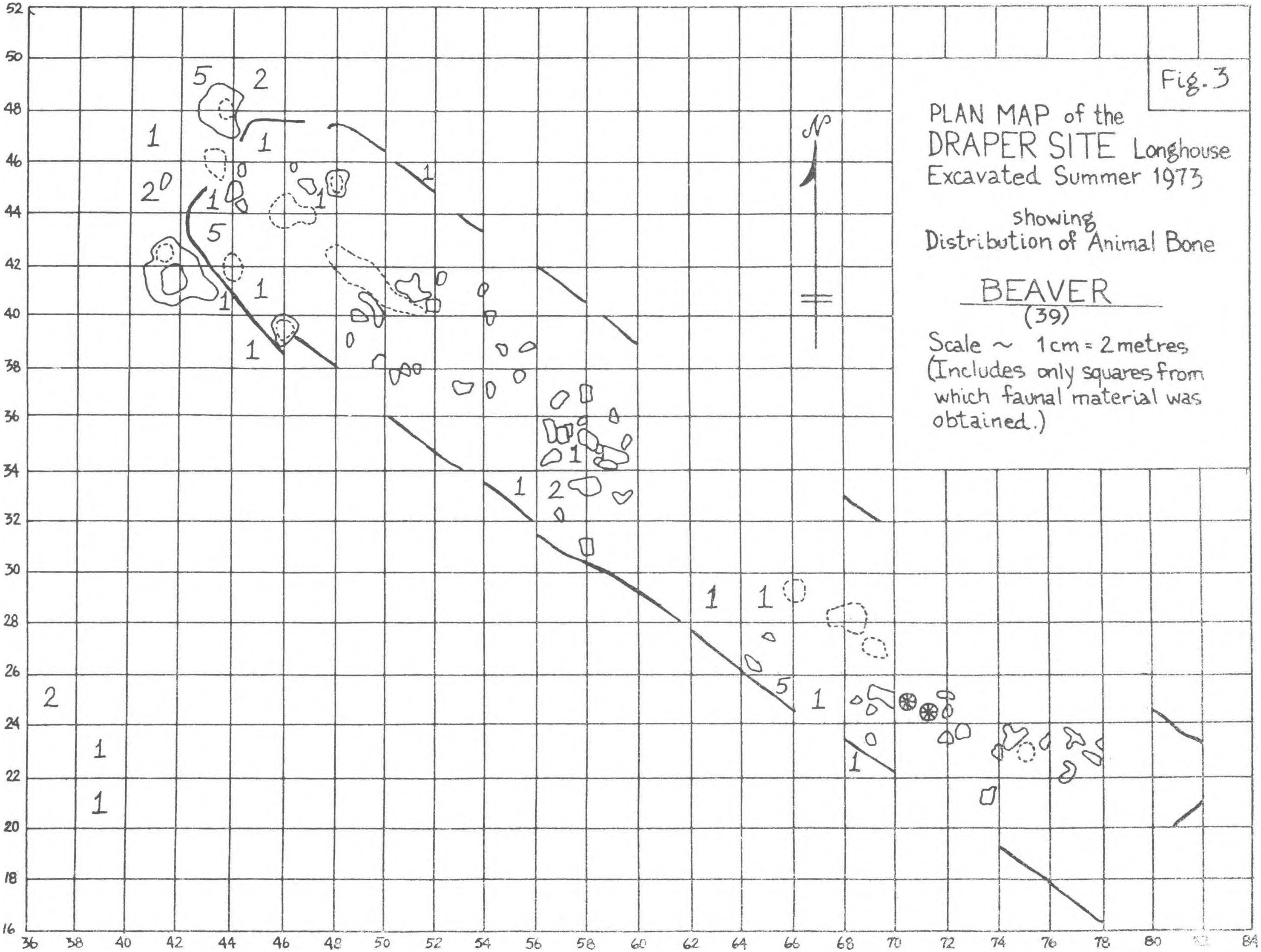
Fig. 3
PLAN MAP of the
DRAPER SITE Longhouse
Excavated Summer 1973
showing
Distribution of Animal Bone
BEAVER
(39)
Scale ~ 1 cm = 2 metres
(Includes only squares from which faunal material was obtained.)
N

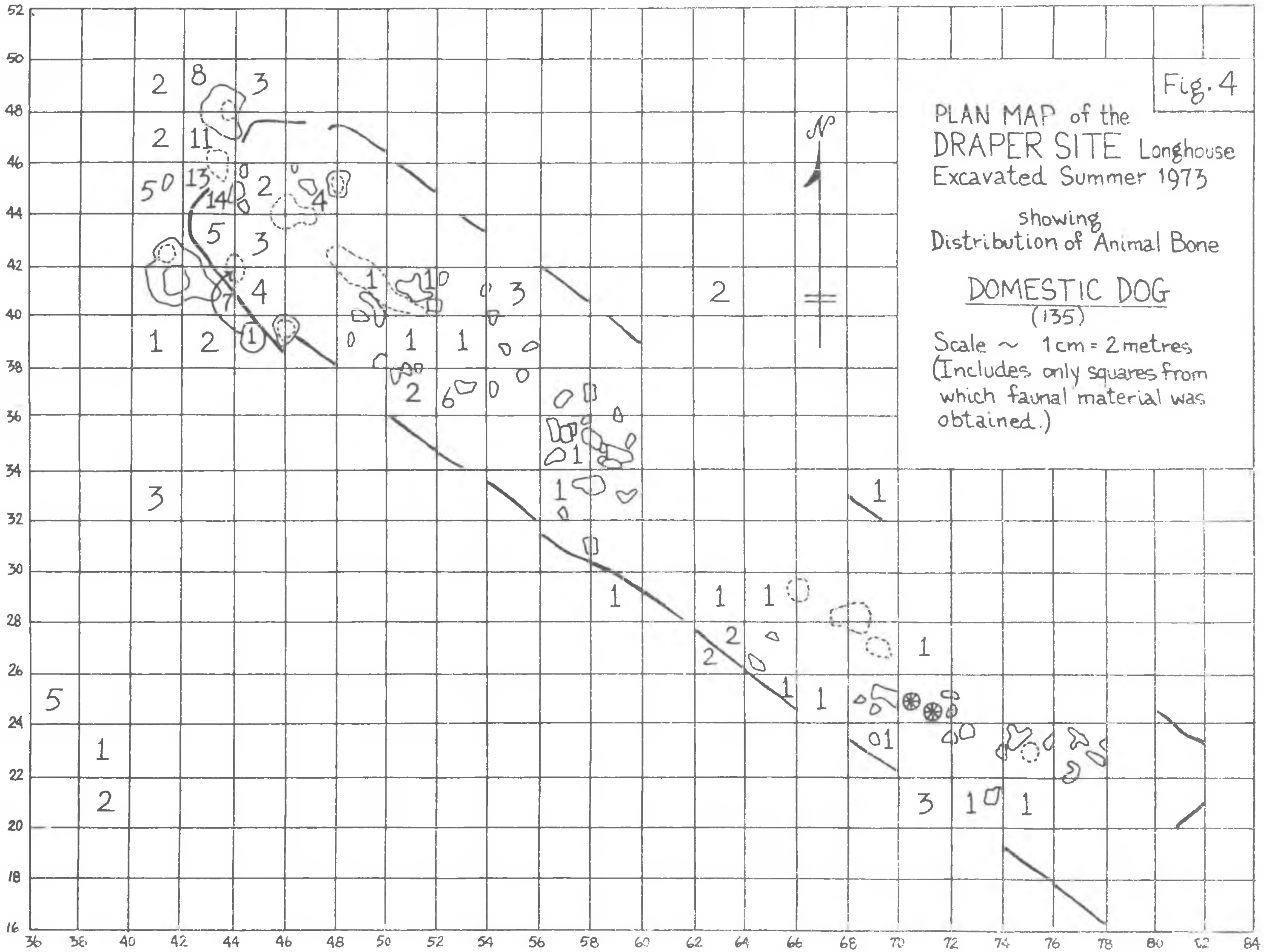
Fig. 4
PLAN MAP of the
DRAPER SITE Longhouse
Excavated Summer 1973
showing
Distribution of Animal Bone
DOMESTIC DOG
(135)
Scale ~ 1cm = 2 metres
(Includes only squares from which faunal material was obtained.)
N

nine adults and one or more juveniles (see Fig. 6).

The fact that deer bone totals are by far the most impressive is no doubt explainable by the fact that such relatively large animals provide a great number of fragments which are only partly identifiable. For instance, while it is a simple thing to identify cannon bone fragments as deer (by the presence of anterior groove and the distal condyles), it is not at all easy to distinguish which of the four cannon bones of deer are involved. Thus, the figures in Table VIII may be misleading for, in fact, of the 181 items listed as "lower leg metapodial" elements, only 54 could be assigned to a specific metapodial (cannon) element. Likewise, the 178 phalanges listed in Table VIII are not necessarily complete elements nor can they be given specific allocation within the hoof skeletons.

That almost 49% of the bone of deer origin is from the lower limbs is not surprising, then, for the reasons stated above. Despite these facts, however, there is still a possibility that selection was operative in House 2; the metapodial and toe elements are rather more common than other portions of the skeleton. In this connection we might consider that the bones of the lower leg are ideal for tool and ornament manufacture. For example, phalanges are used in the production of "toggles" and cup-and-pin game components, and metapodial slivers are commonly recruited for manufacture of durable, pointed objects such as awls, needles, and projectile points , the cortical thickness and density are well suited to the purpose. While selection for these limb elements is therefore suspected, it cannot be flatly related to capture and/or butchering techniques.

With larger animals, perhaps the meatless lower extremities would have been removed before return to the village, thus effectively eliminating the occurrence of metapodials and phalanges. Too, in preparing hides of long-legged beasts – like deer and moose – the toes and shanks would be removed before tanning. There seems, however, to be an appropriate number of these bones in the House 2 assemblage to suggest that skinning was performed in or near the longhouse, if not also the tanning process, and that butchering was performed local to the house also.

Elk or Wapiti:

This animal could well have been important but the paucity of elk bone begs the question of whether the items recovered were from an animal taken locally or in trade, or even if it was obtained for meat. The four elements include two phalanges and a portion each of vertebra and rib. There is no doubt that the species was available throughout most of southern Ontario but its numbers may never have been great. They were extirpated from eastern Canada by AD 1850 (Peterson, 1966).

Human.

The bone associated with the house and ascribed to *Homo sapiens* (apart from the two infant burials in 24–26N 70–72E) is found in the west half of the house with half of it occurring round about the door (see Fig. 7). A further eleven portions were concentrated in a single square 24–26N 36–38E.

Most notable is the nearly complete mandible (1437:1) from 46–48N 42–44E – complete in the sense that it consists of the corpora of both halves, although the right angular portion and the left coronoid process are broken away. The only tooth remaining *in situ* is the left 2nd incisor, but others were present and lost *post mortem.* Remarkable is the total absence of alveolus for both P_2-M_3 series; complete loss and alveolar resorption have occurred which, along with the very heavy attrition of the incisor, indicate an elderly person. Two other teeth, a lower left 1st incisor (1252:1) and a lower right 2nd incisor (1397:1), came from more or less adjoining squares and it is tempting to associate the three teeth because (a) they are not duplicates; (b) they all exhibit heavy attrition; and (c) they occur contiguously (although 1252:1 is almost four metres distant from the mandible).

A second mandible (522:1) occurs near the centre of the structure in 30–32N 58–60E. It is also virtually intact and possesses P_2 and M_1. Again, partial edentulism occurs but the alveolar resportion has not proceeded to the extent witnessed by the mandible above. Age is indeterminate. Occurring approximately one metre north in the same square is the left arch of a juvenile 5th cervical vertebra (510:1) which derived from a child of less than seven years of age, judging by the lack of central fusion (Anderson, 1969).

The square northeast of this last (32–34N 56–58E) contained a single middle phalanx of *Homo.* Other identifiable portions include the central protuberance of an occipital (1975:1) and a frontal portion above nasion and extending over the left orbit (1662:1). Three other items are neurocranial fragments not satisfactorily assigned to element; they all manifest some form of alteration which suggests some human modification but final judgment is withheld (see 805:1, 1028:1, 1295:1).

Outside the house, in 24–26N 36–38E, eleven human bone portions were recovered. Fifteen portions are probably of the same left tibia, but with fitting and gluing these reduced to three definite tibial portions and five miscellaneous pieces. More important was the finding of a right mandible corpus (187:1) with I_2-P_1 *in situ.* As with the first mandible described, this mandible featured loss of the entire molar series with subsequent and complete alveolar resorption – another old person of indeterminate sex.

In review, the sample examined features evidence of at

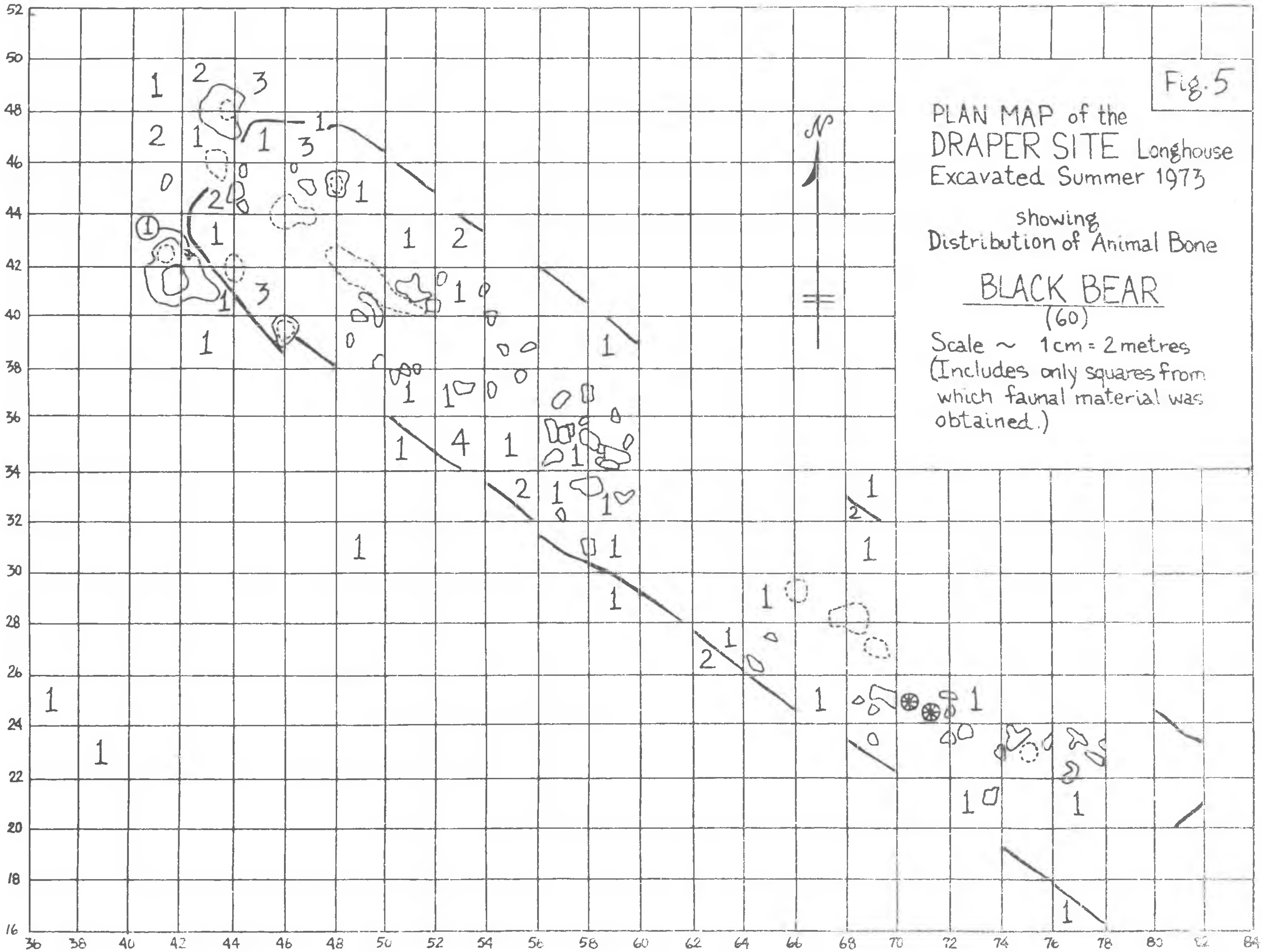
Fig. 5
PLAN MAP of the
DRAPER SITE Longhouse
Excavated Summer 1973
showing
Distribution of Animal Bone
BLACK BEAR
(60)
Scale ~ 1 cm = 2 metres
(Includes only squares from which faunal material was obtained.)
N

least four individuals not including the two infant burials which have been described by both Hayden and Kapches (this volume). Discounting the half mandible southwest of the house, we are aware of the remains of at least five persons (two adults and three juveniles). The lack of anything close to complete skeletons in the west half appears to indicate ritual anthropophagy. One frontal portion bears cut marks and possibly five cranial vault fragments are similarly modified; whether these marks resulted from death blows or were wrought after death is not presently known.

Unidentified Mammalian Bone:

While this category is not considered highly significant a few notes are in order. In the main, unidentified waste bone was assigned to categories of medium – or medium/large-sized bone, based on various criteria including cortical thickness and estimated outer diameter. Thus 705 bones were labelled "medium" (m) and 1565 bones were labelled "medium/large" (m/l). An additional 169 were classed as "small", "large", and indeterminate. A total of 2292 such waste portions were found in and about the house structure.

In some cases a hint of bias in the actual choice of animals identified can be gained by resort to these bone counts. If medium/large bone (here, count bear and deer) is not much more numerous than medium, then it may be that the large animals are not brought to camp in (skeletal) entirety, or that choice selected for smaller animals. Consider in this that a larger animal will produce a far greater number of fragments and splinters than a medium-sized animal such as a beaver or a dog. Therefore, the fact that the ratio of "medium/large" to "medium" bone is only just over 2:1, we might not think deer as important as the smaller beasts. However, these figures do not include the identified bones of which deer, bear, and elk number 933, and the "medium" animals only 352.

The distribution of these so-called "waste" bone portions may be useful in recognizing activity areas related to butchering and tool-making foci, and possibly the areas frequented by dogs that have secured discarded food bones for supper. One might also query the distribution of waste bone as the consequence of systematic bone-cracking for marrow extraction; tool-making activities and dog feeding habits may be equally important.

Avian Remains:

The bones of bird species are not numerous but they represent fair variety. Fifty-one bones were identified to species except in two cases where family and genus were the lowest taxa reached (see Table III). Only one species was found to be of extra interest, being much south of its normal range and thus affording support for the winter occupation of the house. Figure 8 details the distribution of avian bone.

Waterfowl:

The Common Loon seems to occur very widely in Ontario Indian sites. Once abundant, its numbers are apparently dwindling due to insecticide residues which prevent total success in hatching eggs, and to encroachment on breeding grounds by cottagers and motor boats (Godfrey, 1966). Adults alone on the water are wary and often difficult to approach but when they are training their downy young in the spring, the adults will not leave the young and can be taken from a skilfully manoeuvred canoe. Loons, herein represented by two bones, can, under certain conditions, be rendered edible. Feathers for personal adornment may also have been sought.

Canada Geese, too, have been favorites of the native people. Again, only two bones represent a single individual at the least. Eminently edible, these large waterfowl may average 8 lbs. live weight (Cleland, 1966).

A teal species (subfamily Anatinae) and a Bufflehead (subfamily Aythyinae) are the sole representatives of the ducks in our sample, and then only sparingly. The two small *Anas* sp. bones fitted well with the teals but distinction between the Blue- and Green-winged varieties was not possible. Likewise the Bufflehead is the smallest of its subfamily.

Table III Avian Distribution and Frequency of Occurrence in the Draper Site, 1973.

	In house		Total	
AVIAN	# Bones	# Indiv.	# Bones	# Indiv.
Common Loon *(Gavia immer)*	2	1	2	1
Canada Goose *(Branta canadensis)*	2	1	2	1
Teal *(Anas* sp.)	2	1	2	1
Bufflehead *(Bucephala albeola)*	1	1	1	1
cf. Hawk (Accipitridae)	–	–	1	1
Ruffed Grouse *(Bonasa umbellus)*	4	2	4	2
Wild Turkey *(Meleagris gallopavo)*	19	2	26	2
cf. Domestic Chicken *(Gallus gallus)*	–	–	5	1
Hawk Owl *(Surnia ulula)*	1	1	1	1
Passenger Pigeon *(Ectopistes migratorius)*	5	1	6	1
Robin *(Turdus migratorius)*	1	1	1	1
Unidentified Avian	63	–	69	–
Total	100	11	120	13

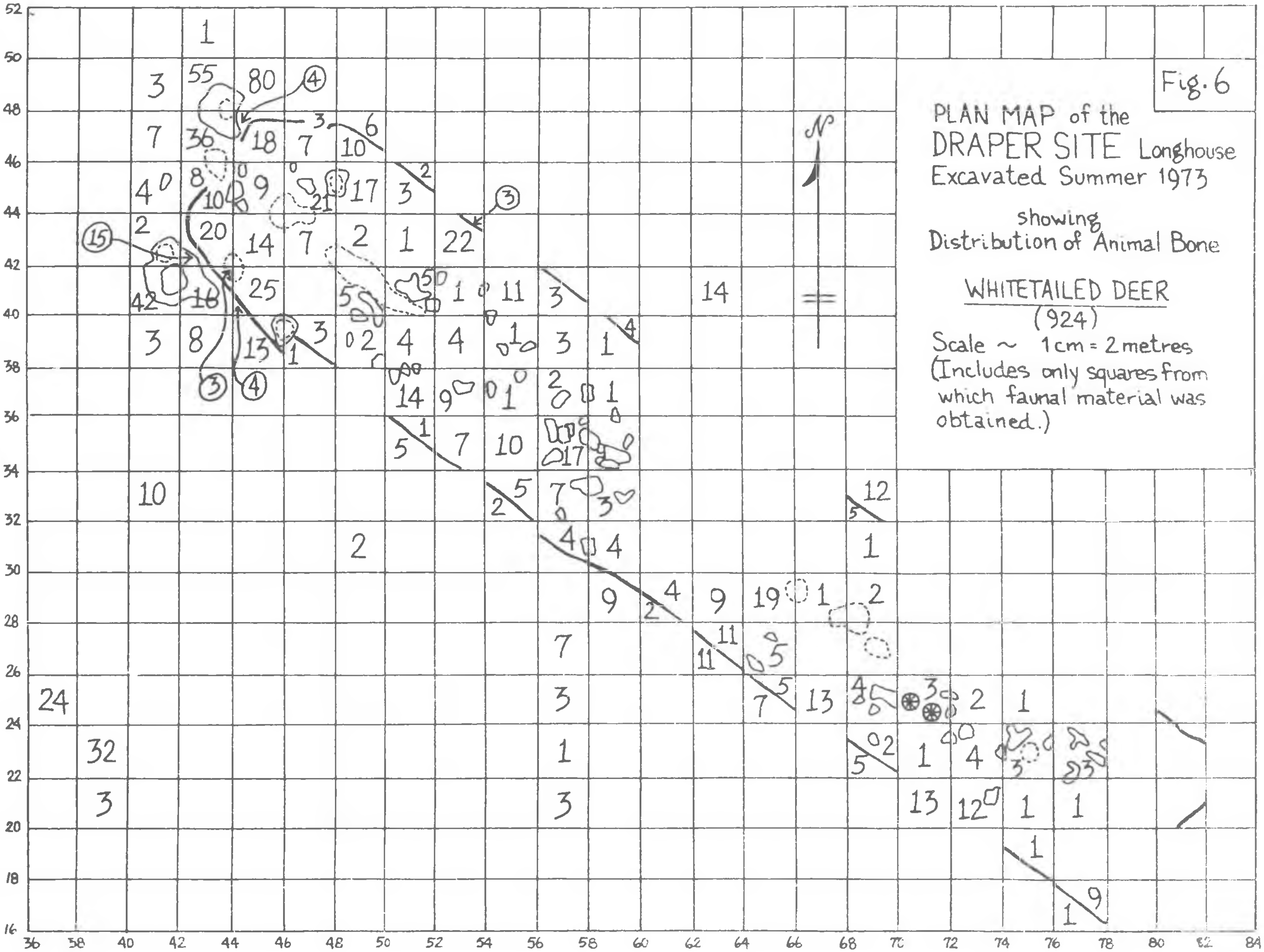
Fig. 6
PLAN MAP of the
DRAPER SITE Longhouse
Excavated Summer 1973
showing
Distribution of Animal Bone
WHITETAILED DEER
(924)
Scale ~ 1cm = 2 metres
(Includes only squares from which faunal material was obtained.)
N

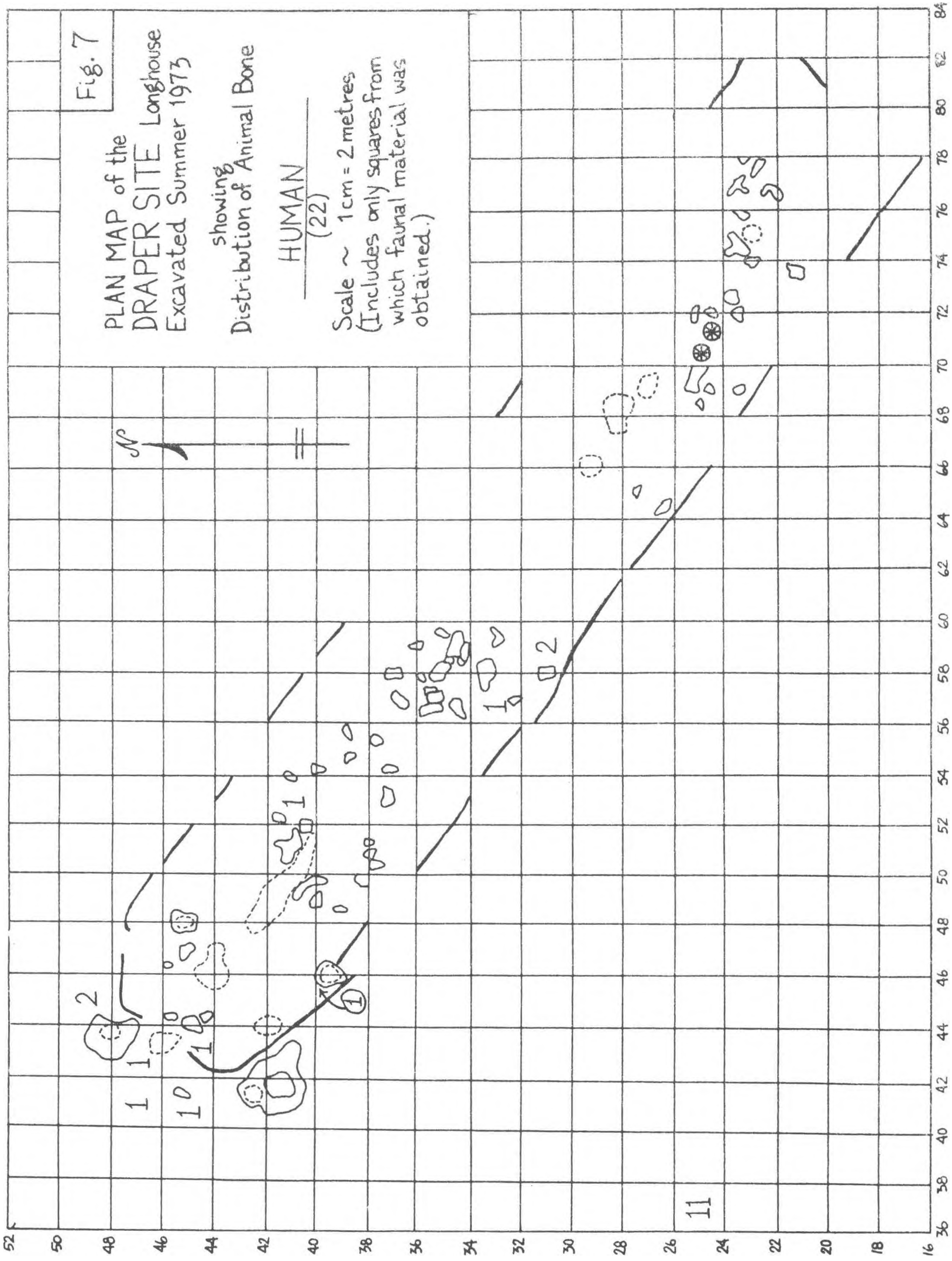
Fig. 7
PLAN MAP of the
DRAPER SITE Longhouse
Excavated Summer 1973
showing
Distribution of Animal Bone
HUMAN
(22)
Scale ~ 1cm = 2 metres
(Includes only squares from
which faunal material was
obtained.)

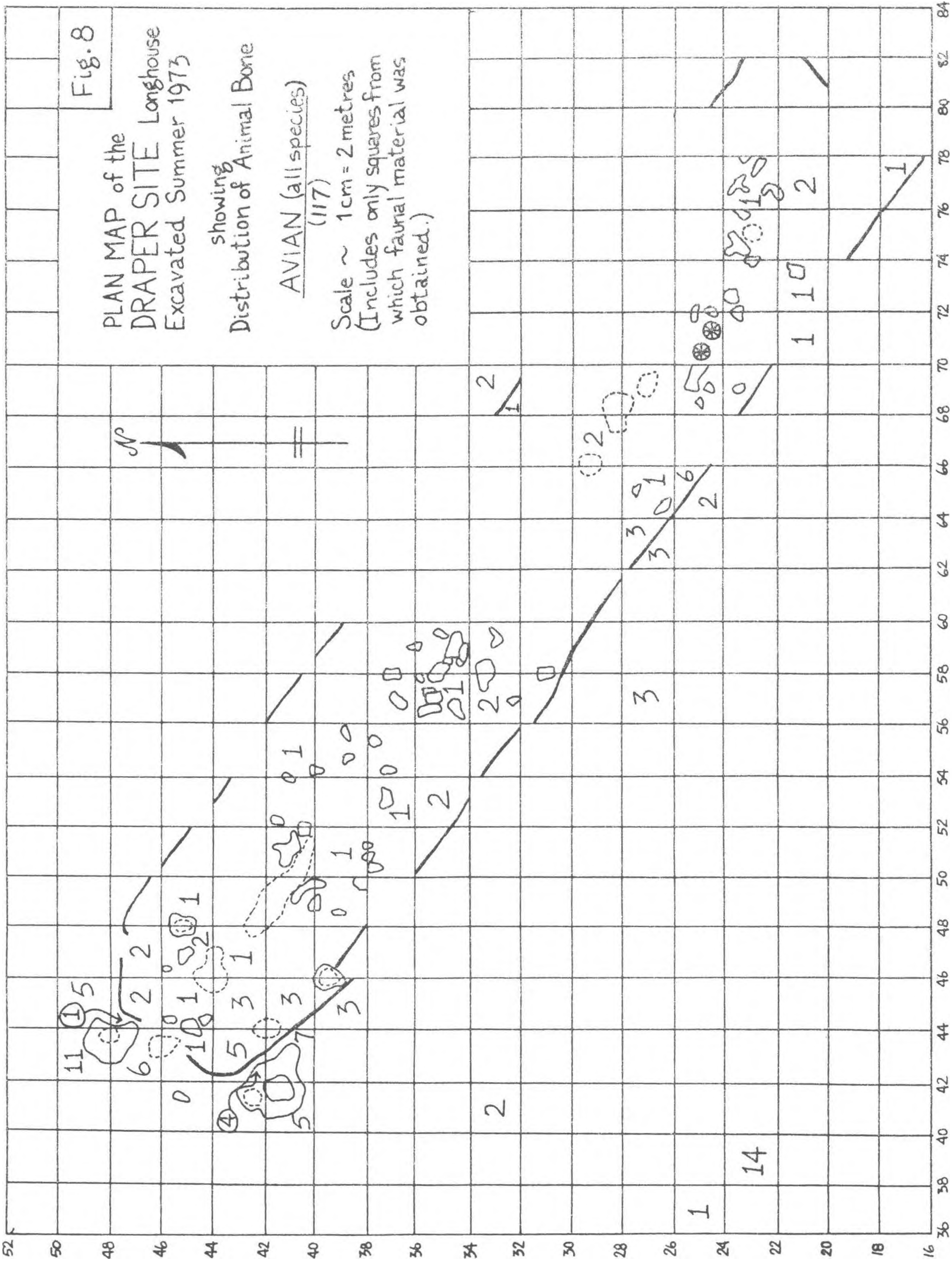
Fig. 8
PLAN MAP of the
DRAPER SITE Longhouse
Excavated Summer 1973
Showing
Distribution of Animal Bone
AVIAN (all species)
(117)
Scale ~ 1cm = 2 metres
(Includes only squares from
which faunal material was
obtained.)

Hawk Family:

A single distal tibial portion was deemed, by its special morphology, to represent one of the many hawks found in the area. Unfortunately, the cortex featured the porous texture of juvenile bone, so that final identification could not be made. It was recovered from 22–24N 38–40E, well outside Structure 2.

Gallinaceous Birds:

Under this heading are included the grouse, turkey and chicken. At least two individuals of the Ruffed Grouse were present as judged by four bones including humerus, femur, and two portions of tibia. This bird is very common in the wooded areas of much of Ontario, and is quite easy to capture with a minimum of effort and equipment.

Wild Turkey is no stranger in the deciduous forests of Ontario Woodland times. According to one source, they ranged as far east as Durham Co., Ontario with their distribution controlled by the severity of the winters (Clarke, 1948) and the maintenance of suitable hardwood forest habitat (Godfrey, *op. cit.*). Of turkey in Structure 2 there were twenty-six bones and portions featuring duplication of only one element, thus giving a least estimate of two individuals (see Fig. 9). Considerable use of turkey bones for tools and ornaments is encountered in some Ontario Iroquois sites – especially Neutral sites – but only one tool was identified as turkey here and it was found outside the house.

Five bones recovered from outside the house (22–24N 38–40E) are of problematical nature. They are gallinaceous and they derive from birds larger than grouse; they have affinities to both turkey and domestic chicken; one is definitely juvenile and another shows signs of surface weathering. Since none is of a size approaching turkey, the bones have been provisionally assigned as "cf. Domestic Chicken". The juvenile ulna (87:2) came from Level VIII and the weathered piece (113:4) came from Level V, the depth of which mitigates against recent intrusion. At any rate, they do not bear directly on the history of the structure in question.

Passenger Pigeon:

The now extinct but once "ubiquitous" pigeon is sparsely present. Of six pigeon bones identified in the assemblage, five are associated with the house. Only one individual is indicated.

Hawk Owl:

This species is a bird of the open boreal forest and mixed woodland (Godfrey, *op. cit.*), or the forest edges "which provide high perches close to open areas presumably well-populated by meadow voles" (Smith, 1970). According to record (T.F.N.C., 1968), these birds are occasional winter residents around Toronto. They seem to occur in southern Ontario at irregular intervals from the 3rd week in October to the last week in February *(ibid.),* although Smith *(op. cit.)* has observed nesting pairs as far south as Ottawa, Ontario. If the single specimen of evidence from Draper is a local capture, then we have firm ground on which to suspect at least winter habitation in House 2.

Robin:

Of the passerine or perching birds only the perennial "harbinger of spring" was recognized in the collection. The single ulnar fragment was found just outside the west end of the house. In a seasonal sense, it is the opposite of the Hawk Owl.

Unidentified Avian:

Under this heading is subsumed a total of sixty-nine bone portions, or 57.5% of the bird bone. The majority are merely shaft portions but some include parts of articular surfaces that defy identification.

Fish Remains:

Fish bones were found in somewhat greater numbers than avian, but a higher proportion remains unidentified due to inaccessibility to adequate reference collections of fish. At least six taxa are recognized, being the easiest ones to identify (see Table IV). If the house indeed sheltered multiple family groupings, then the 340 fish portions

Table IV Fish Distribution and Frequency of Occurrence in the Draper Site, 1973.

	In house		Total	
FISH	# Bones	# Indiv.	# Bones	# Indiv.
Bowfin *(Amia calva)*	3	1	3	1
Pike/Muskellunge *(Esox* sp.)	1	1	1	1
Sucker sp. (Catostomidae)	19	2	21	2
Catfish sp. (Ictaluridae)	30	4	32	4
Yellow Perch *(Perca flavescens)*	2	1	2	1
Pickerel/Sauger *(Stizostedion* sp.)	8	1	8	1
Unidentified Fish	277	—	290	—
Total	340	10	357	10

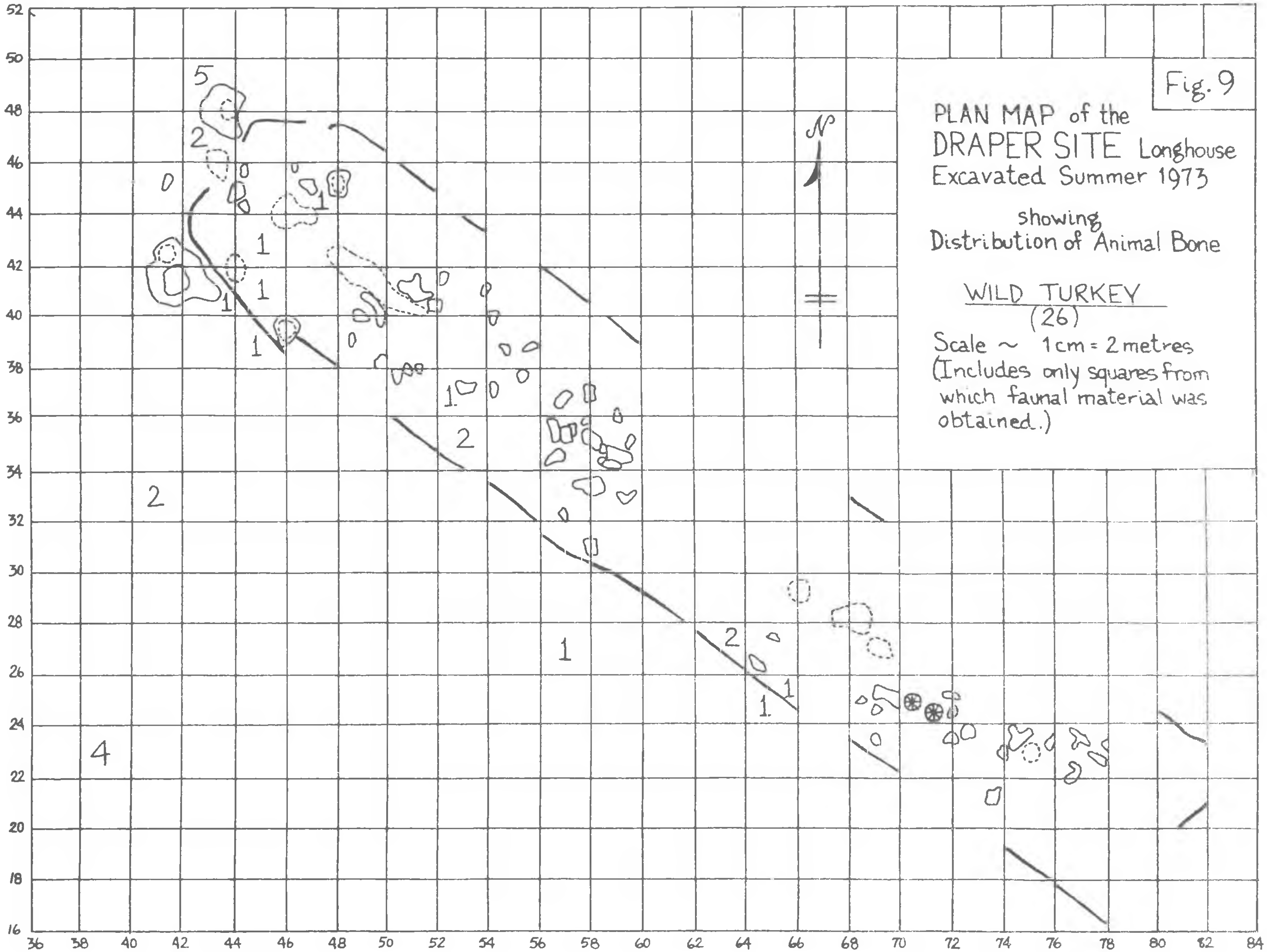
Fig. 9
PLAN MAP of the
DRAPER SITE Longhouse
Excavated Summer 1973
showing
Distribution of Animal Bone
WILD TURKEY
(26)
Scale ~ 1cm = 2 metres
(Includes only squares from which faunal material was obtained.)
N

associated with it argue for minimal use of fish protein. The remains do seem to be more evenly distributed in the structure, given that the heavily favored west end does contain a majority of all types of habitation debris (see Fig. 10).

Bowfin:

This ancient fish was represented by a skull portion and two vertebrae. Quite within its range at Draper, this fish may reach two feet in length and up to three pounds in weight (Scott and Crossman, 1973).

Pike (Esox sp.)

A single bone of *Esox* sp. was identified in the collection from the north-south trench well to the west of the house. The vertebra could not be separated below the species level to Northern Pike or Muskellunge.

Sucker (Catostomidae):

Due to problems with reference material, but also with the separation of species within Family Catostomidae, all of the sucker material has been gathered under one heading. Most commonly occurring in the area are White Sucker *(Catostomus commersoni)* and Longnose Sucker *(C. catostomus)*. Also possible is one of the Redhorses *(Moxostoma* sp.). Of the twenty-one bones of sucker, nineteen were found in the house area and derive from at least two fish, counting left dentaries. According to species these fish vary in size and weight but range from about 1–4 lbs. (Scott and Crossman, *op. cit.*).

Catfish (Ictaluridae):

A problem similar to that in sucker identifications obtained in the catfish family as well; thus, all *Ictalurus* sp. bones are grouped together. As the majority of the bones examined were relatively small, it is presumably from the bullhead types of catfish that the bones derived. Four right operculars indicated the presence of four individuals.

Perch and Pickerel (Percidae):

These two fishes often turn up in Ontario middens. While pickerel is generally a common fish, the two families last treated usually occur more numerously, despite the greater live weight of the pickerel. This last species produced eight portions from the house floor but only one individual was recognized.

Perch may carry greater importance than the two bones argue for, but the meagre identifications do not support the notion. In absence of extensive reference skeletal material, the various members of the Sunfish family (which share some osteological features with perch) cannot be differentiated from perch, and all remains as "Fish sp.".

Unidentified Fish:

A total of 290 portions of fish bone remain unidentified. Of this sum, numerous elements are assignable to element, but species identification of these is held in abeyance till access to reference collections is gained. With reports of salmon and trout in Duffin Creek in historic times (Bowman, this volume) there is always the possibility that the salmonid group of fishes was used to advantage and that traces may be found amid the unidentified stack of fish bones. Regardless, this will only confirm that fish are scarce in Structure 2 – a fact which may reflect several points, the most likely being that fillet preparation at the site of capture precluded transport of the majority of the fish bones to the main village.

Turtle Remains:

Forty-two bones were recognized as turtle. Not ordinarily a large portion of faunal assemblages, turtles do make their way into most refuse heaps. Often the shells are used for tools or utensils and several portions examined from the Draper longhouse have been altered (see Table V).

Painted Turtle:

Perhaps the most common turtle in Ontario, the smallish Painted Turtle was found in the structure debris represented by fifteen bone portions, none of which is duplicated. The suspected midden square at 48–50N 42–44E yielded nine of the bones, six of which were interrelated and derived from the same animal; the carapace fragments were glued together from the following items: 1625:3,4; 1626:10,11, 14; 1629:8. The outer edge of the assembled carapace was

Table V Reptile Distribution and Frequency of Occurrence in the Draper Site, 1973

	In house		Total	
	# Bones	# Indiv.	# Bones	# Indiv.
Painted Turtle *(Chrysemys picta)*	15	1	16	1
Blanding's Turtle *(Emydoidea blandingi)* .	4	1	4	1
cf. Map Turtle *(Graptemys geographica)* . .	2	1	2	1
Unidentified Turtle.	19	–	20	–
Total	40	3	42	3

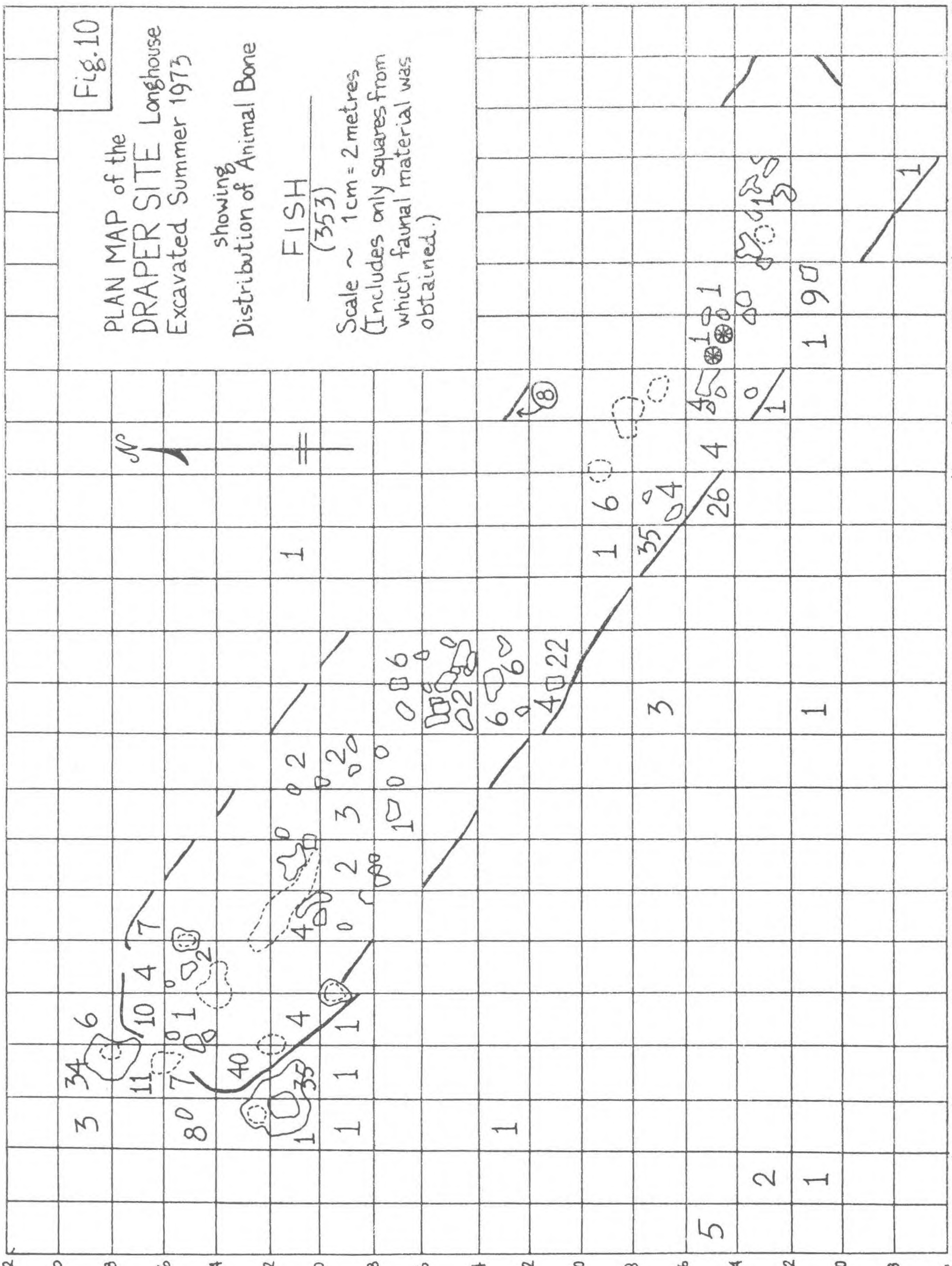
Fig. 10
PLAN MAP of the
DRAPER SITE Longhouse
Excavated Summer 1973
showing
Distribution of Animal Bone
FISH
(353)
Scale ~ 1cm = 2 metres
(Includes only squares from which faunal material was obtained.)

notched and obviously represents some type of artifact, possibly a bowl or scoop. Perhaps it was discarded into the midden after breakage.

Blanding's Turtle:

A considerably larger though far less common turtle, the Blanding's was represented by four peripheral bones which were at one time adjoining bones of the left carapace edge. Some polish on the surfaces suggests an artifact. The two isolated finds (1400:2 and 1478:6–8) were separated by just over one metre – the latter on the west "doorstep", the former almost straight west, outside the structure.

Map Turtle:

Only two portions of this species were recovered, both from the hinder region of the plastron or underside of the shell and both from the same house square. Judging from the scute lines and the lack of a hinge, it cannot be anything but Map Turtle, it is larger than a Painted Turtle, having the size of a Blanding's. They do occur occasionally in the area in rivers and lakes, are quick and decidedly difficult to capture (Conant, 1958).

Table VI Amphibian Distribution and Frequency of Occurrence in the Draper Site, 1973.

	In house		Total	
AMPHIBIAN	# Bones	# Indiv.	# Bones	# Indiv.
cf. True Frogs (Ranidae)	1	1	3	1

Unidentified Turtle:

Very few longbones or parts of longbones were recovered; most of the scrap is from shells, perhaps further supporting the notion that turtles were sought more for raw material than for food. At any rate, just under 50% of this reptilian bone is unidentifiable; without suture and scute lines there is no certain identification possible.

Amphibian Remains:

Amphibians are not of great significance judging by the scant evidence. A femur and a radio-ulna were recovered from 32–34N 42–44E, that is, outside the house, and the third amphibian bone, not identifiable to element, was from the house unit 32–34N 56–58E. The three items probably find their origins in the family of true frogs, Ranidae. Flotation on a more regular basis may have turned up a greater representation of this vertebrate class.

Table VII Invertebrate Distribution and Frequency of Occurrence in the Draper Site, 1973.

	In house	Total
INVERTEBRATES	# Items	# Items
Freshwater Clams (Pelecypoda; Unionidae)	13	13
Snails (Gastropoda): *Anguispira* sp.	63	64
Triodopsis sp.	38	38
Unidentified	5	8
Total	119	123

Invertebrate Remains:

Little can be related to this group of organisms. Too seldom was mention made ethnographically to determine the true importance of these animals in the human diet. References to the discovery of large "pockets" of snails in an excavation may in fact be describing colonies of snails which band together during aestivation, a pattern common among land snails (Burch, 1962). It is interesting to note that Table VII locates almost all of the invertebrate remains in the house.

As for clams, we are little surer of their uses. They are known for their delightful taste in chowder and the Indian quite likely used them as food (see Wintemberg, 1908). Waugh's (1916) study of Iroquoian foods finds that molluscs were often used and cites the presence of such shells in archaeological sites as proof, the Draper people were certainly not relying on shellfish for any substantial part of their diet.

No rigorous examination of these remains was carried out, but the gastropod genera *Triodopsis* and *Anguispira* are represented, the latter occurring somewhat more frequently. Both are very common, undistinguished terrestrial snails. The clams are of the family Unionidae – freshwater bivalves – and may be mostly genus *Elliptio.*

Indeterminate:

A total of seventeen portions of bone were recovered whose identity even at the class level remains in doubt.

IMPLICATIONS OF THE FAUNAL ASSEMBLAGE IN HOUSE STRUCTURE 2

Introduction:

Due to the nature of the material herein examined, we cannot, by mere extrapolation, project the economic patterns of this one house structure onto the entire village. If all the houses to be excavated were occupied simultaneously there may be a good degree of similarity; at present, however, there is only a single house to describe. This is to be kept in mind throughout these discussions, despite any tendencies to make more generally applicable statements.

Subsistence Economy:

No subsistence economy is entirely dependent on animal resources for support. The plant kingdom is almost always involved and the excavations of the Draper longhouse prove that this fact applies at the site. Seed analysis by Crawford and King (this volume) bears out the variety and importance of ancillary plant gathering activities – all this to say nothing of corn horticulture, already well-established in southern Ontario by AD 1450. Bowman (this volume) has pointed to the likely location near the Draper site of a major tract of land, under white pine forest at the time of European contact, representing recolonized land where the site's corn was probably grown.

Since we are working with the remains of food consumed by only one multiple household, it is not realistic to evaluate the relative importance of plant and animal subsistence resources for the Draper village at this time. Historically, the latter Iroquois occupation of Huronia – into historic times – has been described by eyewitnesses (*viz.* Sagar, Champlain, the Jesuits) as one of impoverished wild game resources, and myriad are the references to consumption of corn gruel (sagamite) with only the occasional addition of flesh, generally fish. Heidenreich (1971:159-60) succinctly reviews the data on corn, noting estimates of 50%–75% as the proportionate importance of corn in the Huron diet. All of these estimates are speculative, and the lack of quantitative figures makes precision impossible.

With problems of preservation of vegetable materials, there is a consequent bias in the archaeological record of food waste towards the more durable bones and teeth. It is then tempting – armed with both the inherent bias and the difficulty of quantifying animal remains – to formulate patterns of subsistence which run counter to extant historical documents. It would appear that most faunal analyses of Iroquoian sites tend to neglect the importance of vegetable sectors, usually due to shortages of talent directed towards analysis of non-animal organic materials. Even then, the collection of vegetable material, by flotation in particular, is not yet a standard practice, although it is becoming more so.

Thus, the ensuing statements must be tempered by considerations of plant value in the diet; it is not enough merely to say "such-and-such an animal supplied the bulk of meat at the site" . . . etc. The number of persons sheltered by Structure 2 could easily have consumed the meat represented by the animals' bones in a period of a year, depending on the population estimate. The squares excavated were cleaned out in their entirety and thus represent a complete sample within the limits of that house; no one can definitely account for midden refuse for food consumed in that house. To further confuse the issue, it must be added that no method has yet been devised to determine the length of occupation in a single house. While ten deer constitute a great deal of meat for one of these multiple households for one year, who can assert that these remains were deposited during one year's occupation, or ten years', or twenty?

Several references in the primary sources on Huron society relate accounts of feasts which temporarily swelled the numbers of house guests manyfold, and such festivities must have substantially augmented the assemblage of food waste. Additionally, we have been given to believe that often enough game was not plentiful and that when hunting success proved good, "eat-all" feasts were common (Tooker, 1964:74). There is no immediate reason to expect the situation at Draper to have been much different, at AD 1450, from a historic northern Huron settlement; for the moment, let us assume similar customs.

Until much more complex "bio-archaeological" analysis has been done on Ontario Iroquois sites, the degree of sophistication in elaborating food economics will *remain* low. The rules of decimal point precision are aptly applied here, simply: precision of conclusion depends on the precision of component information.

Now, to look at the identifications. If we exclude the data from the Invertebrates for the moment, the resulting proportions of vertebrate classes gives a decided advantage in the numbers of bones to the mammals – a full 88% – and fish follow at 8.5%; the other classes combine to make up the remaining 3.5%. Whether the worth of invertebrate findings was significant is a moot point in light of the poor ethnographic coverage of the subject. Freshwater clams are definitely edible and in lakeside villages they must surely have been exploited. Snails, on the other hand, are of questionable status; while being small and inconvenient sources of minimal protein, they could have been consumed. Clusters of terrestrial snails in the earth, such as are found in three squares examined [1], do not necessarily represent caches since, as mentioned before, they tend to congregate during periods of aestivation. However, it should be noted that as 85 of 95 squares analyzed for faunal content are considered within house limits, fully 119 of 123 invertebrate remains, including clam shells, were recovered from house context; there is, then, a strong suggestion that these items were brought in as food. However, some of the pit features might be *expected* to possess a high organic content, similar to midden soil and thus be attractive to aestivating gastropods; this phenomenon probably continued well after abandonment of the site.

Mammalian protein yield was obviously related intimately with the deer hunt. At nearly every Ontario Iroquois site deer is the major mammalian species. A minimum count of individuals in Structure 2 is ten animals, each adult yielding an average of one hundred pounds of meat (White, 1953). The 900+ lbs. of venison would have been just under half the total yield of mammalian meat. Black bear is often recorded as present in Iroquoian sites and the Draper house boasts of at least two bears for which White *(ibid.)* would allow approximately 210 lbs. of edible meat each. The elk – if indeed the meagre representation of bones argues for the capture and consumption of one whole animal – may have provided another 350 lbs. of edible stuff *(ibid.)*. Many of the other animals trapped or otherwise procured may have served in times of scarcity when larger animals could not be found. Of course, the other species may reflect hunting aimed at procurement of fur primarily, and not food. At any rate, we are dealing with a bone assemblage that argues for consumption of 1670+ lbs. of meat from three mammalian species only.

Avian material appears to take very limited part in the Draper diet by the standards set in House 2. Only one species seems important it was represented by only two individuals. Grouse and passenger pigeon were marginally important but the small sample is difficult to interpret. According to White *(op. cit.)*, a turkey might provide 8.5 lbs. of edible flesh from an average 12 lb. bird. The remainder of avian material can at present be relegated to the status of occasional or fortuitous occurrence.

The remains of fish are puzzling to some extent by their scarcity. Only 340 bones were associated with the house, indicating ten individuals of six or more species. (The counts would be increased with further identifications.) If these scant remains actually do represent the consumption of fish, then the inhabitants were either not in a position to harvest the nearby creek resources, or the creek (and Lake Ontario?) was not their choice of focus for exploitation. The latter seems more tenable considering that agriculture, hunting, and trading would likely have been the mainstays of the economy. Too, we are aware of the accounts of Sagard and Champlain telling of intensive fishing taking place away from the home village – hence part of the justification for the concept of satellite hamlets of specialized nature. If filletting was completed at the auxiliary hamlet for most fishing, fish bone would be scarcer at the home village. Perhaps the White site is that very thing – the associate or adjunct of Draper where specialized food-gathering activities took place. The limited test excavations at White carried on simultaneously with the work at Draper did, indeed, produce an array of fish bone just over 50% of the total. Avian bone was also much higher in number, leaving mammalian bone at a level of less than 30% of which 10.3% is human material. It may be added, in absence of firmer support for the more tenable alternative above, that clam shell remains are likewise scarce at Draper; while the two activities are not intimately related, fishing and clamming may have been combined by their focus on the same environmental locations along the creek.

Further animal remains are of minimal importance in the food economy. As stated in an earlier section, the turtles were captured probably as much for their use in manufacturing tools and utensils as for their value in supplementing the native diet. Frogs may not have had any effect at all; rather, they may be of entirely fortuitous occurrence.

Seasonality of Occupation:

From a zoological standpoint, a statement on the seasonal habitation is generally based on the occurrence of transient avifauna which ideally occur at certain set times during the year. In addition, there is data to be gathered from examination of the developmental stages of deer antler and frontal pedicles. Reliable, isolatable age data on certain creatures, correlated with published information on the timing of births, can give broad grounds for seasonal predictions; in this latter, the variability of physiological function (e.g. epiphyseal fusion) is great enough that tight predictions are highly suspect. Too, it is somewhat ludicrous to assume that fish were necessarily caught during spawning time when the fish retire to shallow water, inshore; fishing is an activity of the entire year, and ice is no barrier to the keen fisherman.

First, we shall examine some of the evidence from the

[1] 20 *Anguispira* in 30–32N 58–60E; 25 *Anguispira* in 40–42N 48–50E; 11 Anguispira in 46–48N 48–50E.

avifauna. The waterfowl including loon, goose, teal, and bufflehead are migratory water birds but they may occur in the Pickering area at almost any time of year. Loons are occasionally seen on larger, unfrozen bodies of water in winter but only if the weather remains mild enough; they are too vulnerable on land because they can get airborne only from the water. In regard to Canada Geese, the Baillie-Saunders records for Toronto and environs (T.F.N.S., 1968) indicate occasional wintering birds, but that during the three summer months from June to August they are wholly absent. Much the same may be said for buffleheads, in that they are absent from the area in midsummer; they do however remain throughout the winter in good numbers and return north starting in May. The lack of specific identification of the teal bones precludes a precise statement since one species removes south in the winter while the other may remain in small numbers.

Other migrants include the Robin and Passenger Pigeon. Of the first we know that very occasionally small numbers will remain in the area over winter, but the bulk of the population flies south to usher in the spring with its return. The pigeon, on the other hand, probably did not stay around after fall had set in. Another migrant of special notice is the Hawk Owl. As noted in the Descriptive section the Hawk Owl is an Arctic bird, one of few characteristically northern birds. Since its diet depends largely on meadow voles and other like creatures, it is natural that it, like the great Snowy Owl – in similar straits, would migrate south. Local records indicate a residence from the 3rd week of October to the last week of February, thus conveniently dating a late fall-winter capture.

Of less importance for the seasonal cycle at Draper were the non-migrant Wild Turkey and Ruffed Grouse. Since they were able to forage throughout the winter months, they did not move south and were available to the inhabitants of the longhouse at that time. Notwithstanding the pressure on waterfowl available during winter, it may be significant that the largest of all the birds collected was that which was represented by the greatest number of bones and by at least two individuals – not an overwhelming sample but possibly indicative of an economy of effort.

One of the conditions eminently responsible for the lack of firm habit in several of the migrant bird species is the moderating effect of Lake Ontario. Only rarely is a winter on the north side of the Lake labelled "severe", and often the sunny, calm days stand in dark contrast to the snow cover. Thus, many of the hardier individuals may find tolerable habitat and can forego the flight south, so that in the area of the lake we must be prepared for anomalies of habit. The avian bone data, then, are broadly suggestive of a year-round occupation of House 2.

Another approach to seasonality involves the examination of deer antler basal portions and frontal bone pedicles. In the process of normal rack shedding, the antler base presents a convex surface while the pedicle is concave. A regenerating pedicle, on the other hand, features a convex growing surface. So, in Structure 2 there occurred six portions of frontal bone with at least a part of the pedicle. One item (656:1) included frontal, pedicle, and a portion of still fused antler below the first, or brow, tine; it was not shed before the animal was killed. Another (1434:1) is too short in the pedicle to judge its state of fusion. The remaining four frontal bones feature definite signs of forceful removal of antler from pedicle, before the natural shedding had run its course. That they all appear to be hard and dense suggests that they are full grown and well past the velvet stage; therefore, the antlers were probably removed during the fall, say, September to early December. After this time, the antlers have been shed (Henke, 1971). No instances of naturally shed antlers were noted in the collection.

While antler evidence points to fall hunting activities, there is some evidence of deer hunting at other times of the year. The very young metapodial bone (1487:1) just inside the west end doorway is not precisely ageable but assuming that fawns are born from May to June and are weaned at three to four months (Peterson, 1966:324), it may be that it was still a fall kill. Other subadult material was recovered in the form of deciduous teeth and one each of maxilla and mandible containing deciduous teeth. While the method of aging by attrition has been called into question by recent workers on annual incisor cementum ring counts, it has some value in a broad way. (One Natural Resources Game officer said that it has been shown, by the new method, to be less than 70% accurate. G. Preston, pers. comm.) As single teeth cannot be aged by attrition it remains to examine the mandible (576:1) and maxilla (582:1). The mandible features the deciduous premolar series P_2-P_4 and the maxilla features the deciduous P_3, P_4 and permanent M_1. With reference to Severinghaus' (1949) treatment of whitetailed deer dental ageing techniques, the mandible is judged to be between 6 and 8 months of age. The maxilla is, no doubt, of similar age. Deer of that age, born in May or June, were likely killed sometime between November and February.

Thus, we have circumstantial evidence for the capture of deer at least during the months from September to February. Summer kills are not ruled out, however. What is apparent is the lack of reliable means for determining summer kills; the presence of incompletely calcified antler may indicate antlers "in velvet", but this is not a recommended criterion.

Beyond avian and deer remains, little of the faunal assemblage is of value in assessing the time of occupation. Bears, although not the deep sleepers of popular belief, would usually be captured during the spring to fall period, and woodchucks are usually underground from October to March (Peterson, *op. cit.*:116). Chipmunks hibernate from November to March, with occasional forays in milder weather (*ibid.*:123). The remainder of the mammalian species associated with the house could be taken at any time of year. The warm months are indicated by the fact that the amphibians and turtles repair to the creek bottom to pass the winter, and are not available except in summer. Fish as stated before are active year-round and it only requires a keen and knowledgeable fisherman to make a catch, summer or winter.

The foregoing inclines us to accept that House 2 was occupied on a year-round basis; that in some seasons the house may have been only nominally occupied by a few people is an inference requiring additional data. It is assumed that the bones in the house were deposited shortly after capture by the hunter – that is, assuming that the material was not deposited after abandonment, nor brought in by non-human agent.

Local Environment:

Insofar as animals react with their environment and all the organisms in it, there is some basis for reconstructing the local conditions through interpretation of the fauna identified in the Draper house. Of course, at a prior level namely the trophic level which includes the plants that nourish the herbivores, there is firmer basis for defining the environment. Thus, what can be said of local habitat availability on the evidence of animals alone is necessarily of a general nature.

One assumption that seems well-founded is that the Pickering area, at the time of Late prehistoric Iroquoian occupation, was forested by a typical beech-maple "climax" (Bowman, this volume). The even-aged pine stand which forms the focus of Bowman's hypothesis is considered the successful result of forest clearance for maize agriculture which was eventually abandoned.

Two points are then clear: (a) the surrounding, undisturbed countryside was covered by a primarily hardwood forest, and (b) clearings for maize production created forest edge habitat and to some extent a treeless tract, attractive to some varieties of animals and birds. The cornfield itself may have attracted a few species. We also have to consider the resources of the creek which runs alongside the village to the east. Such watery habitat was essential not only for the villagers but also for certain types of animals and birds. The variety of habitat is nearly complete and requires only the addition of some coniferous cover attractive to the marten and fisher, for example. It is altogether likely that white pine and other conifers were occasionally present in abandoned plots or burn areas; pine is a pioneer species in many situations. Nichols' (1935) definition of the "eastern hemlock-white pine-northern hardwood forest" terms the white pine "an important tree in the reclamation of abandoned farm lands and of burned or lumbered forest lands" (p. 410). Further, from observations in an undisturbed plot of similar forest in Michigan, Nichols noted that "scattered uneven-aged pine usually grew in small forest openings due to windfalls and the like" (p. 411).

One simple method of extrapolating habitat is the scheme of grading animals by their habitat preferences, giving a grade of 2 for preferred habitat, and a single point for a lesser choice. Table IX was constructed from Cleland (1966:102, and Appendix H) and while it is not absolutely infallible, it does give some impression of the variety of local environment. From the sample included in the Table, it is clearly evident that the deciduous forest and forest

Table VIIIa Classification of Deer Skeletal Elements Identified from the Draper Site, 1973.

FORELIMB			**SKULL and MANDIBLE**		
Scapula	:	21	Skull	:	32
Humerus	:	21	Mandible	:	30
Ulna	:	15	Teeth	:	125
Radius	:	36	Antler	:	58
Carpal	:	34			
Metapodial	:	51			
		178			245
HINDLIMB			**AXIAL SKELETON**		
Femur	:	27	Vertebral	:	36
Tibia	:	35	Rib	:	25
Fibula	:	6	Pelvic	:	11
Patella	:	7			
Tarsal	:	50			
Metapodial	:	71			
		196			72

MISCELLANEOUS LIMB		
Unidentified Metapodial	:	59
Phalanges	:	178
Sesamoids	.	18
		255

Table VIIIb Deer Distal Extremity Bones Identified from the Draper Site, 1973

LOWER LEG (front and hind)		
Carpals and Tarsals	:	84
Metapodials	:	181
Phalanges	:	178
Sesamoids	:	18
		461

Table IX Habitat Preference Chart for Selected Animals from Draper House Structure No. 2. (After Cleland, 1966.)

Species	HABITAT: Deciduous Forest	Deciduous Forest edge	Coniferous Forest	Aquatic
Snowshoe Hare			2	
Cottontail Rabbit		2		
Grey Squirrel	2			
Red Squirrel		2		
Woodchuck	2	1		
Chipmunk	1	2		
Beaver				2
Muskrat				2
Red Fox	1	1	2	
Grey Fox	2	1		
Black Bear	2	1	1	
Raccoon	2	1		
Mink				2
Marten			2	
Fisher	1		2	
Otter				2
Deer	1	2		
Elk		2		
Loon, Goose, Duck				6
Grouse	2		1	
Turkey	2	1		
Passenger Pigeon	2			
Robin		2		
	20	16	12	15

environments are of great significance, polling 36 out of 63 points tallied. Aquatic habitat is also important, as several bird species, beaver, muskrat and two mustelids are closely associated with water. The not unimpressive total of 12 points for the conifer forest habitat speaks of local invasion of needle-leaved trees more characteristic of the northern forests, but capable of growth under suitable conditions in the south. It is interesting to discover that the six mammalian species listed under conifer forest preference are more numerous in, and in some cases presently restricted to, the northern boreal forests. The cornfield at harvest time may have lured a hungry fauna including avian species such as the goose, grouse, turkey and pigeon, and mammals like the grey squirrel, chipmunk, and raccoon. At any rate, the area seems to have boasted abundance and variety of food resources.

Butchering, Skinning, and Related Activity Areas:

In a faunal sample of about 4100 items, it is remarkable that only 37 bones in house context were found to have suffered alteration through the processes of butchering and skinning (aside from the *bona fide* artifacts analyzed by Ferguson – this volume). Such marks were detected on bones of five mammalian species and one avian species. The former consist of deer, woodchuck, bear, dog, and otter; the latter is one of the teal bones. In addition, eleven bones are identified only as medium/large mammal. Figure 11 indicates the location of the modified bone.

One "concentration" occurs at 26–30N 60–66E, more or less. Two items are portions of woodchuck innominate (pelvis), one right (315:3) the other left (347:2). Since a skinning operation would be unlikely to produce the marks encountered on the medial surface of an ilium, it is considered good evidence that this particular specimen was destined for the stew pot. Likewise, the teal femur (350:6) was cut across the caput, and indicates that dismemberment of the leg was the object. In contrast, the otter mandible (376:1) was cut on the buccal or lateral surface of the corpus, and as such probably represents a slip of the knife during skinning. The remaining five bones are (m/l) mammal bone portions, some chewed by carnivorous teeth and two altered by exposure to heat. The nine specimens are adjacent to a fire pit but activities appear mixed, and thus are not amenable to specific labels. The general area will be called Cut Bone Activity Area No. 1 (see Fig. 11).

Another focus of attention re: cut bones occurs in 34–38N 50–54E where four of five items are deer. One of these is a proximal phalanx with cut marks appearing on the dorsal surface (586:1); this may be the result of extraction for toggle manufacture but could also be due to skinning procedures. A mandibular corpus (709:3) was cut along the inferior margin and probable butchering marks were also detected on the anterior surface of a hind metapodial (740:1) and the posterior margin of a humeral shaft (741:1). The fifth portion was miscellaneous mammal. Except for the phalanx, all of these examples could indicate food preparation; true, the nearest hearth is some distance away but this may not be significant. This is here referred to as Cut Bone Activity Area No. 2.

Three other deer bones may be linked by similar handling. A right talus (1175:1) cut medially, a left fibula (1183:2) cut laterally, and a metapodial shaft fragment (1198:3) cut transversely are located at a place on the leg convenient for removal of the hide, that is, the ankle joint or just below it. They are located in 40–42N 42–46E. That this joint was severed is not necessarily a signal that butchering took place away from the village, leaving the meatless lower legs behind; on the contrary, many metapodial slivers are turned into tools, since the cortical density of the metapodials (cannon bones) is adequate for many tool purposes, and thuse the entire leg skeletons were probably returned to the camp with the rest of the carcass. These squares define Cut Bone Activity Area No. 3.

Further, two nearby squares (48–50N 42–56E) outside the west doorway yielded five butchered deer bones, comprising portions of three hind metapodials, a tibial portion, and a shaft fragment of humerus (1617:3, 1660:5, 1707:3, 1666:1, 1688:5). However, since the two squares are running into a midden concentration, it is not possible to allocate those squares as a butchering area, the bones may have been discarded from a preparation area within the house. Thus, no Area label will be accorded. Ferguson (this volume) has imputed function to several areas nearby; notably, her Area V was considered a woodworking area, and while the presence of adzes weighs heavily in favor of such designation the utilized flakes may also have been used during butchering in the adjacent area.

Lacking any real concentrations of butchered bone, it is not feasible to designate butchering areas except as noted above. Possibly such work was done outside in better light, but this would not explain the lack of even a diffused collection of cut material. The easy explanation allows for consummate skill in dismembering and skinning such that little damage was suffered by the skeleton.

No other cut bone fell into a concentration detectable in the small collection. However, several individual items require a short note. A further woodchuck bone – a left femur (887:1) – was cut on the posterior surface at midshaft; this, coupled with the evidence of butchered pelvic elements above, confirms that woodchuck was being eaten and that not all of the remains of the species are intrusive, post-occupational debris. The sole dog bone on the list was the midshaft portion of a right femur (1343:1) featuring cut marks on the anterior surface; this might have been a sloppy butchering job or it may be linked with bead manufacture, since another identical portion (1339:1) from the same square was described as a bead-type artifact. Both items were recovered from separate features in the square (44–46N 46–48E) at depths of 30 and 33 cm. Altogether, six dog and *Canis* sp. bones were recovered from this last square and two were definite bead-type artifacts. The single bear element was a very young proximal phalanx (1386:1) with cut marks on the dorsal surface; as these are not likely to be butchering marks, we might suspect that skinning procedures were operative.

Since the west doorway would act as a focus of activity as far as human traffic is concerned, one should not be too surprised at the occurrence of waste butchered/skinned bone specimens, as a result either of housecleaning or of manipulation by dogs. Too, the proximity of a midden does not lessen the likelihood that waste material was liable to be scattered about the area. So, no serious thought is given to the fact that about ¼ of the total bone in the defined house area was recovered from five squares at the west end of the structure (although if future excavations reveal other bone concentrations such as this, in other house areas, attention should be directed towards possible social implications of such bone concentrations). Thus, the most striking concentration of butchered bone in the structure appears to be that which was first described as Cut Bone Activity Areas No. 1; interestingly, the *identified* bone in this area was otter, woodchuck and teal – no deer.

Cutbone examined was distributed among the species as follows:

Deer	18	Dog	1
Woodchuck	3	*Canis* sp.	1
Bear	1	Mam.sp.(m/1)	11
Otter	1	Teal sp.	1

Distribution of Phalanges:

One of several hypotheses put forth for testing in the faunal analysis concerns the value of furs and fur-trading. As Hayden has pointed out (this volume), fur was a commodity of prime importance to the Huron, particularly for warmth in the winter. While trade with Europeans did not begin until one or two centuries later, it is entirely likely that a fairly brisk trade was prosecuted with the northern Algonkian peoples from whom furs were purchased (amongst other things) principally for maize. Such business is recorded historically and probably existed in precontact time.

According to Hayden's postulate regarding the corporate base of longhouse occupants, there may have been one or two prestigious persons in whose association one might expect some degree of security and prosperity. One point that arose from discussion of this was that if this head man were to have controlled, say, the fur-trading interests of the house, then there would be:

> ". . . a possibility that this fellow of high prestige who was responsible for getting such furs and distributing them would have had more passing through his hands. If so, there is an outside chance that we should find a high percentage of phalanges of fur-bearing animals in the immediate vicinity of that hearth if phalanges were kept intact with the furs." [40–43N 48–52E] (Hayden, pers. comm.)

The test of this hypothesis produced negative results. In point of fact, reference to Figs. 12 and 13 shows that the eleven excavated squares surrounding that large hearth (38–44N 46–54E) contain eleven phalanges of an "in-house" total of 196. Of these eleven pieces, nine are deer phalanges and, of these, three are toggle artifacts or parts thereof. Thus, not only are animal toe elements not plentiful in the area of that fire pit, they are actually scarce compared to almost all remaining areas of the structure. (Note: the items thus mapped include modified bone and all portions recognizable as phalanges of deer; the actual number of whole phalanges may be considerably less.)

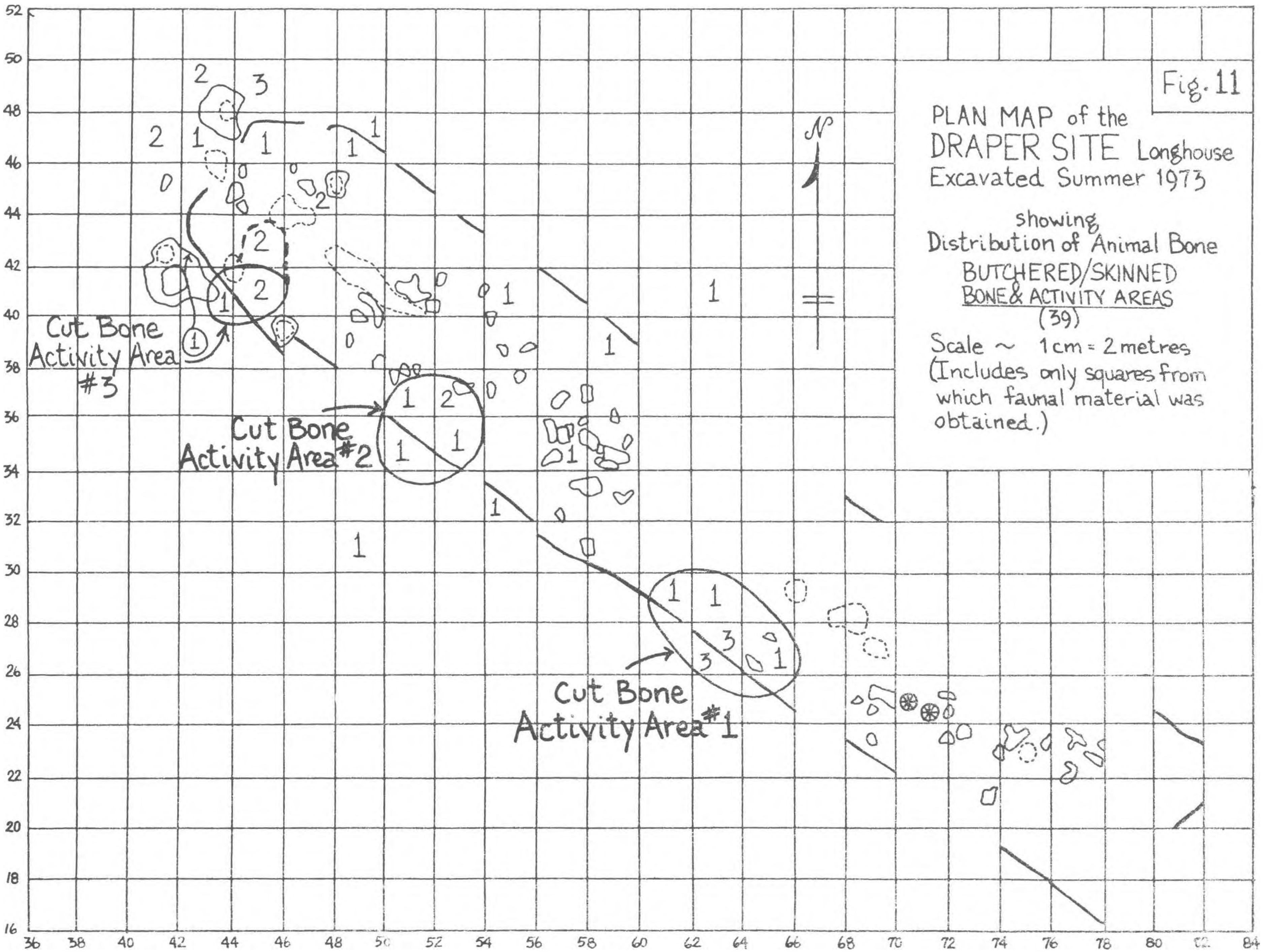
Fig. 11
PLAN MAP of the
DRAPER SITE Longhouse
Excavated Summer 1973
showing
Distribution of Animal Bone
BUTCHERED/SKINNED
BONE & ACTIVITY AREAS
(39)
Scale ~ 1 cm = 2 metres
(Includes only squares from which faunal material was obtained.)
N
Cut Bone Activity Area #1
Cut Bone Activity Area #2
Cut Bone Activity Area #3
52
50
48
46
44
42
40
38
36
34
32
30
28
26
24
22
20
18
16
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84

On the topic of deer phalanges, toggle artifacts number forty in association with the structure. Significant here may be the fact that twenty-eight of them occur north of the 36N coordinate; they seem to cluster around the smaller hearth centred at 44N 46E, although nine occur in the two midden squares several metres north (Fig. 12).

Further, one may note that the seventeen bear phalanges form at least two loose concentrations, although the looseness may be entirely due to chance. Seven of the bones are distributed about the west end doorway (Fig. 13) and the pattern only suggests clustering. A second group of five phalanges in, and to the west of, the pit cluster at 34–36N 56–58E may also be a significant skinning area; this area corresponds well with Cut Bone Activity Area No. 2.

There are no hard distribution data, then, to support the hoarding of furs. Such is not meant to deflate the hypothesis of the prestigious head man in a longhouse composed of economically single-minded persons, since phalanges may not have been left in the fur (as indicated by transverse skinning cuts in the region of the "ankle" on deer). It simply means that the course of proof lies in a different direction.

Burnt Bone:

Although some ideas concerning the presence and distribution of charred and calcined bone are rather naïve, nevertheless, some interesting problems can be pinpointed and some resolved. For example, the presence of burnt bone is not automatic proof that meat was roasted (vs. boiling); much bone could find its way into a fire after the meat was consumed. Too, burning of bone is a recognized method of hardening the material for use in tool manufacture, such as projectile points, and in some cases such purposes can be detected by the charred, brittle nature of the bone.

The distribution of burnt bone in Structure 2 is not even, but it is fairly wide (Fig. 14). Several patterns are apparent, however, which may have been unexpected. Around hearth pits, there appear to be different rates of bone deposition, depending on factors unknown. The major evidence for the designation of hearth areas is the whitish ash, reddened earth beneath, and perhaps fire-cracked rocks; but are we justified in assuming that concentrations of burnt and calcined bone are valid signs of a hearth in absence of the more conventional clues?

At least three areas are of interest in this matter. One hearth, centred at 44N 46E and of average size, is itself void of burnt bone, and the four surrounding squares contain merely five burnt portions of bone. In the wider environs (16 2-metre squares) only 98 portions were deposited, but this greater area contains three other hearths, one of them the larger pit/hearth complex centred at 41N 50E. The scarcity of such bone in the first hearth is a mystery. Likewise, the paucity of burnt bone around the major hearth is puzzling. The third area coincides with the pit cluster in 34–36N 56–58E; that one square alone contains 62 burnt items and the nine surrounding units total 135 charred/calcined fragments. Excavation notes fail to describe any evidence of reddened sand or *in situ* hearth ash, although many of the pits in the vicinity contain white ash, and a major hearth may well be located under the nearby large maple tree, rooted in the centre of the house. The question remains: does the concentration of heat-treated bone imply hearth activity? Is there in fact a vague fireplace, not detectable by soil colour and texture variation? Certainly this last area is central (across the house) and spaced suggestively along the length of the house.

Bone Altered by Dogs – A Hypothesis:

Alluded to in the Preface, the assemblage of bone to be described here has undergone a certain set of modifications which strongly suggest that domestic canines were major factors in the rearrangement of waste bone in the house, and also in the processes of bone fragmentation which produced such a large amount of unidentifiable bone (rate of identification was about 35%).

Bones were found to have been subjected to many non-human alterations, and a very common mode of degradation involved medium-sized carnivores carrying off waste bone and chewing on it, leaving ample evidence in the cortical surface. A total of 651 bone portions from the house featured carnivorous tooth marks. Given that the east end of the house is not well-represented by *any* materials, the chewed bone is widely distributed (Figs. 15, 16), with the majority encountered again at the west end. Since most of the excavated squares in and about the structure possess a sample of this chewed bone, it seems likely that some mechanism of spread was operating in order to cause the "even" distribution; it is a simple step to conclude that dogs (the presumed tailors of the altered bone) indeed had a large part in the rearrangement of the material, nor need this proposition apply solely to osseous remains. Dogs were probably never restrained, and had full run of the house; in winter they likely slept amongst the Indians themselves to impart their warmth.

In further examination of canine manipulation of household debris and the implication of dogs in the fragmentation process, a type of "erosion" dissimilar to that observed in water-rolled bone was detected in the physical condition of 369 bone portions and fragments. The condition is difficult to describe but the effects are not readily mis-

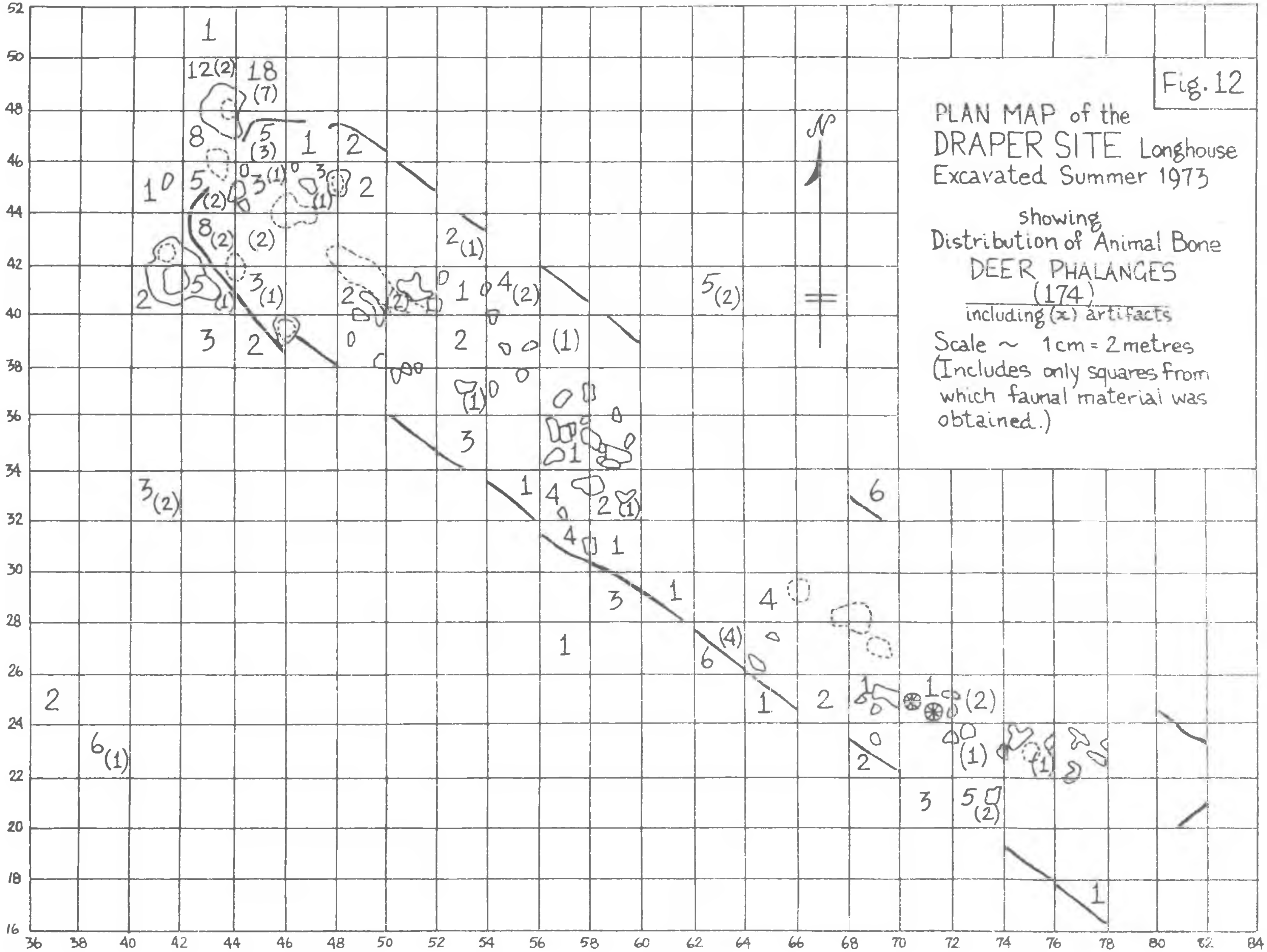
Fig. 12
PLAN MAP of the
DRAPER SITE Longhouse
Excavated Summer 1973
showing
Distribution of Animal Bone
DEER PHALANGES
(174)
including (x) artifacts
Scale ~ 1cm = 2metres
(Includes only squares from which faunal material was obtained.)
N

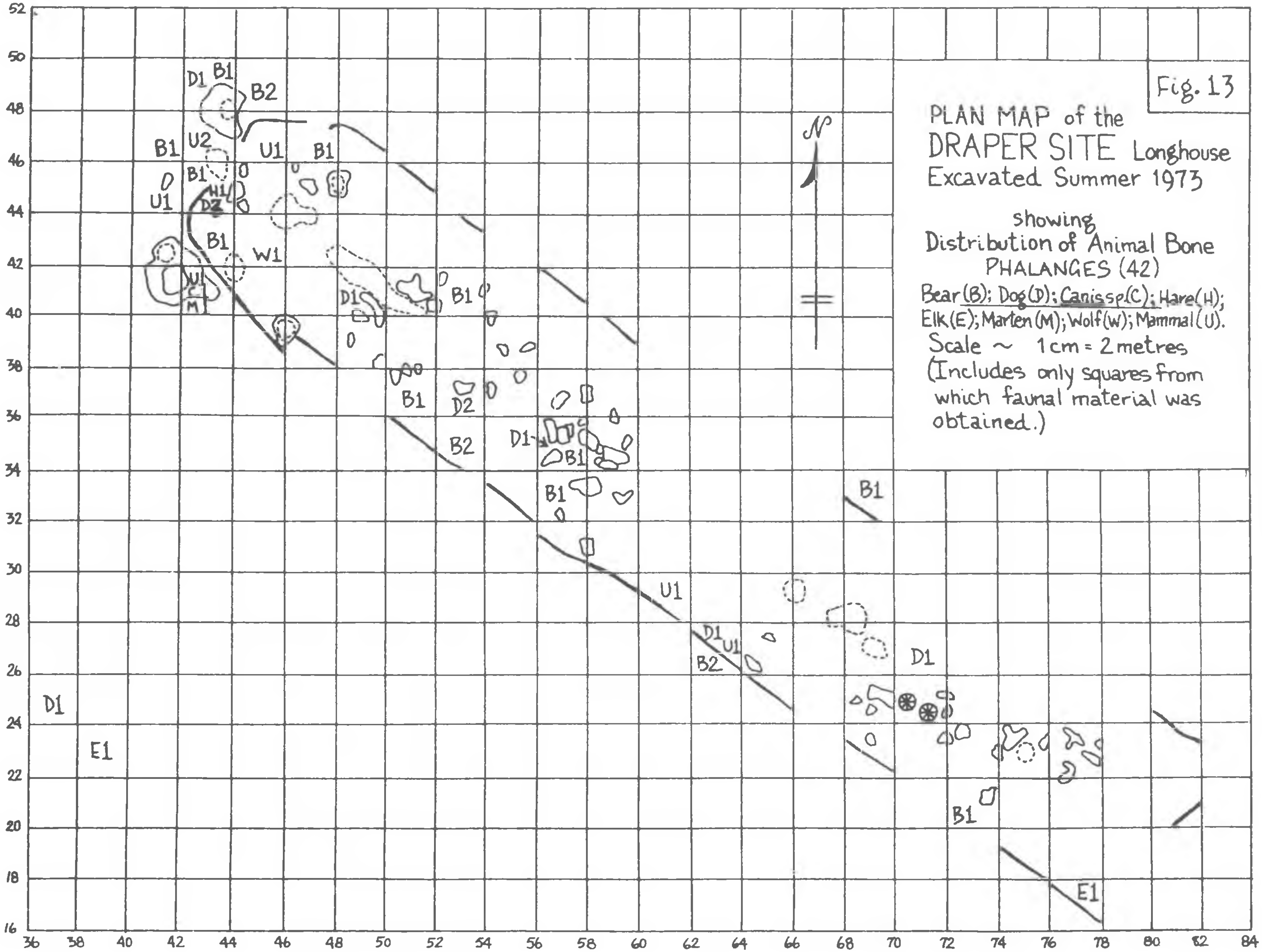
Fig. 13
PLAN MAP of the DRAPER SITE Longhouse
Excavated Summer 1973
showing
Distribution of Animal Bone
PHALANGES (42)
Bear (B); Dog (D); Canis sp. (C); Hare (H);
Elk (E); Marten (M); Wolf (W); Mammal (U).
Scale ~ 1 cm = 2 metres
(Includes only squares from which faunal material was obtained.)
N
52
50
48
46
44
42
40
38
36
34
32
30
28
26
24
22
20
18
16
36
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56
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64
66
68
70
72
74
76
78
80
82
84
D1
B1
B2
U2
U1
W1
M
H1
D2
E1

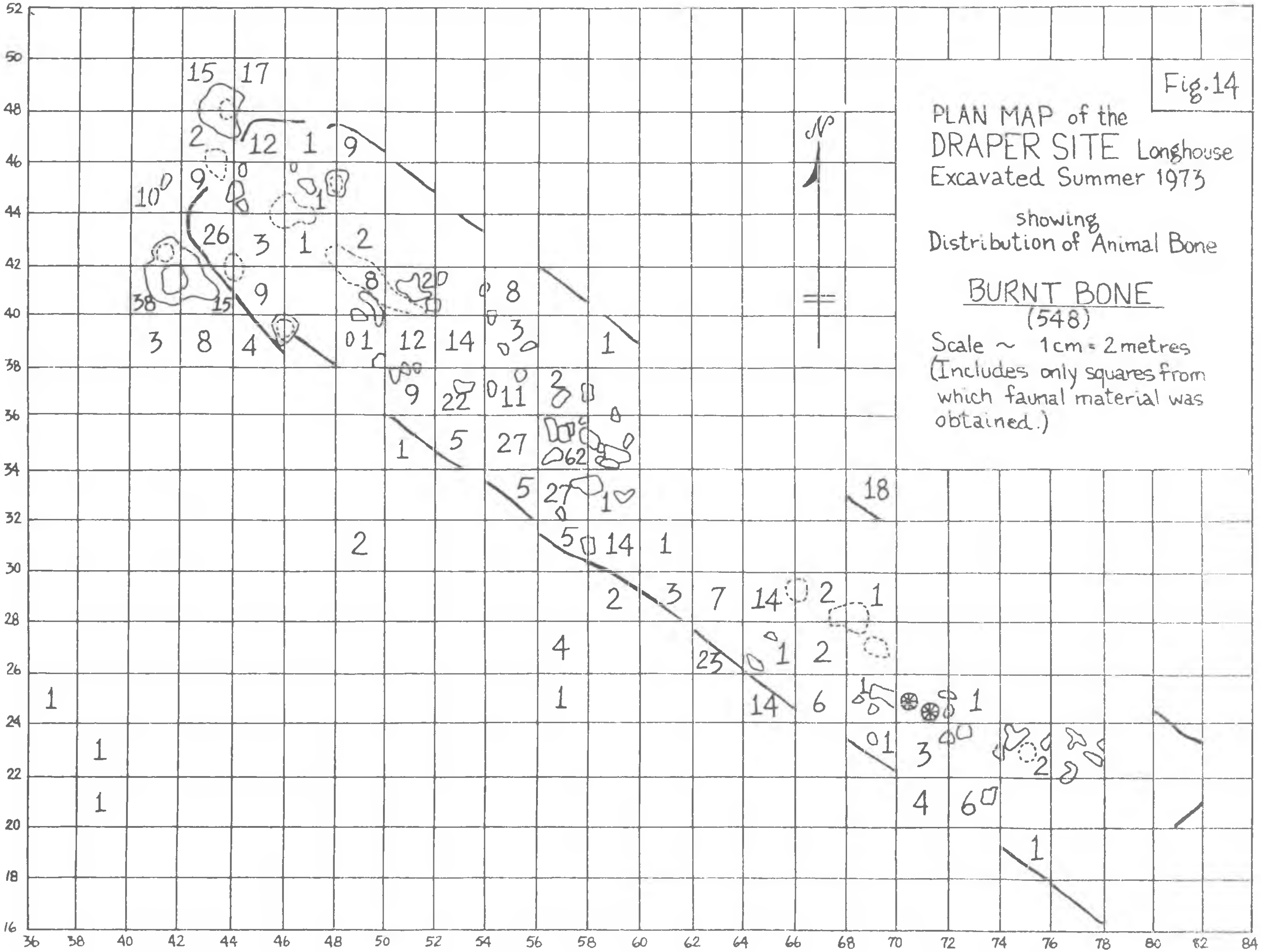


Fig. 14
PLAN MAP of the
DRAPER SITE Longhouse
Excavated Summer 1973
showing
Distribution of Animal Bone
BURNT BONE
(548)
Scale ~ 1cm = 2metres
(Includes only squares from which faunal material was obtained.)
N

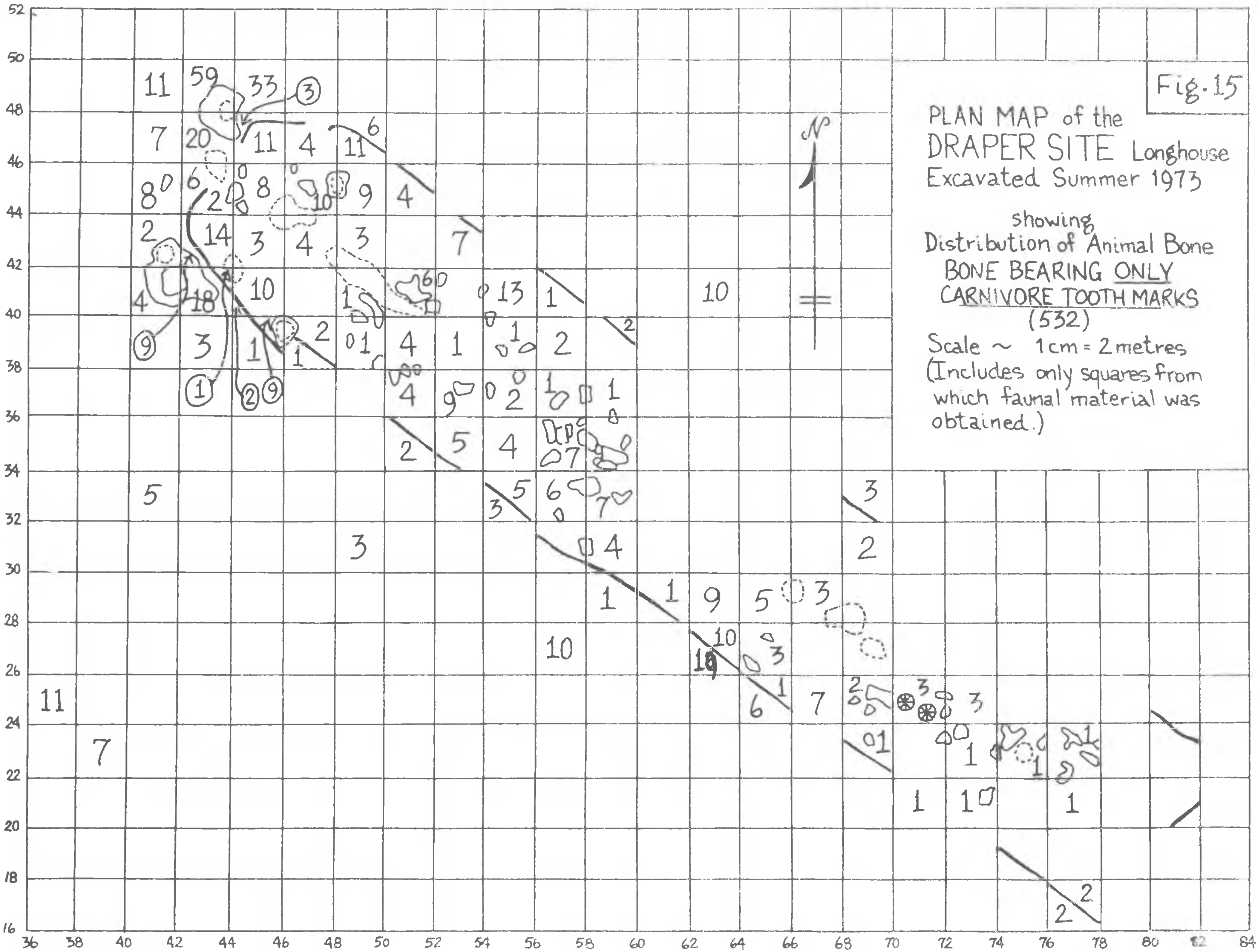


Fig. 15
PLAN MAP of the
DRAPER SITE Longhouse
Excavated Summer 1973
showing
Distribution of Animal Bone
BONE BEARING ONLY
CARNIVORE TOOTH MARKS
(532)
Scale ~ 1 cm = 2 metres
(Includes only squares from which faunal material was obtained.)
N

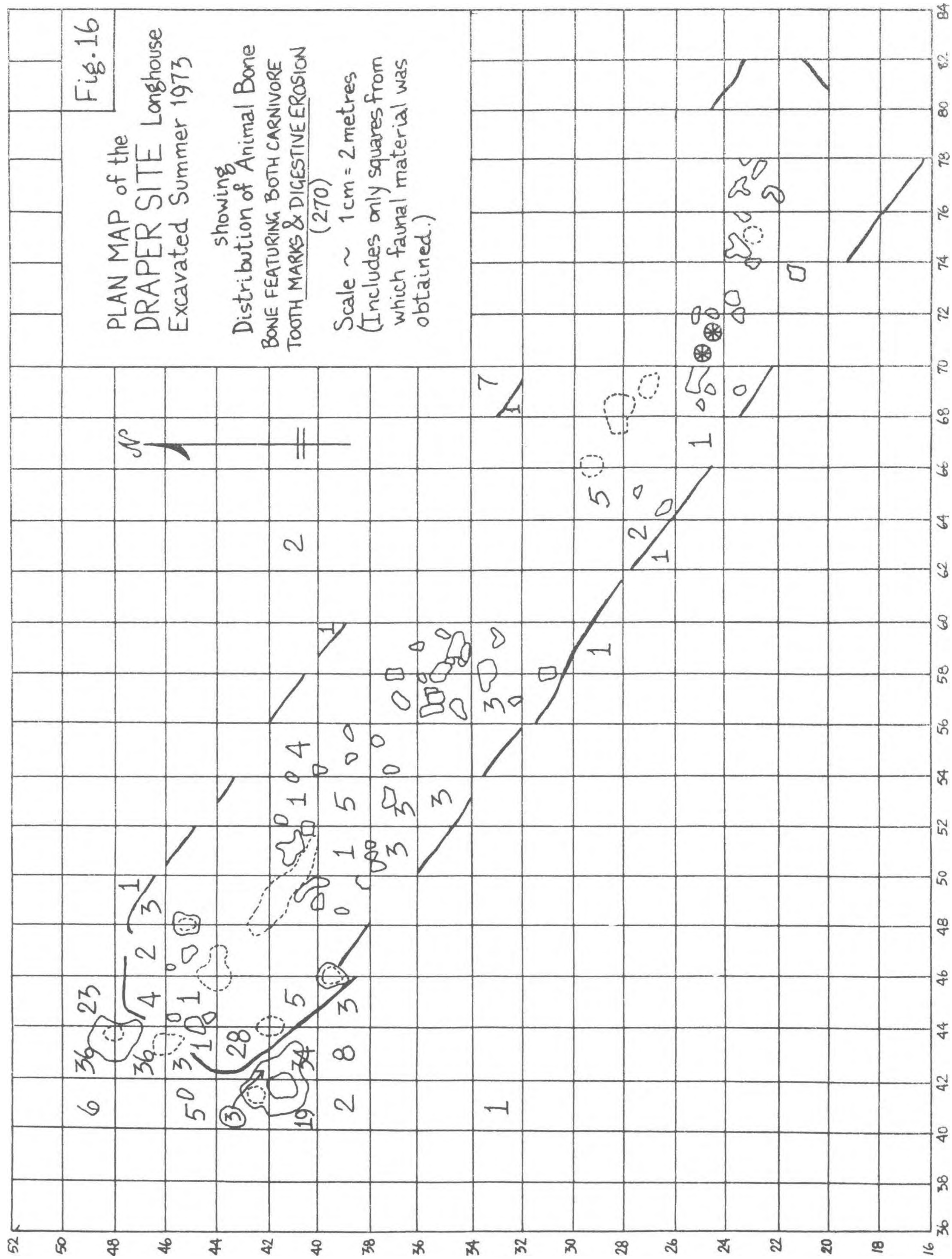


Fig. 16
PLAN MAP of the DRAPER SITE Longhouse
Excavated Summer 1973
showing
Distribution of Animal Bone
BONE FEATURING BOTH CARNIVORE TOOTH MARKS & DIGESTIVE EROSION
(270)
Scale ~ 1 cm = 2 metres
(Includes only squares from which faunal material was obtained.)
N

taken. Prime examples were noted amongst the 267 or so items which were both chewed *and* "eroded" (Figs. 16, 17). It is postulated that these bones were chewed by dogs, were fragmented, and a number were actually ingested later to be disgorged in normal canine fashion. Digestive juices are then responsible for the erosion which smoothed off the bone surfaces but did not obliterate the tooth marks. (The inspiration for this explanation came from a discussion of the effects on bone of chewing and ingestion by African hyaenas. See Halstead and Middleton, 1973.) See Figures 15–18 for details of distribution.

By way of supporting the above postulate, it may be noted that erosion due to water-rolling or weathering was restricted to only a few portions. If a greater part of the collection had been water-eroded, one would be hard-pressed to explain how it had happened; it would be unrealistic to invoke creek overflow or similar catastrophe since the distributions of material would have been markedly different. Convincing is the fact that the 54 bones chewed by *rodents* featured no such digestive erosion.

Thus, to domestic dogs is imputed a capacity to confuse the archaeologist who attempts to reconstruct patterns of material deposition. How serious this disturbing influence is cannot be measured. Champlain mentioned the scavenging role of dogs in a longhouse at Cahiague: "Unreproved, they thrust their noses into any cooking pot, little foreseeing their own destiny: to end in such a pot." (Bishop, 1971: 220). Dogs have been implicated in another form of influence on bones; Lyon (1970:214) cites examples of dogs in a modern Peruvian village that devour table scraps in a deliberate way. Small birds and animals are easily consumed, but the bones of larger beasts, such as the tapir, peccary, and capybara are left largely intact. She concludes: "In any group that has domestic dogs, the dogs probably destroy a considerable proportion of the bone from smaller animals." *(ibid.)*. As for the Draper site, such differential destruction may account for the low representation of such animals as the rabbit, squirrels, chipmunk, and mice.

WIDER IMPLICATIONS FOR HURON SETTLEMENT PATTERNS – A THEORETICAL DISCUSSION

In Hayden's treatment (this volume) of village settlement patterns two large questions arose to which he addressed several points. The questions concern (a) causes of village population increases during the Late Ontario Iroquois sequence, and (b) causes of settlement movement at varying intervals. As also stated, the current studies on Structure 2 are not expected to produce final convincing solutions to these and other problems. Rather, we hope to identify certain problems and direct further investigations of these in the future. The following sections will deal with the zoological basis of the above problems as presently conceived, and also with the ethnographic material relating to summer occupancy in Huron villages. To the problem of village population increases, it shall be said only that *inter*site comparisons may unlock the secret, at least in regard to faunal material; the bone is simply not intrinsically a diagnostic "tool" in the present context.

Site Movement:

In recognizing the concept of large-scale village movement as related by the primary documents, several persons have developed hypotheses to explain the reasons behind such behaviour. Heidenreich (1971:216) concludes that the reasons are multiple, not least of which was soil depletion which forced an unmanageable extension of corn plots; the limited female labour force could no longer tend the fields economically, and increasingly they were vulnerable to enemy attack – at least during the later stages. Another highly favored hypothesis invokes the process of game exhaustion by overkill as the primary force in periodic settlement shifts (see Hayden's discussion, this volume).

For the moment let us assume that this is so – that non-conservationist people will eventually reduce a population of animals to the extent that output in energy (hunting) is not equal to intake (meat retrieval). A vertically controlled deposit would probably reflect (by a skewed curve) the decline in the remains of the principal species. More specifically, one might expect to find a proportional displacement of hunting energy from larger, more efficient meat-producing species to other less desirable species, which are smaller and perhaps more difficult to capture, in order to fill the gap. If this be so, then the curves for these species (over time) should lag out of phase with the peaks of the original "staple" species. Hayden suggested that if such a decline in deer became apparent, then emphasis might very well shift to the consumption of dogs. This scheme has merit for we know that at the early contact Robitaille site in Simcoe Co., Ontario, the only significant mammalian species was domestic dog. The Robitaille director, Marti Latta, has suggested that the shift to eating dogs at this late date may be intimately related to the documented scarcity of wild game in Huronia during the first half of the

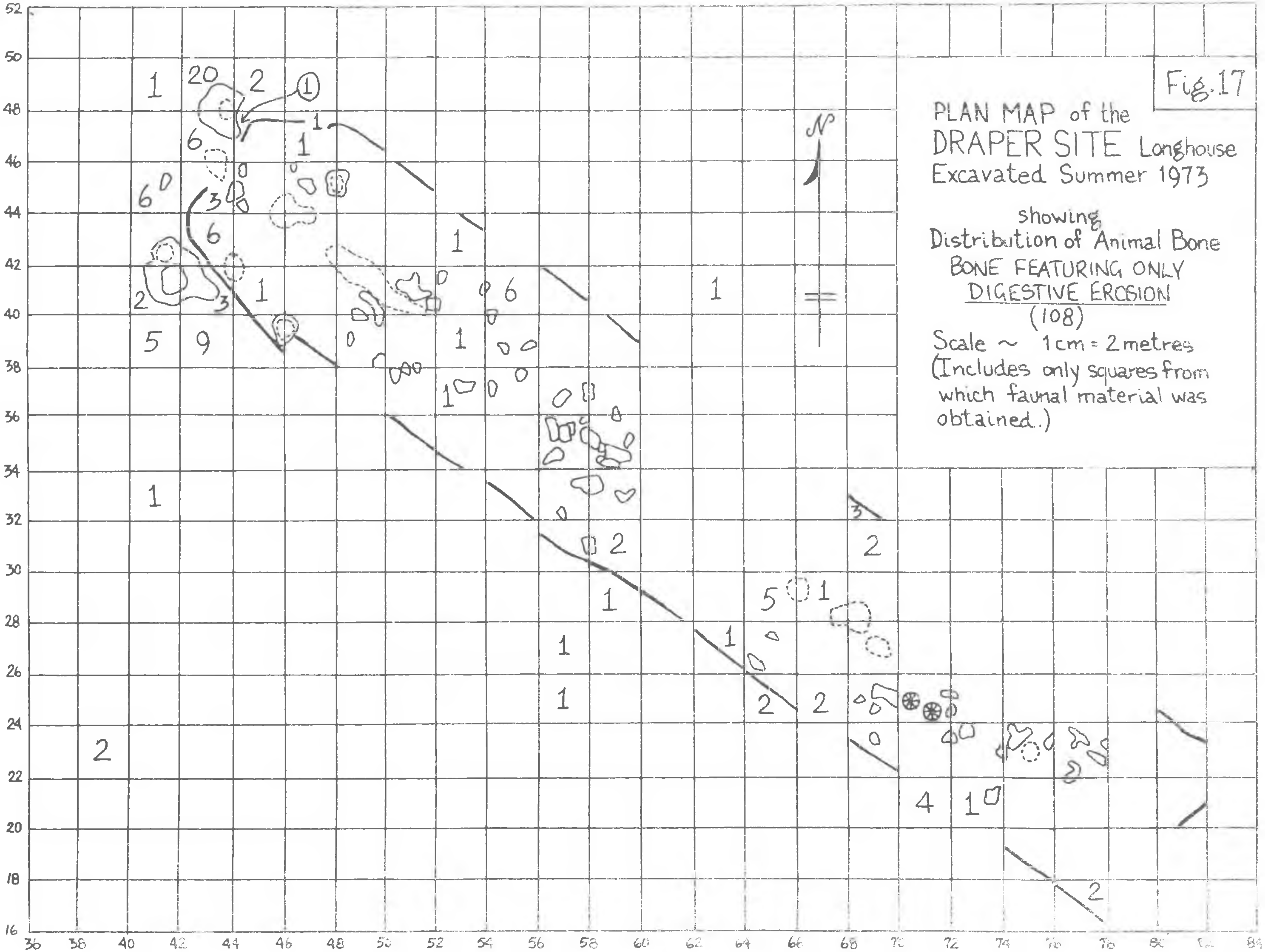


Fig.17
PLAN MAP of the DRAPER SITE Longhouse
Excavated Summer 1973
showing
Distribution of Animal Bone
BONE FEATURING ONLY DIGESTIVE EROSION
(108)
Scale ~ 1cm = 2 metres
(Includes only squares from which faunal material was obtained.)
N

17th century (Latta, pers. comm.). At any rate, statistics supportive of the game exhaustion theory do not obtain in the present study. Figure 19 clearly shows normal curves over time for all species represented by statistically significant remains; and the mode for all species is nearly identical. Thus, there is no evidence of a shift in hunting behaviour through the occupation levels, nor of a premature exhaustion of any given species.

Seasonal Population Fluctuations:

In the discussion of seasonal occupation of the Draper longhouse, it was concluded that it was used during the full cycle of the year, based on identified food sources which were exploitable during certain periods only. Too often in such studies, however, the conclusions rest at this point, without further recourse to the material.

According to the ethnographic literature on Huron seasonal site use, summer was a time of minimal activity in the principal villages. Women were often living in the fields they tended while the young men were off at war or on trading missions as far away as the lower St. Lawrence (Heidenreich, *op. cit.:* 216-18). A "skeleton" crew of men remained behind to defend as best they could against Iroquois raiding parties. With this in mind, a closer examination of the faunal assemblage gives indication that such practices also held for the Draper site. Of necessity, the evidence is vague, perhaps arguable, but clearly suggestive.

Firstly, avian species are suspiciously weighted towards capture during seasons other than summer. For example, considerable importance may have been attached to the Canada Goose and Bufflehead, and there may be a correlation between their low representation in the sample and the fact that neither occurs in the Pickering area during three months of the summer. Too, while most of the other species identified are not implicated here, the Passenger Pigeon adds strength to the argument. It was extremely abundant throughout southern Ontario from spring to fall, but the very poor showing of pigeon indicates that it was not very significant. Its abundance and comparative ease of capture (possibly, therefore, by women and children) should give it a primacy which is not reflected by the bones. The preferred implication is that the summer village population had been depleted to a level where manpower was concentrated on other tasks such as tending and harvesting corn.

Another small point concerning birds and seasons of capture is the almost total lack of immature avian bone. Although birds do not have epiphyses analogous to those of mammals, they do feature a coarse, porous cortical surface in juvenile bone. As the young appearance lasts for perhaps only 4–6 weeks after hatching (H. Savage, pers. comm.), it is evident that early summer capture can be eliminated.

The mammalian record is not so amenable to the support of the stated activity schedule. The majority source of kill data for deer rests in the frontal pedicles, and they all indicate fall capture. However, we cannot simply suppose that this was the case as a result of the return of traders and warriors at that time. That fine pelts of the major fur-bearers were collected in late fall and winter is, likewise, not because there were more men to prosecute such activities; both the deer and the furred animals were taken at that time of year because it was easier and because furs were prime in the winter.

Regardless of the uncertainty relating to the capture of some of the creatures, there is a vague notion generated that seasonal fluctuations in the village populace did occur, coincidental to the written record.

Summary:

The Draper Structure 2 faunal analysis indicates that the house featured a year-round occupation by people blessed with the abundance of a primarily deciduous hardwood forest; summer may have been a time of minimal occupancy. Little activity involving butchering and skinning was detected. One area at approximate house centre may have been a hearth as it contains a good sample of burnt bone, despite the absence of many other hearth characteristics.

In dealing with problems of wider significance to Ontario Iroquois studies, it is yet early to make statements about processes of change on the basis of the faunal remains. For example, the pressures causing population "explosions" in the 15th century AD, and those relating to settlement shifts may not have had a biological foundation that is detectable in the Draper house faunal assemblage. At any rate, intersite comparisons would appear to be the best source for further study; the data from one house in one site are frankly inconclusive.

Dogs are firmly implicated as prime agents in the rearrangement and fragmentation of waste bone. Their tooth marks are present in a widely distributed assemblage of bone which also features the effects of digestion and regurgitation.

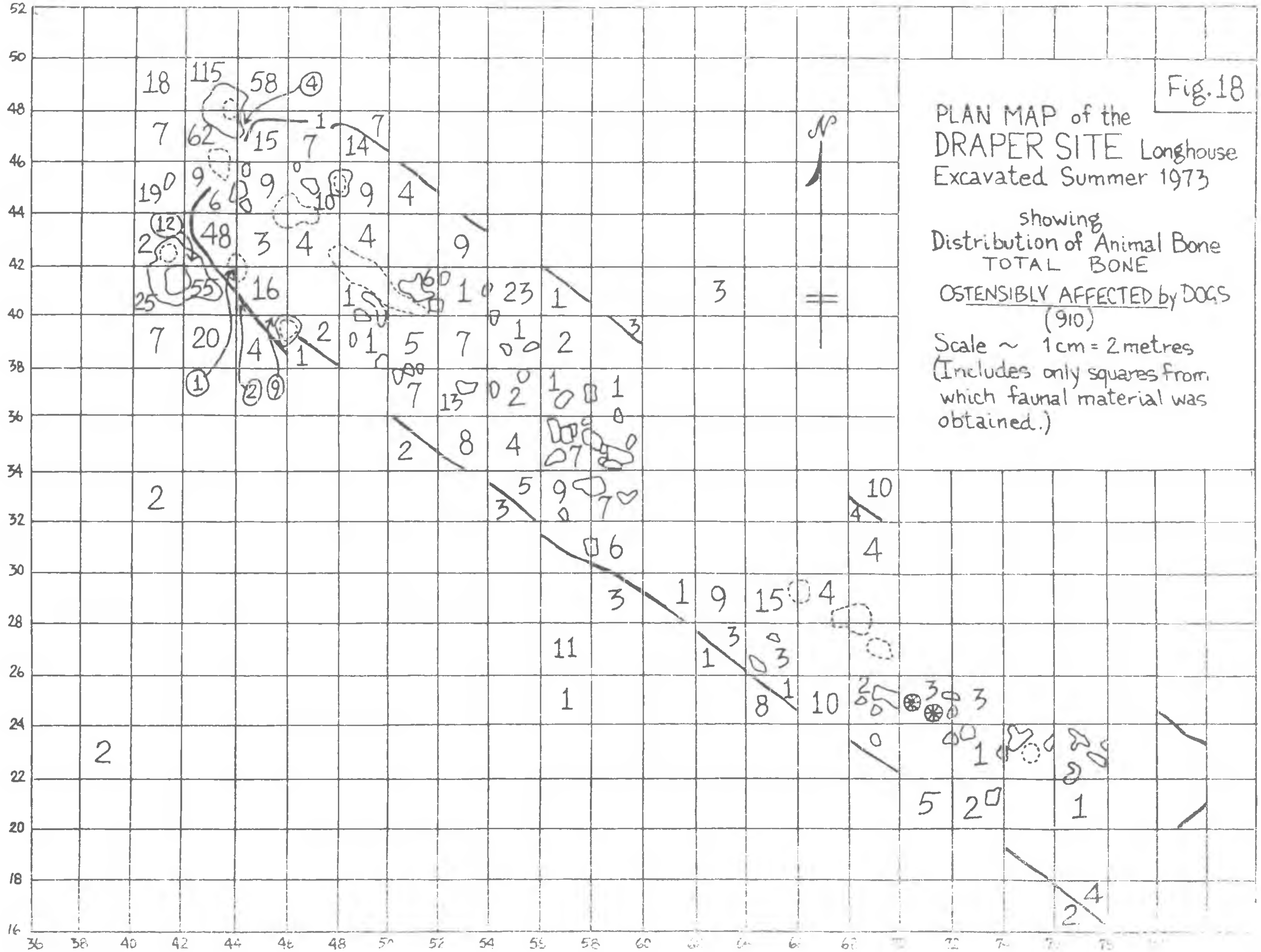
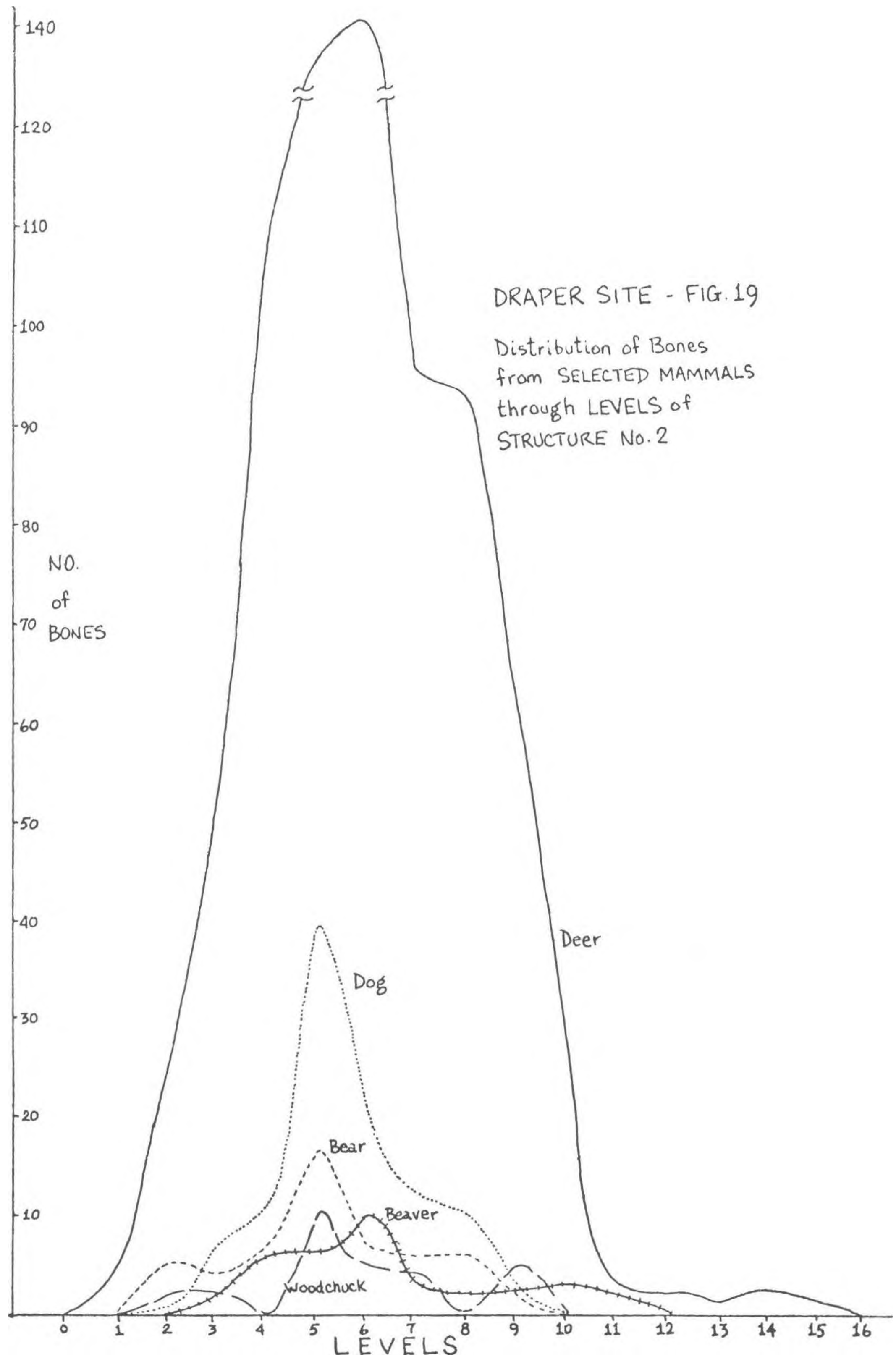


Fig. 18
PLAN MAP of the
DRAPER SITE Longhouse
Excavated Summer 1973
showing
Distribution of Animal Bone
TOTAL BONE
OSTENSIBLY AFFECTED by DOGS
(910)
Scale ~ 1cm = 2 metres
(Includes only squares from which faunal material was obtained.)
N


DRAPER SITE - FIG. 19
Distribution of Bones from SELECTED MAMMALS through LEVELS of STRUCTURE No. 2
NO. of BONES
140
120
110
100
90
80
70
60
50
40
30
20
10
Deer
Dog
Bear
Beaver
Woodchuck
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
LEVELS

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The facilities of the Faunal Osteology Lab, Dept. of Anthropology, University of Toronto, were used during the analysis of both the Draper and White sites and to its Supervisor, Dr. Howard G. Savage, I owe a real debt, for his permission to use the lab and its collections and for his assistance from time to time.

Avian bone was identified in the Dept. of Ornithology, Royal Ontario Museum, Toronto; Dr. Jon. C. Barlow, Curator, gave kind permission to avail myself of the skeletal collections of the Department, and for this I thank him.

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