SPATIAL DISTRIBUTION OF ARTEFACTS FROM EXCAVATIONS AT PUTSLAAGTE 41: EVIDENCE FOR SOCIAL ORGANISATION ON A LATE HOLOCENE SITE, SOUTH WESTERN CAPE, SOUTH AFRICA.

Thesis presented to the

Department of Archaeology
University of Cape Town

in fulfilment of the
requirements for the degree of

Master of Arts

by

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December
1990

ABSTRACT

Stone age occupation sites in the south western Cape dating to within the last 2000 years tend to display similarities in the way the archaeological remains are arranged. This arrangement has come to be termed the 'bedding and ash' pattern and relates to the positioning of hearths and sleeping areas in caves and shelters. Occupation was not limited to the caves themselves as artefacts are often found in the areas in front of and around such localities. One of the aims of this project was to analyse the distributions of artefacts on one such 'bedding and ash' site to attempt to extrapolate the size of the prehistoric population that inhabited the site. Such observations have implications for settlement patterns of hunter-gatherers in the late Holocene as a whole.

Spatial analysis has been achieved by using a method of collection which allows larger numbers of artefacts and greater areas of sites to be analysed in a shorter time than was possible before. This is achieved by feeding raw data into a micro-computer which then allows qualitative and quantitative results to be produced. Resultant artefact plots have allowed the reconstruction of areas of occupation.

Comparisons have been made between the stone age patterns of settlement and those of extant !Kung San of the Kalahari. Furthermore it is believed that changes in camp layouts and social structure that have occurred here over the last 50 years due to

interaction with pastoralist and agriculturalist groups can be used to understand changes in settlement patterns noticed in the archaeological record after the introduction of pastoralism to the south western Cape some 2000 years ago. The increase in the number of rock art sites co-inciding with changes in settlement patterns after this time suggests an increase in ritual activity that may reflect an attempt to alleviate social and ecological stress experienced as a result of interaction with pastoralists.

Changes in settlement patterns in the south western Cape were accompanied by dietary shifts. Most noticeable of these is the shift in exploitation of large and medium game animals to exploitation of predominantly small game, hares, tortoises and plant food. !Kung San camp layouts are to some degree related to the extent to which food is shared. The ritual significance attached to the meat of large and medium game animals particularly, has noticeable affects on the spacing and orientation of huts where there is a need to be able to see that such meat is equitably distributed. Different layouts are noticed when the diet consists predominantly of food with little or no ritual significance. Such food is often collected by individuals rather than collectively and thus is not usually shared outside the nuclear family and thus inter-visibility of neighbours is not necessary.

Dietary shifts in the south western Cape were largely involuntary and a result of residual hunter-gatherers occupying marginal areas which were unattractive to pastoralists. It is believed that being unable to exploit resources which were imbued with ritual significance may have led to changes in both social structure and the way in which this was mapped in space.

ACKNOWLEDGEMENTS

Most projects which involve field work components cannot be undertaken without the assistance of a number of helpers. This project is no exception. I would like to thank all those students from the University of Cape Town who assisted with the surface collections and excavation and particularly Tony Manhire who assisted me in the task of excavating some rather confusing bedding deposits. Thanks too must go to Heinz Ruther and students from the Department of Surveying who surveyed the site and assisted in the plotting of surface features. Had it not been for them this job would have taken a lot longer.

Invaluable assistance was provided by Ian Webling who wrote the software necessary to analyse and plot the artefacts. I thank him too for the many hours he spent with me entering the data into the computer. Also to Glenn Mills who helped me with the preparation of some of the drawings and with whom I had many discussions about spatial patterning.

Thanks also to John Parkington, my supervisor, who inspired the project and who helped to select the appropriate site on which to test the hypothesis.

Financial support was provided by the Human Sciences Research Council and the University of Cape Town.

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CHAPTER 1

INTRODUCTION

This project forms part of an ongoing programme of research into prehistoric settlement patterns of the western Cape during the Holocene (Parkington & Poggenpoel 1971,1987; Parkington 1972,1977 a & b,1980,1981,1984,1987; Mazel 1978; Manhire 1980,1987; Halkett 1981,1987; Robey 1984; Parkington et al 1986; Kaplan 1987). Research has allowed us to suggest reconstructions of past environments and to describe and interpret changes in social and economic arrangements through time.

The aim throughout has been to generate information about the distribution of archaeological material across the landscape at successive time periods. Research has thus been organised around the study of spatial patterning at various scales. Regionally we have noticed broad patterns of assemblage distribution which illustrate variable settlement histories in response to topographic and climatic features. On individual sites we have established clear patterns of artefact and depositional layouts which refer to the domestic use of space, particularly in rock shelters. We are also interested in the juxtapositioning of different types of sites which should inform us about the site choice and the scheduling of activities in small segments of the landscape. A number of research programmes have noted juxtapositioning of shelters containing stratified occupational debris, and rock art sites and ephemeral artefact scatters (Manhire 1980, 1987; Halkett 1981,1987; Golson 1983).

Patterning of different types of sites in an area known as the Putslaagte has been studied in detail (Halkett 1981,1987) and has led to a number of questions being asked about the social conditions under which such occupations may have taken place, as well as about the temporal relationships which exist between the sites. This will be discussed in more detail in Chapters 4 and 5.

Time is a crucial factor to be considered in any regional spatial study. Nowhere is this better illustrated than in the work of Manhire (1987) in the Sandveld zone of the south western Cape. He has shown that the nature and location of specific artefact sets allows reconstruction of a temporal sequence. The temporal divisions are however broad ones and to a degree do not consider the specific, small scale temporal variation which may exist between the formation of sites within each of the broader periods.

The proximity of living sites in the Putslaagte (and in other places) could have resulted from one, or the combination of a number of strategies pursued by prehistoric groups. For example, whilst returning to some general area for reasons of resourse availability, a group may have occupied a different shelter during each visit. Thus, site clusters may have been due to a palimpsest of repeated visits across time and space, with some sites having been used more, or less often than others. Alternatively, we should consider the possibility that sites in the clusters were generated under conditions of aggregation (Lee 1979), each location with stratified deposits representing the contemporary residence of a group. Since most shelters are small, this would be a constraining factor on group size and would not have been the case with open camp locations. Another scenario which could have led to the observed clustering can be envisaged. This would involve occupation of rockshelters by single families who formed part of a larger group or by single nuclear families in a dispersed phase of a seasonal cycle.

While all of the above scenarios will require very precise radio-carbon dating, or careful cross correlation of faunal and other artefactual remains, certain parallels for such behaviour are documented in the ethnography of the !Kung (Yellen 1977). Variations in both social behaviour and settlement patterns were noticed between seasonally aggregated and dispersed populations. These can be related to the varying economic strategies practiced during different phases and will be discussed in more detail in Chapter Two (Whitelaw 1983; Yellen 1977).

One of the major aims of this thesis will be to provide archaeological evidence which could help in discriminating between the above-mentioned hypotheses. By looking at the distributions of artefacts at one of the number of small occupation sites in the Putslaagte (PL 41), it is hoped that we will be able to establish the size of the population who inhabited it, whether re-use is indicated and possible length of occupation. Work conducted previously at this site which considered the taphonomic conditions, (Webling 1985) will assist in determining which aspects of the distributions were due to post-depositional factors.

There is abundant historical evidence for the existence of indigenous communities over most of the south western Cape when the Dutch colonised the area in 1652 (Parkington 1984) . Some of these groups were pursuing an established pastoral lifestyle with large herds of sheep and cattle. Other groups however, seemed not to have owned domesticated animals and to have lived by gathering plant foods and hunting small game. Whether these latter goups were herders who no longer owned any livestock, or residual hunter-gatherers is subject to much debate. Parkington et al (1986) have argued that the emergence of a pastoral economy in the south western Cape some two thousand years ago, disrupted local hunter gatherers to the extent that a substantial change in settlement patterns resulted. Sites found in the Putslaagte and other parts of the south western Cape have been attributed to the activities of residual hunter-gatherer groups who were historically referred to as Soaqua (Parkington 1984).

Excavated sites dating within the last 2000 years show patterns of spatial organisation noticeably different from sites dating to previous millenia. Not only are changes evident in artefact and faunal assemblages, but also in physical location and size of sites. Later sites tend to be small and situated in shelters on relatively inaccessible rocky koppies. Inside the shelters, deposits are usually well defined, with grassy bedding hollows placed between central ash deposits and the rear wall of the shelter. In most cases the talus slope in front of the shelter will be littered with stone artefacts. De Hangen (Parkington & Poggenpoel 1971), Diepkloof (Parkington & Poggenpoel,1987) and Renbaan (Kaplan 1987) are examples of this pattern and although not yet published, many other instances are known to exist in the mountainous areas of the south western Cape.

When the Putslaagte observations are compared with those from the wider research area, it is clear that the sites are directly comparable with those described in other parts of the south western Cape. Radio-carbon dates from excavated sites have showed what types of assemblages are associated with different periods. Radio-carbon dates for the excavated shelter PL 41 shows that it is of comparable age to other excavated sites and comparison of the assemblage from this and other sites in the Putslaagte shows that much of the archaeology can be dated by association to within the last 2000 years (Parkington 1980).

Archaeological remains alone cannot convey the circumstances under which sites and site clusters are generated. Since the 1960's ethnoarchaeology has directed itself towards finding and describing the process which result in site formation among extant foraging groups (Yellen 1977; Lee 1979; Gould 1980; Binford 1983; Brooks et al 1984; O'Connell 1987). Yellen's (1977) observations of !Kung San groups are used extensively in this thesis to gain insights into the social and economic behaviour which result in the formation of camps of particular types and sizes. More recent work in the Kalahari has showed that hunter-gatherers have a long history of contact with agro-pastoralist groups (Lee 1979; Denbow 1984) and today maintain contacts with European farmers (Brooks et al 1984; Guenther 1986). Contact has in some cases led to deviation from traditional roles and experimentation with other economic strategies. Participation in these alternate strategies often leads to ideological conflict and disruption of traditional social systems (Brooks et al 1984; Guenther 1986).

It is believed that a similar situation to that recorded in the Kalahari may have existed in the south western Cape as a result of introduction of pastoralism long before the arrival of Europeans. Social disruption and changing settlement patterns of hunter-gatherer groups after this time could in part have been due to interaction with pastoralists.

CHAPTER 2

SETTLEMENT PATTERNS AMONGST KALAHARI SAN

2.1 INTRODUCTION

In the early 1950's anthropologists turned their attention to the apparently remote parts of Botswana and Namibia to study the hunter-gatherer groups who lived there. By studying their way of life, it was believed that prehistoric lifestyles could be viewed from a contemporary setting (Lee 1965:1-3).This area was believed to satisfy one of the assumptions of evolutionary anthropology, namely that only populations who were isolated and 'traditionally' orientated could be used to achieve these goals (Lee 1965:2). The fact that numerous !Kung groups in the Dobe area were living in what was believed to represent a traditional manner was sufficient to prompt a period of intensive study by numerous researchers (See Wilmsen, 1983 for a review of these).

More recently research of the historical literature and archaeological remains have shown that the presumed isolation of certain areas is unfounded and that the central Kalahari has for at least the last two millenia, been an area of great interaction between people of varying cultures and ideologies (Campbell 1982; Denbow 1984) and contrary to popular belief, San have not always been reluctant participants in alternate economic systems (Guenther 1986). While some have returned time and again to a foraging existence, others have been fully incorporated into food producing groups (Denbow 1984:179). For example, the Dobe !Kung studied by Lee in 1963 and 1964, who were described as pursuing an exclusive hunting and gathering existence, had spent much of the previous decade herding livestock and consuming domesticated foods while in client relationships with Tswana and Herero groups (Brooks et al 1984:297).

This aspect of forager behaviour has received greater attention in the 1980's and earlier works are treated with more circumspection. These works often ignored the fact that no matter how isolated San groups may appear to be, neither their social nor spatial formations, are likely to have remained unaffected by cross-cultural contact.

Ironically, the situation that has pertained in the Kalahari over the last two millennia and into the present, can shed more light on the foraging lifestyle in general, than if no interaction had occured at all. In this way we may be more easily able to see precisely those aspects which are integral to the foraging lifestyle regardless of ecological setting which if abandoned or changed, leads to severe disruption of that mode of existence. "If hunters and gatherers of today are poor examples of Stone Age hunters, they are excellent examples of functioning cultural systems that are changing from a way of life, however ancient, based exclusively on hunting and gathering, to one based on other technoeconomic states" (Brooks et al 1984:295).

One of the questions that must be addressed is why some San still pursue a foraging existence? Guenther sees the situation thus: "It would seem, in virtually all of the cases of the past (as of the present), that the Bushmen, whatever their ecological and social circumstances, maintained the foraging mode of subsistence and the band societal pattern on a more or less incipient or supplementary basis. Moreover, their foray into alternative socio-economic modes of existence appear to have been only temporary and quite often ephemeral. Even when they become 'full-time' pastoralists - as Khoikhoi (a la Elphick) - they could revert back to hunting and gathering, in cases of ecological and political pressure. Thus, throughout all of this diversity and adversity, foraging and band organisation remained the overt or latent Leitmotive of Bushmen social existence" (Guenther 1986:140-141). He further stated that this interactive behaviour should be considered within the context of social organisation and ideology. The fluid nature of the social groups ensures that interaction will take place, while the ideology underlying such an existence ensures that social structure remains intact (Guenther 1986:142,146).

Maintenance of the foraging way of life must also be viewed in terms of the nature of the relationship with other groups. In most cases, interaction with agro-pastoral groups has been as a "distinct caste of traders, hunters or smiths or as a lower class of permanent or intermittent serfs or servants" (Brooks et al 1984:294). Thus, while such relationships exist, foragers may not have full access to the products of the groups they serve and must therefore obtain a significant part of their subsistence in the 'traditional' manner.

Although these processes occur within the distinct ecological setting of the Kalahari, it is believed that the ideology and social formation as it relates to band societies of the area, has great continuity and can thus be transposed and applied in other settings, particularly in parts of southern Africa where San are known to have lived. Furthermore, the last 2000 years in the south western Cape is characterised by a similar series of events which have been described in the Kalahari (Elphick 1977; Parkington 1984). Though it cannot be claimed that the processes of acculturation and social disruption taking place in the Kalahari at present are identical to what occurred in the western Cape, it is believed that studying the consequences of such processes can in broad terms help to understand the archaeological remains.

Having examined the situation in general terms, we can now turn to the more specific example of changes that occured between 1947 to 1976 in the Dobe !Kung camps.

2:2 THE DOBE !KUNG : PAST AND PRESENT

Before examining the changes that have occurred at Dobe, we must consider those aspects which constitute the hunting and gathering lifestyle in general and how these are manifested in the lifestyle of the !Kung, with specific reference to settlement patterns, social structure and ideology. As already stated, ideology and the band structure are likely to have greater continuity than other aspects of this lifestyle and are unlikely to have changed to any great degree. Thus, the so called 'traditional' lifestyle observed in the 1940's may not be significantly different from what it was in the past.

Brooks et al have, after reviewing the hunter-gatherer literature, summarised the aspects of this lifestyle as well as characteristics which pertain to a lifestyle based on mixed pastoralism (1984:298-230). These are summarised below:-

GENERAL HUNTER GATHERER CHARACTERISTICS:

1. Egalitarian- Little or no personal property
2. Small groups - Unreliable and marginal nature of food supply
3. Groups do not maintain exclusive rights to resources, though they may control access to these.
4. Great amount of movement between groups and resource areas.
5. Food surplusses are rare.
6. "Houses" are impermanent and "informal".
7. Camp plans are flexible.
8. Populations of camps composed of consanguinal and affinal kin.
9. Storage structures are minimal.
10. Formal political and legal structures are minimal. (Disputes are usually settled by fission).
11. Sharing and generosity are encouraged and serve to reduce tension.

MIXED PASTORALISM CHARACTERISTICS:

1. Material accumulation and differential "wealth" occurs.
2. Reduction in free access to particular areas and resources.
3. Accumulation and storage of agricultural products.
4. More permanent and formalized structures.
5. Camp plans less flexible and expanded to accommodate livestock.
6. Formal political and legal mechanisms for resolution of conflict.

The traditional !Kung lifestyle includes all of the characteristics of the general hunting and gathering lifestyle. Yellen (1977), has presented observations on the movements, settlement patterns and social structure of !Kung groups over one whole year. His observations show how the characteristics of the hunter-gatherer lifestyle summarised above apply to the traditional lifestyle of the !Kung.

The most noticeable feature of the settlement pattern is its seasonal nature. During the dry season (August - December) a number of nuclear families will aggregate around the few waterholes which exist in the area. In the three dry season camps discussed , extended family groups numbered between two and four representing a total of between twenty two and twenty eight adults . The number of huts varied between twelve and fifteen (Yellen 1977:72). Camps were arranged in a circular fashion with huts facing inward toward a common central area. The geometry of this arrangement dictates the size of the camp diameter and if more huts are present, the camp will be larger. The number of people in a camp at any one time may vary as visitors and members of

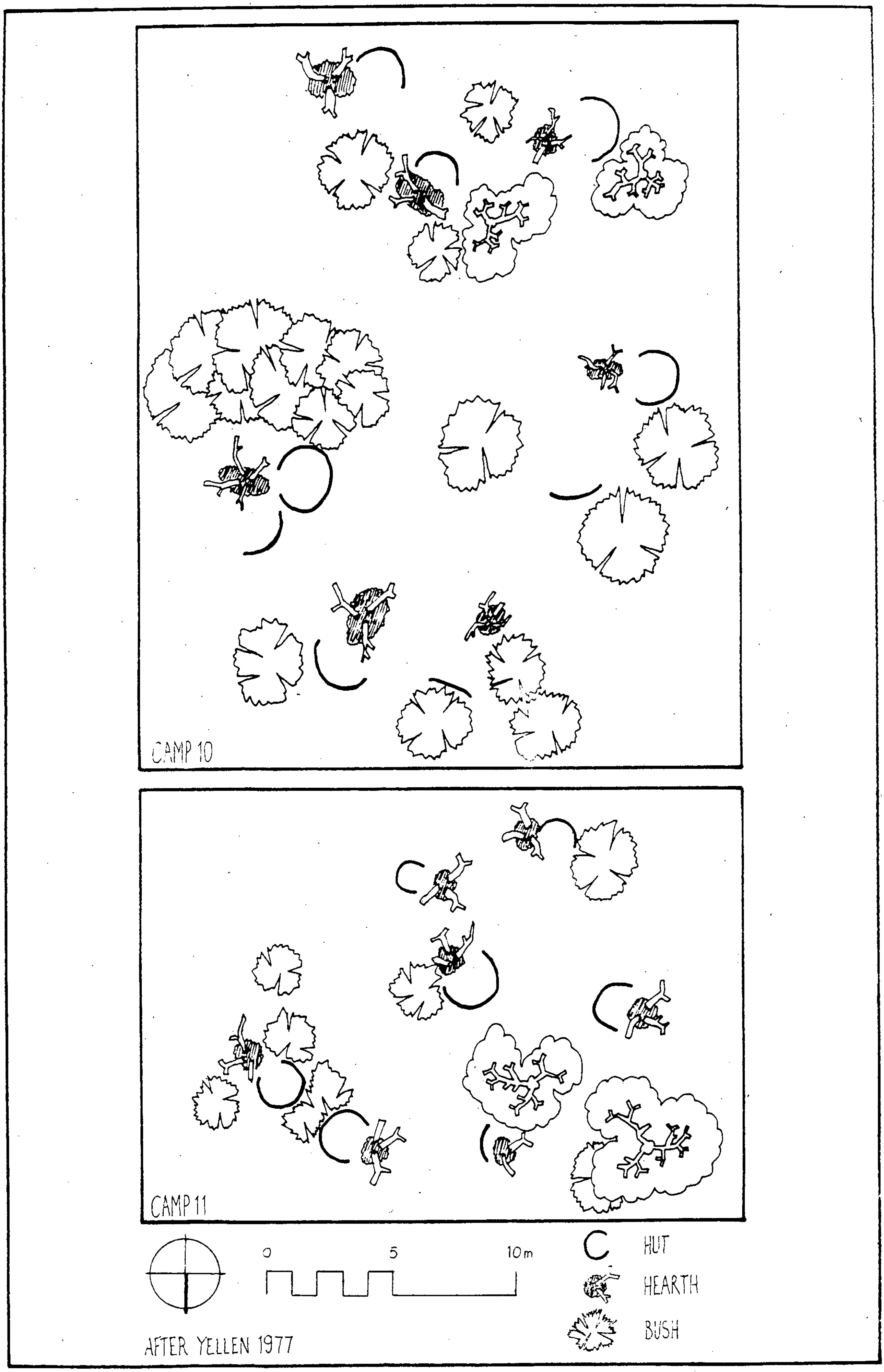


FIGURE 2.2: PLANS OF WET SEASON CAMPS IN THE KALAHARI

and are not arranged in a way that defines communally used space. In the sixteen camps of this type surveyed by Yellen, there were never more than fifteen adults and never fewer than four adults present. The number of huts varied between two and seven.

Though these two differing camp layouts occur as a response to environmental factors, variations in camp layout must also be evaluated in terms of social and ideological factors. Both Draper (1973) and Wiessner (1982) have suggested that the open, circular pattern of dry season camps is due to the fundamental importance of sharing in !Kung subsistence. The significance of this organisation is the great degree of intervisibility between individual households and ensures that no anti-social behaviour takes place. Whitelaw has suggested that sharing only takes place when specific foods are involved (1983:59).It can be shown that small game and plant foods are individually collected and are not shared beyond the household group whereas large and medium game animals often require a greater communal hunting effort. Meat from such a communal kill must therefore be widely distributed within the camp and most importantly, it must be seen to be equitably divided amongst camp members. In wet season camps, there are generally fewer adult males available to participate in hunts of large animals (though they may be taken on occasion) and thus there is greater dependency on smaller game and plant foods which require less communal effort to collect and are thus not distributed on a wide scale.

The potential for social stress to occur is greater in larger, dry season camps than in wet season ones. Whitelaw notes that: "stress is not related to crowding per se, but to crowding by strangers" (1983:55). As we have seen, greater social or kin distance will be evident in dry season camps. Stress amongst members of the long term camps can thus be directly related to the sharing of food and hoarding behaviour. In small wet season camps, members are intimately acquainted and often close kin and inter-visibility is therefore not as vital. Thus the closer relationship between individuals, as well as the method of food collection at smaller camps ensures less likelihood of unequitable distribution occurring.

The wet season camp therefore represents a situation where there is little chance of stressful social relations developing. Interpersonal conflicts are simply resolved by one of the parties moving away. This is possible since basic resources are readily available at this time of the year. This would be more difficult during summer when water is scarce away from the permanenet waterholes.

So far we have examined the "traditional" settlement patterns and related social organisation. In the following section we will examine changes that have occured in these arrangements since 1947 but particularly since the late 1960's.

To assess these changes, a number of dry season camps in the Dobe area dating back to the 1940's were examined (Brooks et al 1984:300-308). Material remains were studied for changes in settlement patterns and diets. The changes that have occurred in camp layout are presented in

Figure 2.3. The 1947 camp adheres to the traditional circular arrangement of dry season camps. All faunal remains are from wild species. The 1963/64 camp is also circular and is consistent with the traditional pattern. Faunal remains include domesticated species which make up approximately seventeen percent of the sample. The 1968/69 camp is largely a traditional arrangement but has a goat kraal to one side. This structure accompanies the first documented herding of goats. The 1970/71 camp begins to deviate from the circular pattern and apart from a goat kraal, some of the huts are fenced with thorn bushes. Domesticated species make up seventy percent of the faunal remains. The 1975/76 camp was still occupied when it was recorded. Both a goat and a donkey kraal have been erected and is more closely associated with the huts which were no longer arranged in the traditional way. In addition to being fenced some huts are constructed with more permanent materials and storage structures have also been erected. At this camp only sixteen percent of the faunal remains were from wild animals.

The breakdown of the traditional camp structure is likely to be the result of a number of changes. The fencing of houses and erection of storage structures marks a major deviation from the accepted behaviour of equitable distribution of "wealth". It also marks a trend towards occupation of camps on a yearly or multi-year basis (Brooks et al 1984:303). While sharing still takes place, it is greatly reduced. Whitelaw (1983) has noted that sharing, particularly of large and medium game animals, will result in domestic units being closely spaced to allow constant monitoring of what others have. When emphasis

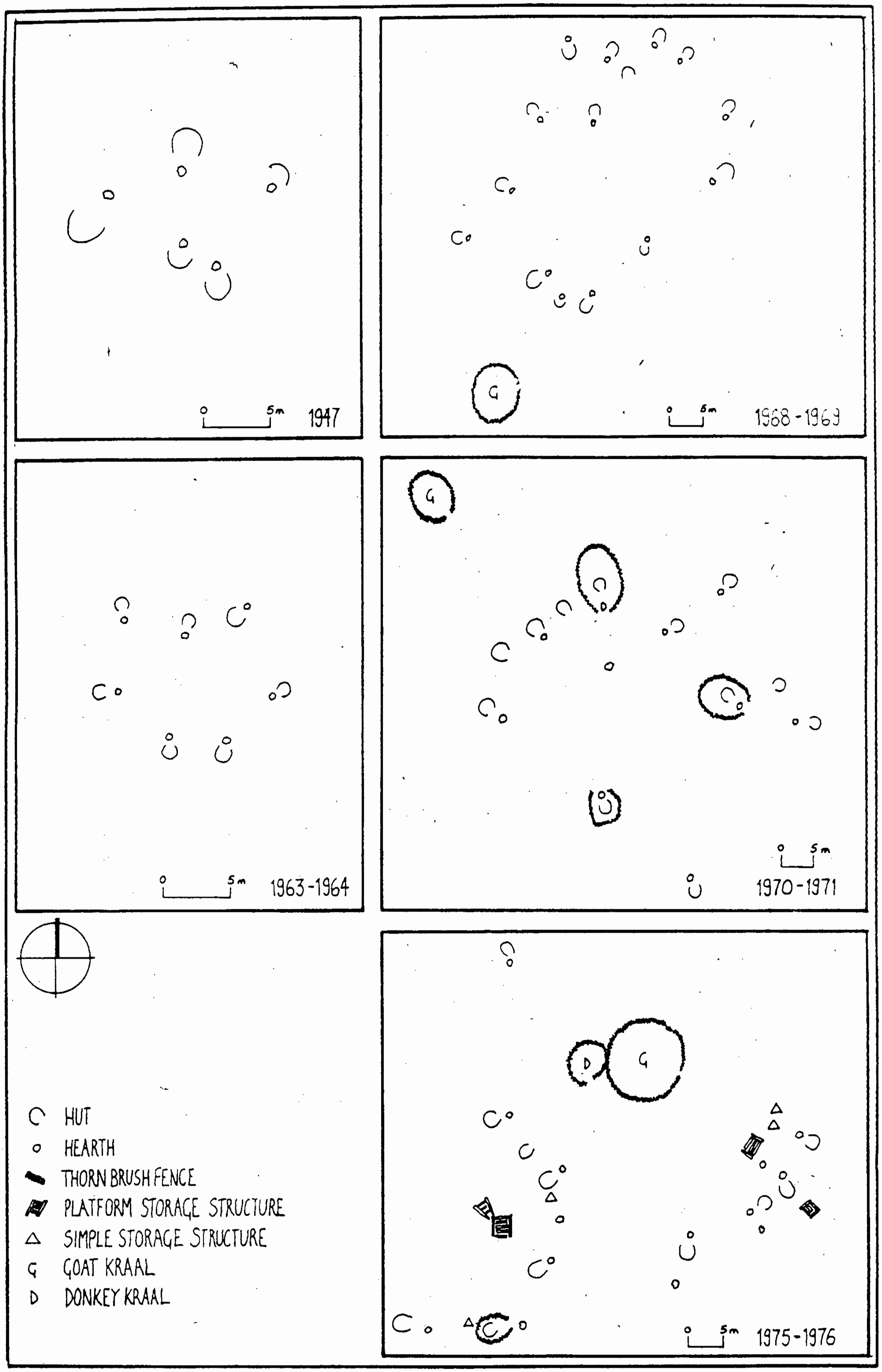


FIGURE 2.3: CHANGES IN THE PLANS OF KALAHARI CAMPS SINCE C1940

is shifted to indivudually collected items, which are not shared beyond the household, spacing between these units becomes much greater.

Since large game animals were rarely hunted from the 1975/76 camp, and domesticated animals had aquired a value beyond their dietary importance, communal sharing seldom occurred (Brooks et al 1984:307). Thus the increased spacing and reduced inter-household visibility in this camp seems to fit Whitelaw's model.

Such settlement and economic shifts have not occurred without changes taking place within the social value system. Sharing and gift giving enforce social cohesion in the traditional lifestyle (Wiessner 1977; Katz 1982).In moving towards alternative economic strategies some of the accepted codes of behaviour which for so long have ensured group cohesion, must be transgressed if they are to have any chance of success (Parkington et al 1986:317). For example, it is only possible to accumulate a herd of goats by ignoring a social commitment. Lee describes the case of a man who had established a herd of goats by ignoring the need to share. Because he was not perceived to be generous in proportion to his wealth, his sons could not acquire wives and thus he was forced to give up his herd before he was re-accepted into the group (1979:413).

2.3 SUMMARY

The objective of this chapter has been to examine patterns of behaviour which constitute a hunting and gathering lifestyle undergoing a process of change due to the interaction with groups practicing different economic strategies. Differences between the traditional and non-traditional settlement patterns of !Kung San illustrates that deviation from traditional ethics results in a change in settlement pattern. Similarly, traditional camp plans change seasonally as a direct result of the type of food collected and the degree to which this is shared in the different social circumstances. Thus, it appears that there is a link between camp layout and the sharing of food, particularly large, communally hunted game animals and that camp structure is largely a result of social relationships being mapped in space.

It is believed that the changes in the settlement patterns and economy during the last forty years in the Kalahari, can be used as an analogy of the situation in the south western Cape after the advent of pastoralism and that changes in settlement patterns after this period can be seen in the archaeological remains.

CHAPTER 3

PHYSIOGRAPHY, GEOLOGY AND CLIMATE OF THE RESEARCH AREA

The location of the research area can be seen on Figure 3.1. Lying at the northern end of the Cape Fold Belt mountains some 120 km from the west coast, it is bordered to the west by the high northern Cedarberg, and the Olifants River Valley and on the east by the Karoo, a flat, semi-desert region punctuated by outcroppings of shale and sandstone. The research area itself consists of undulating sandy plains incised by the Doorn river and its tributaries. The shelter, PL 41 lies in one of these incised valleys known as the Putslaagte and was identified along with numerous other archaeological sites during fieldwork in 1980/1.

3.1 CLIMATE

The climate of the research area can be described as Mediterranean with most rainfall occurring during the winter between the months of April and September. Frontal systems moving in from the south Atlantic are responsible for bringing rain to the area although the altitude and position of the Putslaagte in the lee of the high northern Cedarberg give rise to a rain shadow effect. Thus the research area receives lower annual rainfall than the Olifants River Valley to the west.

Winter temperatures frequently drop to below 0 degrees centigrade

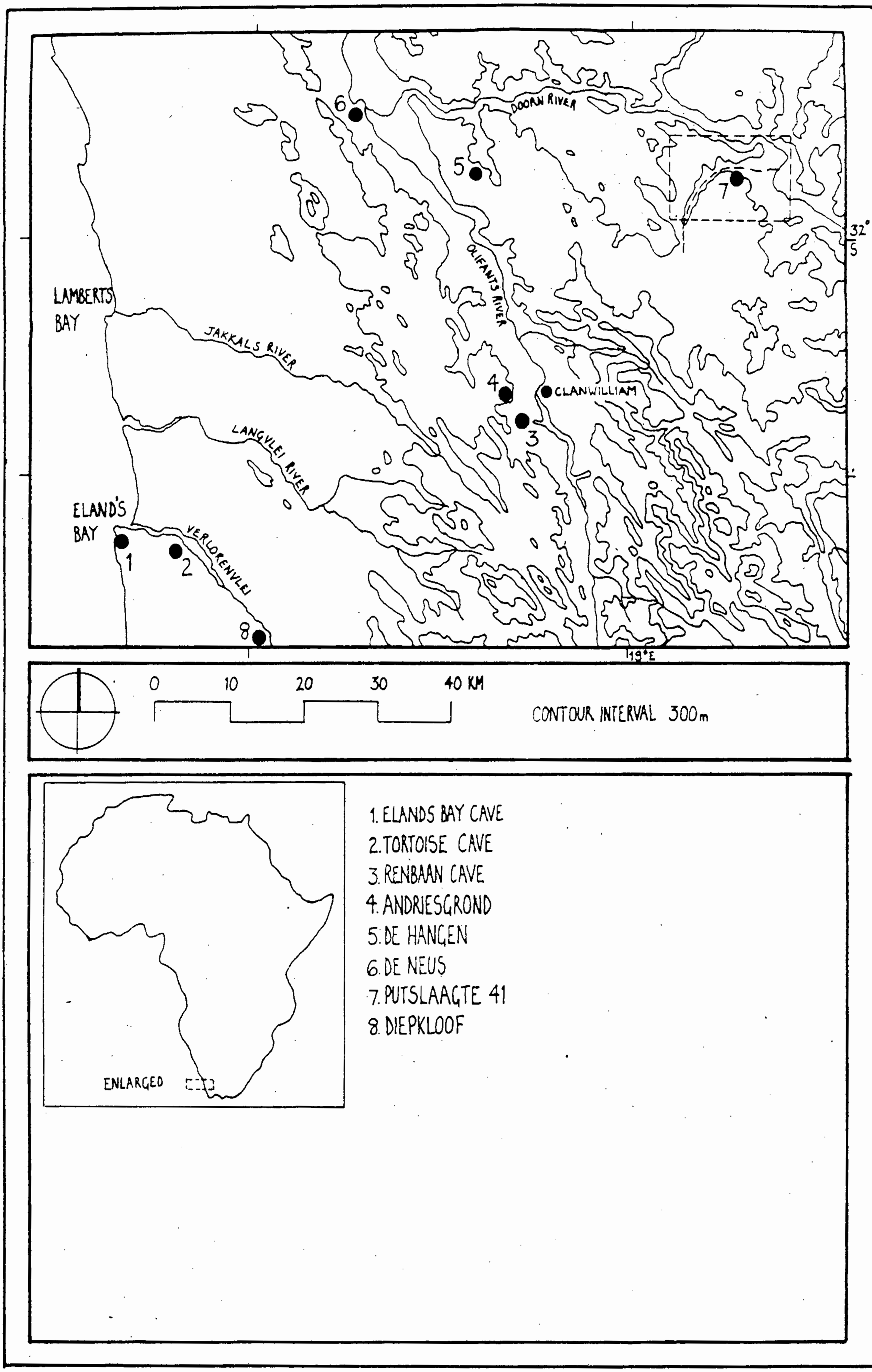


FIGURE 3.1: LOCATION OF RESEARCH AREA

and are often accompanied by heavy frost in the mornings although average daily temperature is in the order of 19 degrees centigrade. Average daily temperature during summer is in the order of 30 degrees but can rise as high as 40 degrees.

Most of the streams and rivers of the area are non-perrennial usually only flowing during winter. The Doorn river is the largest of these and flows along the eastern edge of the research area. Most of the small non-perrennial streams drain into the deeply incised Doorn river ravine and are thus responsible for some of the water present in it during winter. Since its main catchment occurs many Kilometers to the south in more well watered regions, the Doorn may flow all year round. Even during drier periods, when the river may not flow, large standing pools can be found and water is always present below the surface. The Doorn is undoubtedly the most important water source at the present time and this was probably the case in the past as well. Although the presence of springs is noted, many are inactive at present due to the utilisation of groundwater for crop irrigation. Removal of natural vegetation during crop farming and through overgrazing has led to increased rates of evaporation which diminishes the amount of water ultimately permeating the soil to replenish ground water reserves.

During the winter months and the early part of summer, temporary sources of water can be found in the many rock basins which exist in the quartzitic strata of the area. These are particularly important for small mammals, reptiles and birds but could have been used by humans as well. The presence of such basins has also been noted in the rocky Koppies of the Sandveld (Manhire 1987).

3.2 GEOLOGY

Major geological zones of the south western Cape are presented in Figure 3.2. The research area is situated in a region where strata of the Cape System predominate and include sandstones, shales and quartzites. Fluvial erosion of the quartzitic strata have formed the numerous ravines on both sides of the Doorn River and it is in these strata that most of the caves and shelters can be found. The presence of these oppertunities has resulted in the ravines forming a focus for human occupation in the past.

In addition to the Doorn river forming an important water source, a variety of exotic rocks can be found in the extensive gravel beds along its course. Many of these have eroded out of the Dwyka Tillites which are cut by the upper course of the river. These include such types as cherts, jaspers, chalcedonies ironstones and hornfels. These rocks will be discussed in more detail in Chapter 4. Apart from these exotic materials which occur in low frequencies, many local materials such as quartzite and quartz are also present in pebble and cobble forms. The frequencies of raw materials on archaeological sites and the fact that many fragments have rounded and polished cortices indicate that the river gravels formed an important source of raw material for the prehistoric occupants of the area.

3.3 VEGETATION

The broad vegetation types of the south western Cape are presented

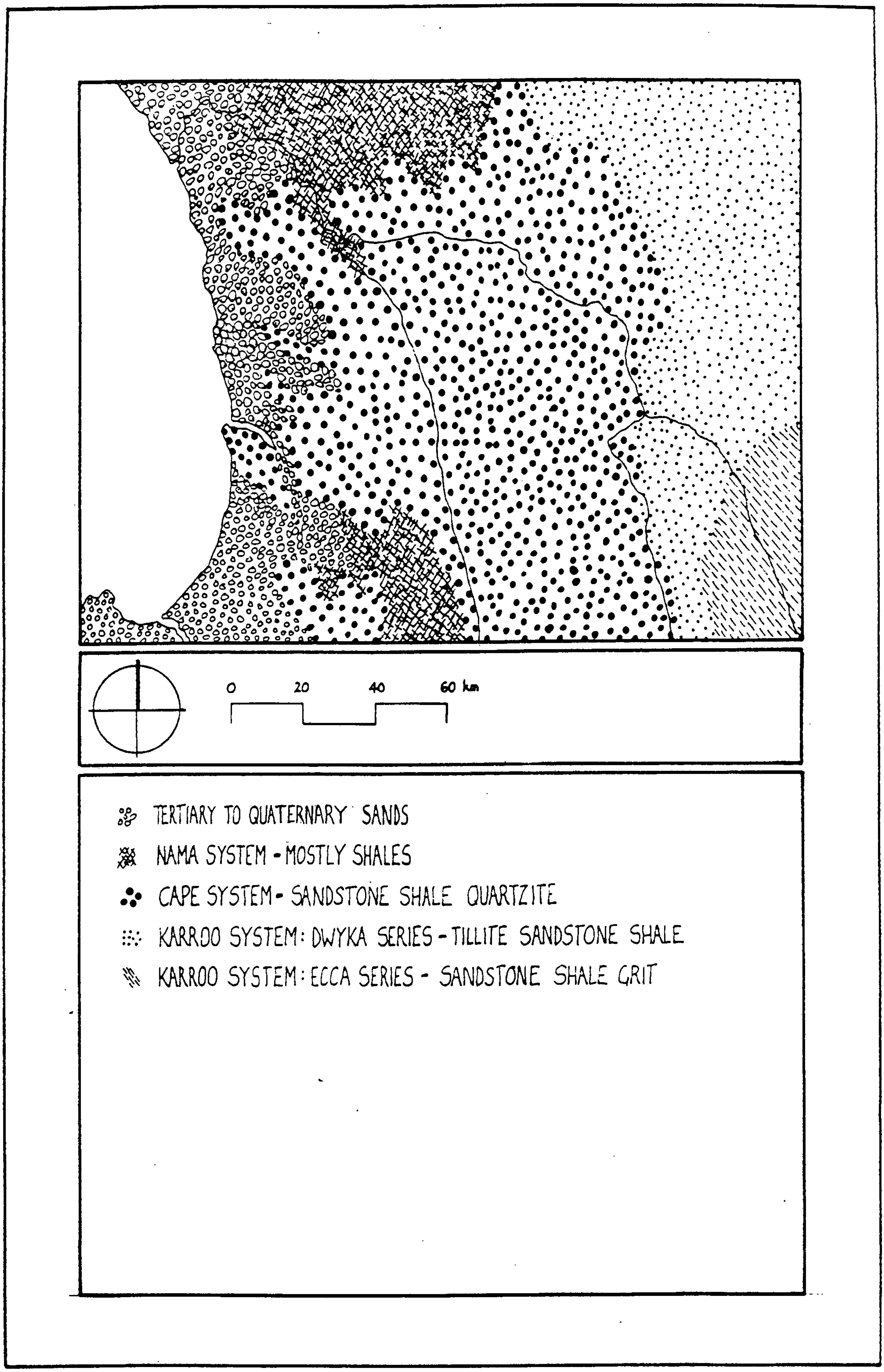


FIGURE 3.2: MAJOR GEOLOGICAL ZONES OF THE WESTERN CAPE

in Figure 3.3. The vegetation of the research area has been described as mesic mountain fynbos and is characterised by low scrubby vegetation with restioid patches occurring where the soils are deep enough. Numerous bulbous species as well as fruit and nut bearing trees and shrubs also occur (Parkington and Poggenpoel 1971:23-25; Meterlekamp and Sealy 1983). The below ground parts of iridaceous species formed an important part of the diet of the prehistoric occupants of the area and remains of these are found in the deposits of occupied shelters.

3.4 FAUNA

Although no large, wild fauna are to be found in the area today, their presence is noted in the reports of numerous travellers and explorers who passed through this general area since the middle of the seventeenth century (Skead 1980). Animals noted in these reports include eland (Taurotragus oryx), elphant (Loxodonta africana), buffalo (Syncerus caffer), black rhino (Diceros bicornis), zebra (Equus zebra zebra) (Smithers, 1983:569-571) and hartebees (Alcelaphus buselaphus). Depictions of these and other animals can also be found at the numerous rock art sites in the area (Halkett 1987:388).

In addition to these, numerous small mammals are also mentioned. Because of their size and habitat preferences, many have survived the impact of man and domesticated stock. These include antelope such as steen/grysbok (Raphicerus campestris/melanotis), common duiker (Sylvicapra grimmia), klipspringer (Oreotragus oreotragus), as well as the abundant rock rabbit (Procavia capensis) and

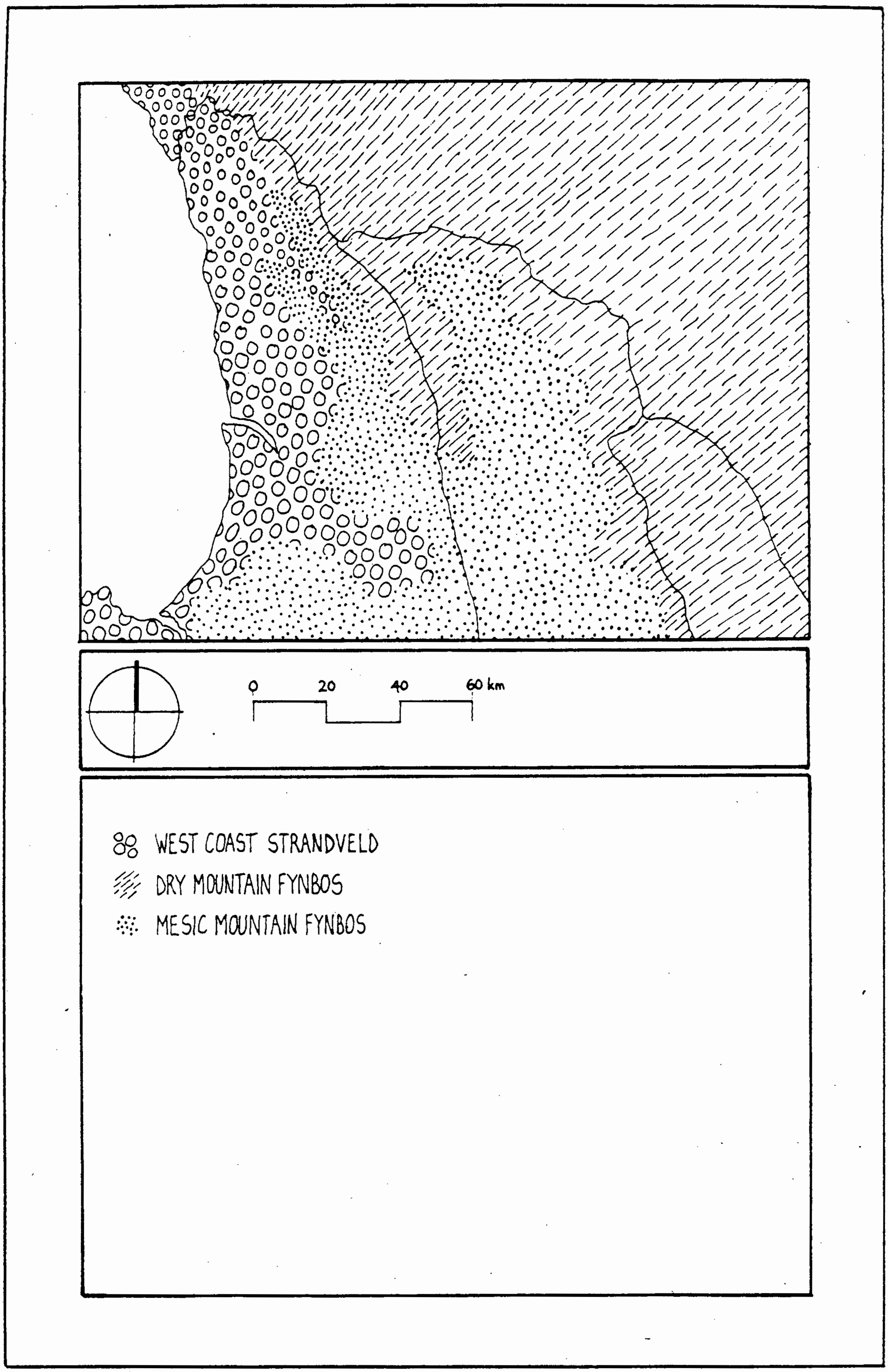


FIGURE 3.3: MAJOR VEGETATION ZONES OF THE WESTERN CAPE

small carnivores. Rodents, birds and reptiles abound with the tortoise (_Chersina angulata_) having formed an important part of the human diet. Fish, freshwater crustacians and molluscs can be found in the Doorn river. While fish remains are found in the deposits at PL 41 these may not be due to human use but rather due to exploitation by carnivores.

CHAPTER 4

THE SITE, METHODS OF SAMPLING AND THE ASSEMBLAGE

The intention of the analysis of the archaeological component of this project, was to demonstrate that spatial patterning of the material remains exists on occupation sites in the south western Cape dating within the last 2000 years. Furthermore, if such patterns could be detected, they would be used to analyse human behaviour at those sites, and settlement patterns in general.

Secondly, the project tested a sampling method specifically designed to optimise spatial observation collection when the time available for this is limited. This method promotes collection of larger samples than would be possible using the conventional point plotting of artefacts, without sacrificing valuable spatial information.

4.1 SITE SELECTION

Certain criteria had to be satisfied in selecting a site on which to test these hypotheses and methods. Of primary importance was that the location had been used for domestic activity. Sites with shelters containing deposit, as well as surface assemblages of stone artefacts, bone, pottery and ostrich eggshell were believed to indicate such use.

It was equally important to be sure that the site fitted into the time period under discussion. Since sites dating after 2000 BP show patterns of spatial organisation, noticeably different from sites dating to previous millennia, and also the fact that certain formal artefacts e.g. adzes and other debris including pottery are found after this time (Parkington 1980; Manhire 1984) meant that selection of a site of suitable age was not a difficult task. During the original survey of the Putslaagte, a number of different sites were discovered. While many of these contain only rock art or ephemeral stone scatters, six were identified as domestic locations (Halkett 1987).

One site, designated PL 41, displayed all of the features that were required. Particularly important was the fact that the talus surface was reasonably level. This is an important consideration where spatial patterns are to be studied since post-depositional distortion of assemblages due to natural forces can occur when slope gradient is too great. Two forces which play the greatest role are gravity and runoff. The latter is more destructive, and while dependent on amounts of precipitation, it is amplified by the angle of the slope. Sites located in the initial survey and the location of PL 41 are presented in Figure 4.1.

4.2 SURFACE TOPOGRAPHY

The surface topography is best described while referring to Figures 4.2 and 4.3 which shows the major features of the site such as large immoveable boulders and rocks and the extent of the rockshelter. The

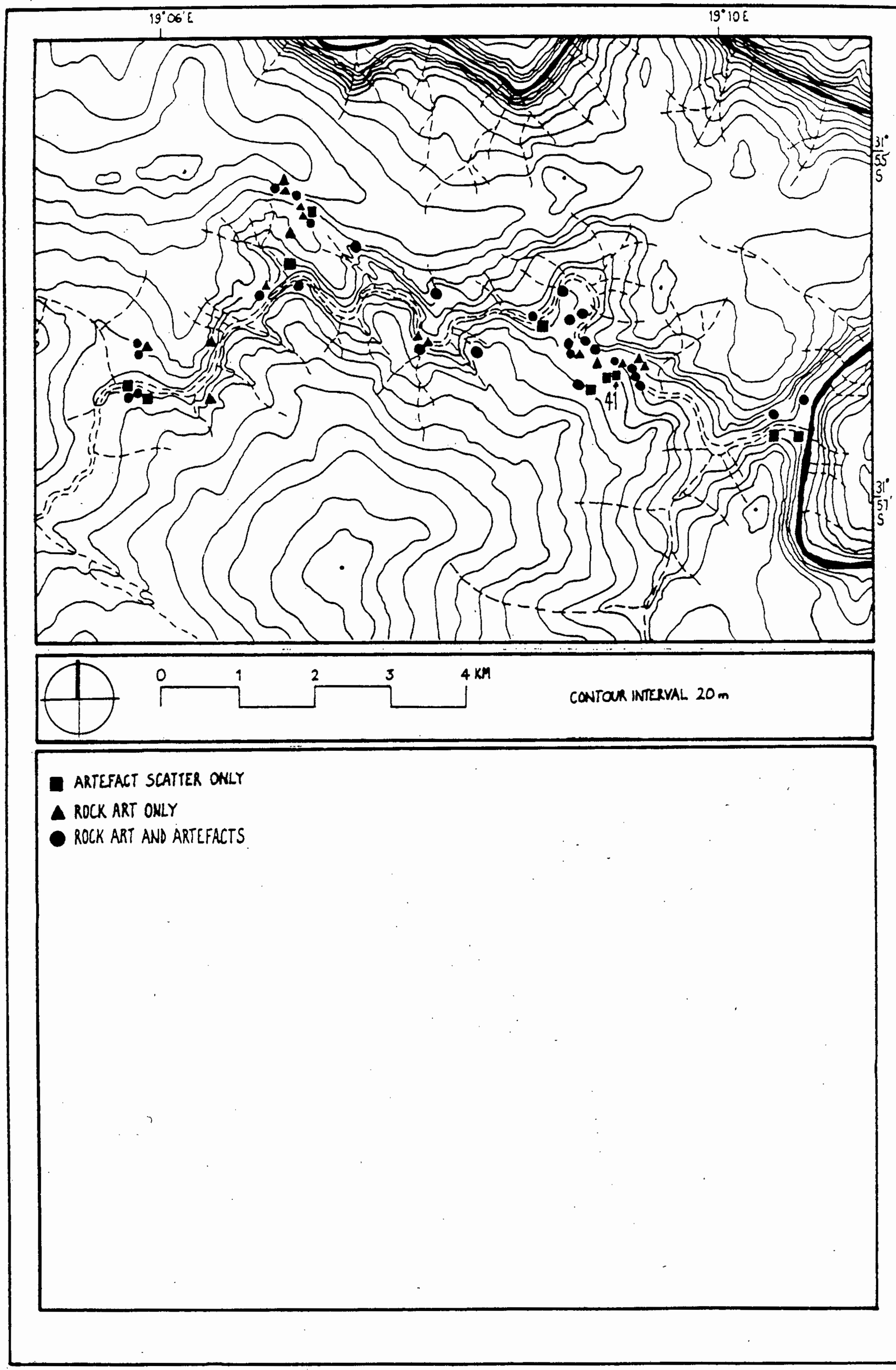


FIGURE 4.1: ARCHAEOLOGICAL SITES LOCATED DURING 1981 SURVEY

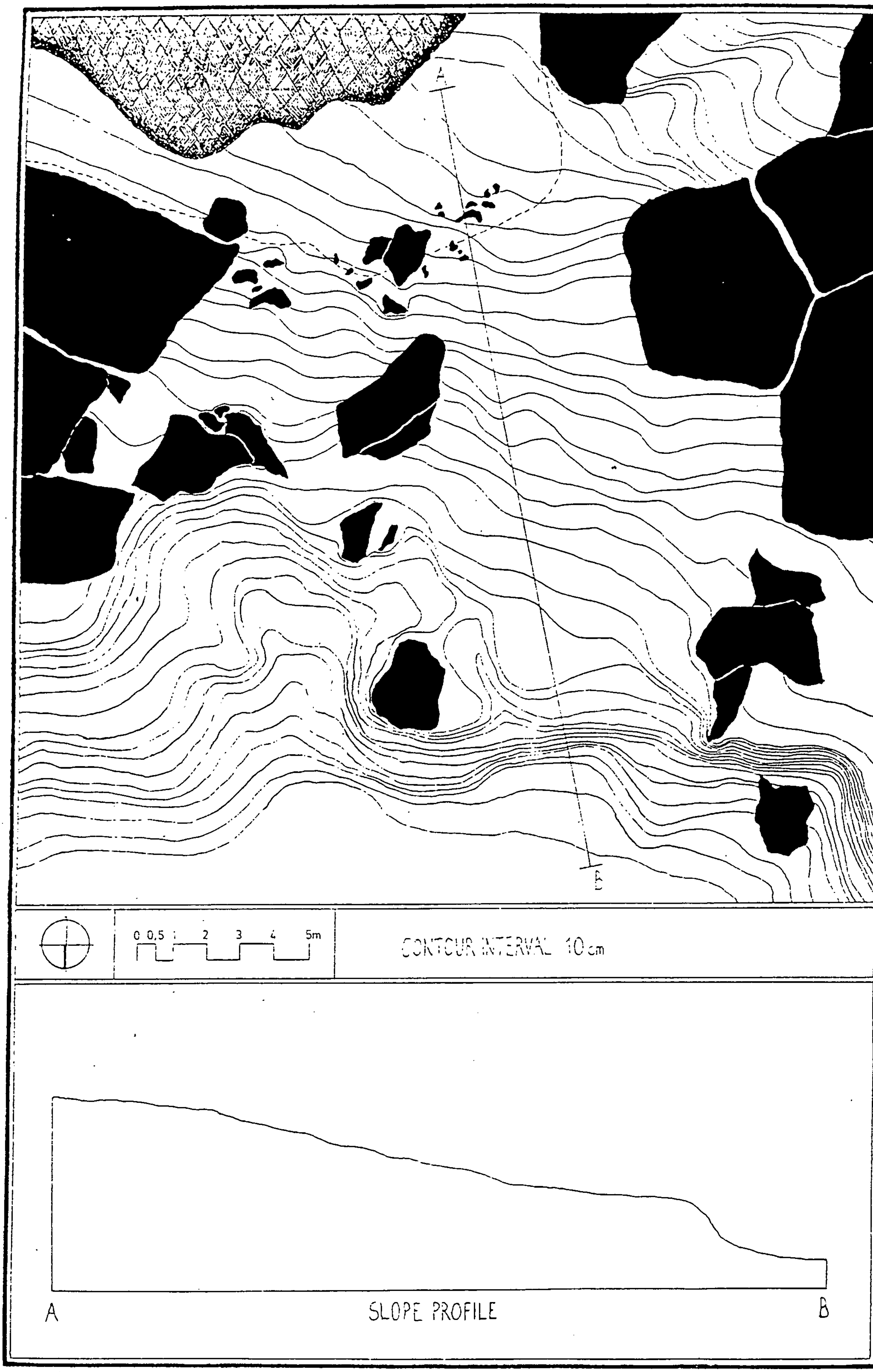
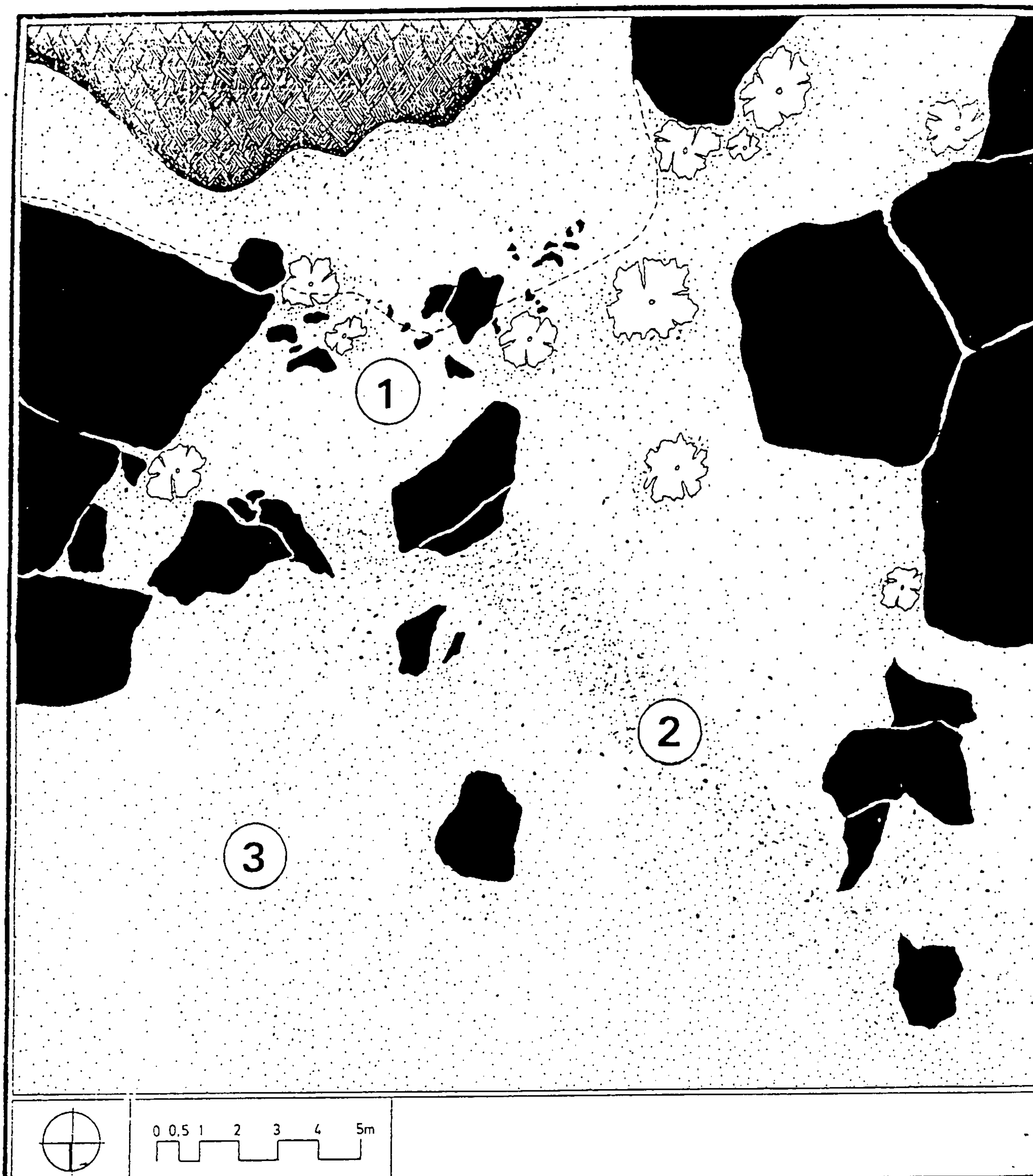


FIGURE 4.2 & 4.3: PLAN OF PL41 WITH CONTOURS SUPERIMPOSED; SLOPE PROFILE

superimposed contours show that the site has a gently sloping surface with the only major disconformities being present in the lower half. Photographs, one taken from the opposite side of the kloof (Plate 1), and the other looking west across the front of the shelter (Plate 2), will allow the reader an alternate perspective of the features of the site which when viewed along with Figure 4.2 provides a clearer understanding of the topography.

The site consists of a small, low roofed rockshelter and an open talus. The talus does not consist of a rocky scree but is rather a continuation of the soil surface of the rockshelter. Large rocks and boulders on either side define a natural, open "courtyard" within which much of the prehistoric activity took place. They have also formed a smaller courtyard in the upper eastern half of the site. The northern edge of the site consists of a rocky ledge which forms the roof of a shelter at a lower level (see plate 1).

Soil cover varies across the surface. Three zones can be recognised and are presented in Figure 4.4. Briefly, zone 1 consists of the interior of the shelter and areas immediately adjacent to it and has greater soil depths that other areas. The depth varies between 10 and 30 cm. The presence of small bushes is an indication of soil depth. These can be seen on Figure 4.4. Zone 2 has a thin soil cover with bedrock showing through in places, while zone 3 consists largely of exposed bedrock.No major erosional gulleys were noticed on the surface though some erosion has taken place along the sides of the rocks in the centre of the courtyard. When artefacts were plotted, the



1. SOIL COVER - 10 - 30 cm
2. THIN SOIL COVER - 0 - 10 cm (BEDROCK IN SOME AREAS)
3. EXPOSED BEDROCK

BUSHES PRESENT PRIOR TO EXCAVATION

FIGURE 4.4: SURFACE VARIATION

PLATE 1 : PL 41 VIEWED FROM THE NORTHERN SIDE OF THE KLOOF

PLATE 2 : VIEW OF PART OF THE SHELTER AND ADJACENT TERRACE
VIEWED FROM THE EAST OF THE SITE

distribution showed that diplacement had taken place on either side of the rock which divides zone 1 from zone 2 (This will be discussed in more detail in Chapter 5). The placement and heights of the large rocks, apart from defining the edges of the site, also provide shelter from wind, and shade at different times of the day. The rock at the centre of the talus and the one just inside the shelter are of suitable shape and size to have been used as working surfaces.

4.3 METHOD OF SAMPLING

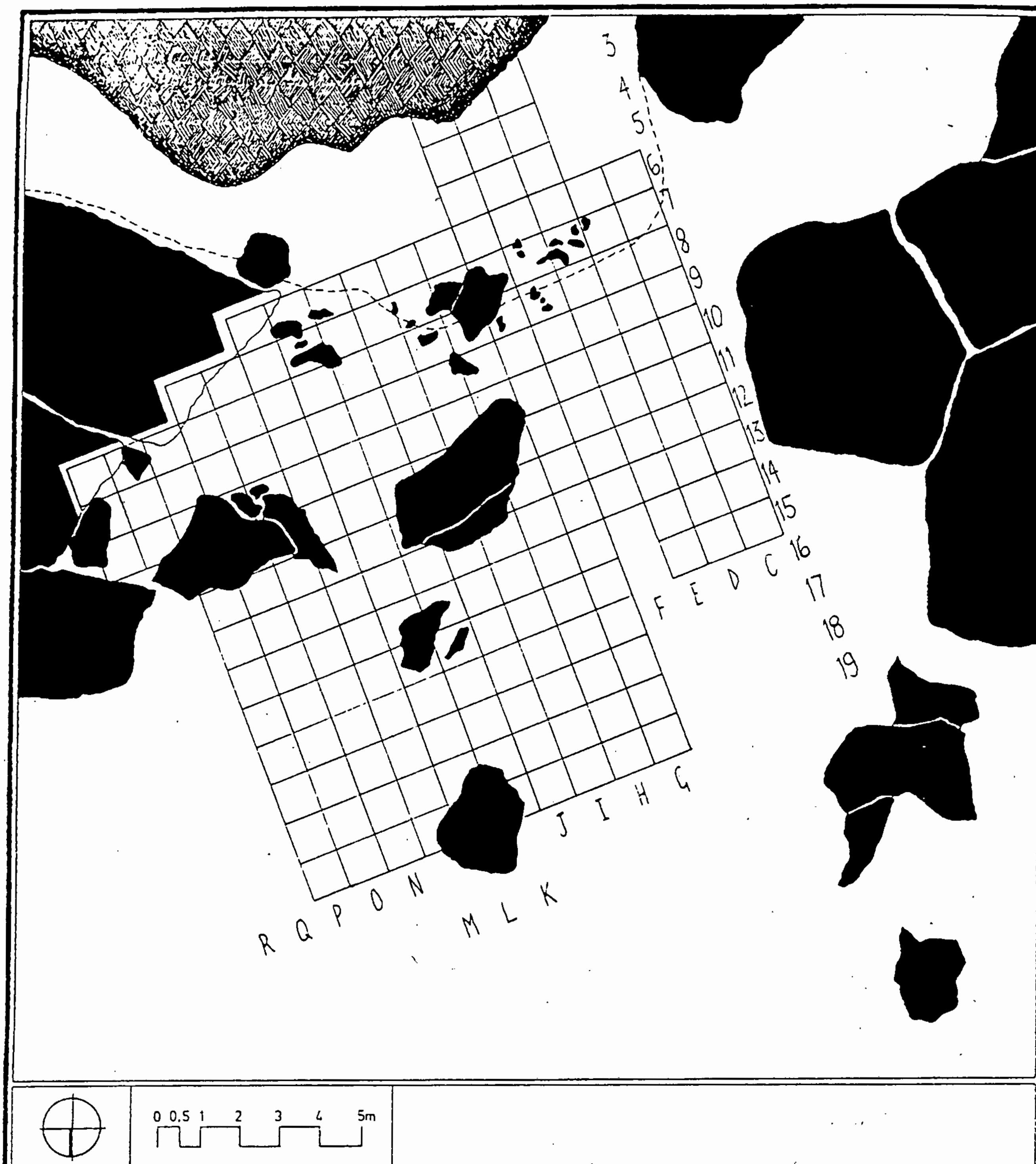
Since time in the field was limited to two weeks, and the process of collecting and plotting of artefacts is traditionally time consuming, an efficient method was devised to allow collection of a larger sample than normal, without losing any spatial information. In designing the sampling procedure, a number of factors pertaining to artefact accumulations were taken into account (See Lewarch and O'Brien 1981; Schiffer 1983). Briefly, it is recognised that surface assemblages are subject to disturbances of one kind and another, from the moment they are formed, and are not pristine representatons of past situations.

The method that was eventually used assumes that post-depositional movement has taken place. In order to diminish the distorting effects of such disturbance, it was felt that a large sample should be collected which, notwithstanding natural surface disturbance would still show gross distributional patterning. Most importantly, the method allows collection of very small pieces of debitage which for various reasons is the least likely to have been moved after production. The method is described below:-

Firstly, the site was carefully cleared of vegetation and other obstructions making sure that if bushes were removed that the surface was not disturbed too much in the process. The presence of surface artefacts was noted and a grid erected over all areas in which they occurred, even if the presence was emphemeral. It was necessary to cover as much of the site as possible, so that limits of the scatter could be established. The grid used was divided into one meter squares which were further subdivided into four quadrats having dimensions of 50 x 50cm. Each one metre square was labelled alpha-numerically and quadrats were numbered I - IV. Figure 4.5 shows the position of the grid on PL 41 and the order in which quadrats were labelled.

An accurate plan of the site with the grid position plotted in, was draughted. This was essential to allow spatial distributions to be related to natural features. The site was surveyed by members of the Survey Department at U.C.T. using an Electronic Distance Measuring apparatus (EDM) and the baseline for the grid was plotted at the same time. Use of this apparatus is not essential though is much quicker than conventional methods.

Artefacts were then collected from the surface. No scraping was conducted during the initial collection. All the material that occurred in a particular quadrat, was collected and placed in a bag which was labelled according to grid position, quadrat number and level e.g. Surface, Sub-surface etc. During this phase, the presence



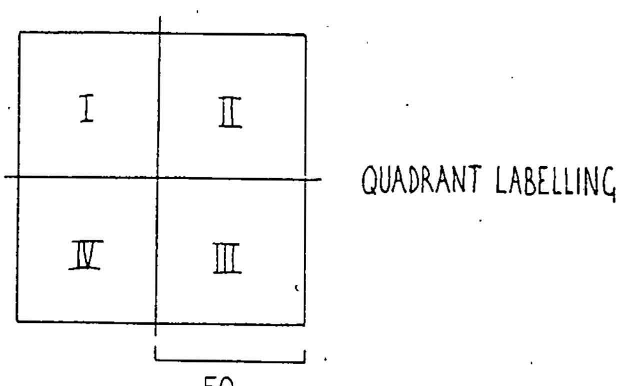


FIGURE 4.5: POSITION OF THE GRID

of smaller surface features, such as bedrock extrusions were carefully noted since they would affect artefact distributions when re-plotting occurred. When the surface collection was completed, a second collection was made from the top five centimeters of the deposit. A total of one hundred and eighty eight square metres were collected in this way.

The deposit recovered from each quadrat during the surface scrape was sieved, using a wire mesh of 1,5 mm. This ensured that very small stone debitage, bone fragments and beads were recovered. To speed up collection, no sorting was conducted on site. For the purpose of final analysis, both surface and sub-surface units were later combined as experimentation conducted at the site while the collection was underway, (Webling 1985:19), showed that artefacts from the surface were impressed into the substrate due to trampling. The depth of penetration varied from one to five centimeters (see also Stockton 1973). In other words, the top five centimeters of the deposit at this site was a closer representation of a surface than the exposed level alone.

From Figure 4.5 it can be seen that part of the grid occurred inside the shelter. Nine metres were allocated here for surface collection and further excavation to bedrock. Only the surface and sub-surface was considered for the analysis of spatial patterning since material lower down may not be concurrent with the exterior sample. The collection was not conducted over the whole surface of the shelter, since it was felt that some deposit should be left intact. In retrospect, the sample should have been extended to cover this area. As it turned out, the greatest degree of artefact patterning is noticed in front of the area that was not sampled on the eastern end of the shelter. Notwithstanding this oversight, the area of the shelter that was sampled allowed approximations to be made of probable distributions in the unsampled sections.

4.4 THE EXCAVATION

The object of excavating was to establish the presence of a particular set of deposits i.e. bedding layers and ash/hearth deposits, and to recover material for radiocarbon dating. The grid used for the surface collection was extended back into the shelter up to the rear wall over squares E,F,G/3,4,5. The surface and sub-surface scrapes were conducted in the same manner as for the rest of the site and thereafter excavation took place stratigraphically. The surface and sub-surface appeared to be disturbed as the deposit was loose and included many plant fragments and recent dung deposits. Prior to excavation the shelter was frequently used by goats and baboons. Quills and some gnawed bone indicate use by porcupines as well. Descriptions of the various excavated units appear in the following section.

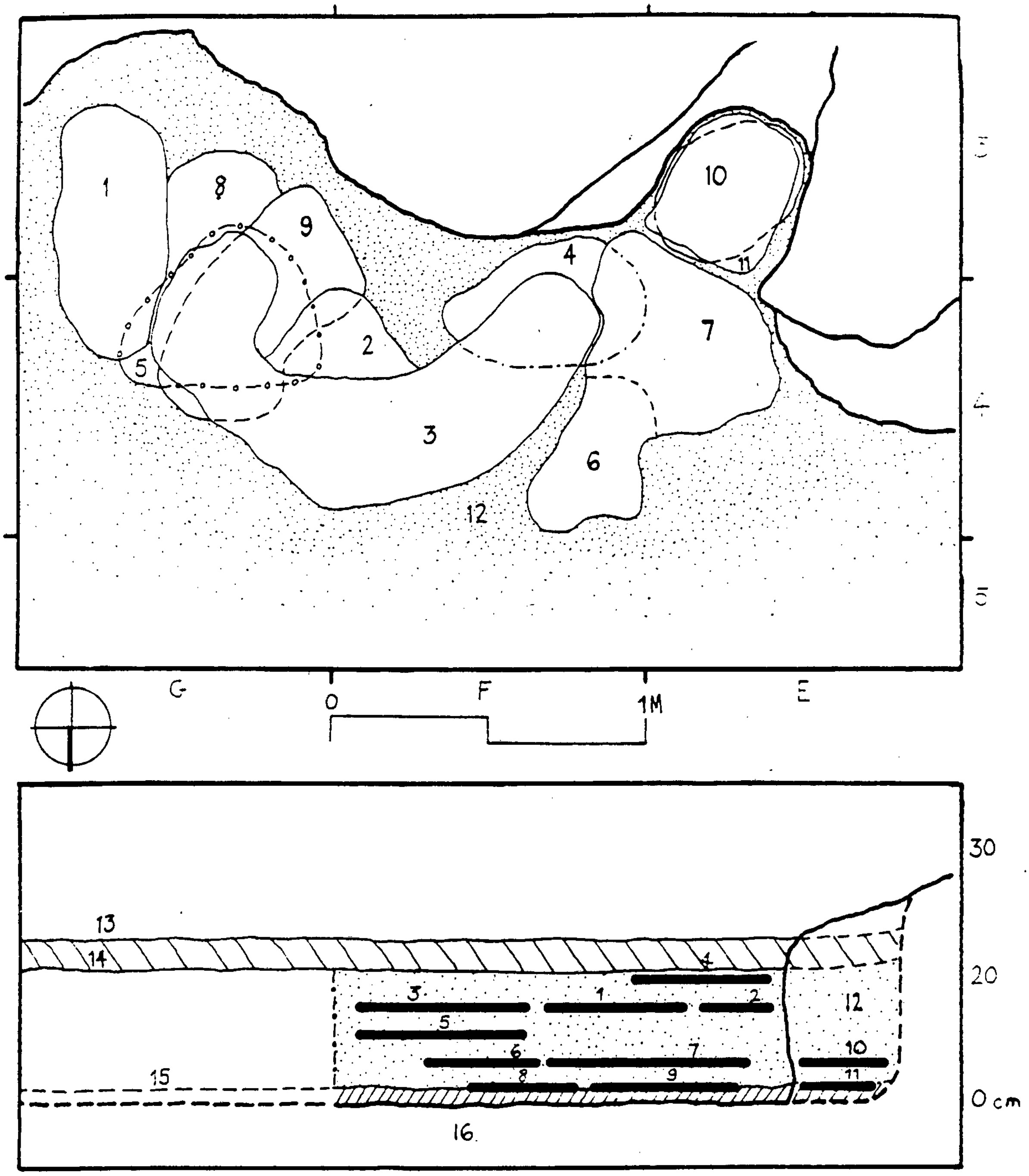
4.4.1 'SURFACE CLEANING' AND 'BELOW SURFACE'

The surface collection was conducted in the same way as the on the talus. This has been termed 'surface cleaning'. A scrape was then made to a more compact and less disturbed layer. This scrape was approximately five centimeters deep and was termed 'below surface' and was an extension of the 'surface cleanings'. The matrix was a very fine, dusty soil with colour varying from grey to grey-brown. The looseness of this layer extended over all nine square metres, though disturbance appeared more pronounced along the rear wall of the shelter. Included in this soil, was much highly fragmented vegetation which included leaves, twigs, grass and dung. The source of vegetation in this layer is varied with some having been blown in, and some having entered in the droppings of baboons (Avery 1984:346) whilst some originates fom the bedding patches lower down. Both of these layers include artefactual material.

Having cleared the 'below surface' material from all nine square metres, we proceded to investigate patches of vegetation which could be seen protruding from below. We began by excavating along the rear wall. In the following section each unit is described in approximate sequence of removal and their contextual relationships with other units are noted. A schematic section and plan of the excavated units is presented in Figure 4.6.

4.4.2 'VEGETATION PATCH I' (VEG PATCH I)

This was a small patch of degraded plant material mixed with animal dung. It is limited to quadrat III of F3 and lies in a small depression, two to three centimeters deep. Though some artefactual



1. BEDDING I
2. CORNER VEG
3. BEDDING II
4. VEG PATCH I
5. BEDDING III
6. LEAF PATCH
7. LEAF PATCH EXTN
8. BEDDING IV
9. TWIGS
10. BEDDING ON ROCKS
11. BEDDING ON ROCKS
12. SOIL AROUND BEDDING
13. SURFACE
14. BELOW SURFACE
15. BROWN SOIL
16. BEDROCK

FIGURE 4.6: SCHEMATIC SECTION AND PLAN OF EXCAVATED DEPOSITS

material occurs in this layer, it is likely to be a result of disturbance. The depression was probably made by an animal and it later filled with aeolian material. There is very little grassy material here.

4.4.3 'SOIL AROUND BEDDING'

This is a more extensive deposit of fine, greyish brown soil. From the way it occurred around and between the bedding patches, it would appear that it was present before the bedding hollows were formed. Some of this has probably been included in the 'below surface' layer due to disturbance. It was found in all three squares at the rear of the shelter and was particularly noticeable in G3 and F3. Many bedding fragments and artefacts were present. This occurs above the 'brown soil' which lay on bedrock. 'Soil around bedding' was distinct from 'brown soil' both in colour and texture.

4.4.4 'BEDDING I'

This was a patch of well preserved Restio stalks in G3 I and IV and was not particularly extensive. It occurred in a consolidated brown matrix. While the matrix was at first thought to be dung, the presence of termites in lower deposits suggests that it could have been due to the activities of these insects. A sample of the bedding material was submitted for dating and a date of 230 ± 50 BP (Pta-4230) was obtained. This unit lies approximately four to five centimeters below the surface. It did not extend all the way to the rear of the shelter, but was bounded and underlain by 'soil around bedding'. Though similar to 'BPII', which butts up against it in G3 and was at approximately the same level, they did not appear to be continuous units.

4.4.5 'BEDDING PATCH II' (BPII)

This was very similar to 'bedding I' though the Restio fragments seemed to be larger. This was also in a consolidated matrix. This patch of bedding was more extensive and formed an arc across four squares i.e. G3/4 and F3/4. When removed, a shallow depression was exposed in the underlying layer 'soil around bedding', though in G3 III this was not the case. More bedding patches were found below 'BPII'. This unit lay at about the same level as 'bedding I' and averaged 6cm in depth. Artefactual material was present in this unit.

4.4.6 'CORNER VEGETATION' (CORNER VEG)

This was most likely part of 'BPII'. The presence of termite casts and remains makes it probable that these insects were responsible for the disturbance that had taken place here. This unit lay at a similar depth to 'BPII'.

4.4.7 'BEDDING ON ROCK'

This occurred in a small recess on the rock platform in E3 II. The unit consisted of a thin layer of unconsolidated grassy material in which many of the stalks stuck up vertically. It was similar in appearance to 'bedding I'. There was a distinct soil interface ('soil around bedding') which separated 'bedding on rock' from 'bedding on rock II'.

4.4.8 'BEDDING ON ROCK II'

This lay immediately below 'bedding on rock' and was similar except that the grass stalks were lying flat. It was separated from other units at the same level by 'soil around bedding'. It was separated from bedrock by a thin lens of 'brown soil'.

4.4.9 'LEAF PATCH' AND 'LEAF PATCH EXTENSION'

The first traces of 'leaf patch' were encountered in F4 II. It was different to other bedding patches since there was virtually no grassy material, but consists rather of dried leaves and twigs. Charcoal was present here. Further excavation showed that it extended into F3 and E3 where it was termed 'leaf patch extension'. Both of these layers were present in a slight depression in 'soil around bedding'.

4.4.10 'TWIGS'

This lay mainly in G3 II though it extended partially into G4 II. It lay in a common depression with 'bedding patch III' and extended below it in some parts. Some grassy material was present though the unit was characterised by numerous small twigs some of which were charred at the tips. Some loose chunks of charcoal were present. The base of 'twigs' was immediately above bedrock in G3 III.

4.4.11 'BEDDING PATCH III' (BPIII)

This lay below 'BPII' in G3 but was not considered to be the same, although it lay in a depression and was consolidated into lumps. The pieces of bedding are quite large, though a degree of fragmentation was noticed. There was much charcoal, though the bedding material itself had not been burnt. The ends of some of the grass stalks were 'clipped' and this appeared to be due to termite activity. Termite exosceletons found here reinforced this conclusion.

4.4.12 'BEDDING PATCH IV' (BPIV)

This lay at about the same level as 'twig' but dipped lower in some places. While some twigs were present, it was generally more grassy.

4.4.13 'BROWN SOIL'

This lay along the rear wall in G3 and F3. It was noticeably different to all other units in terms of composition and texture. As its name suggests, this was dark brown in colour. There was very little organic material and artefacts were present. It extended under and into rocky recesses in the rear wall. In G31, a recess forty centimeters in depth was filled with this material. While removing the soil from this recess, the cranium of a Raphicerus was uncovered. Charcoal was not abundant, though enough was recovered to submit for dating. A date of

1900 ± 60 BP (Pta-4229) was returned. Bedrock was encountered in G3 I and II immediately below this layer. In G3, a termite tunnel was noticed on bedrock which runs at an angle from quadrat I to IV.

At this point it was decided not to extend the excavation any further since a degree of disturbance was apparent throughout the deposit. Since the deposit is not particularly deep, surface disturbances are likely to have affected the deposit as a whole. Termite activity within the organic layers resulted in disturbance below the surface. Although the material was removed in several units, some of these were similar enough in content to have been lumped together. Disturbance however prevented us from seeing the continuity of the bedding layers during excavation.

4.5 THE ASSEMBLAGE

For purposes of convenience this section has been divided into two parts, namely non-lithic and lithic material.

4.5.1 NON-LITHIC MATERIAL

Since the bulk of the work was conducted in deposits which occurred in the open, preservation of non-lithic material is variable. More durable items such as marine shell, ostrich eggshell and pottery survived fairly well, while plant material was only preserved in deposits inside the shelter. The already fragmentary nature of the bone sample, led to variable preservation occurring between the inside and the outside samples.

4.5.2 MARINE SHELL

Fragments were recovered from the talus collection and the excavation as can be seen in Table 4.1. Apart from one fragment of Patella sp. , all the shell was identified as Choromytilus meridionalis , the black mussel. No complete specimens were recovered and only one fragment shows any signs of use. This piece has a ground edge. A few specimens still retained the hinge and a few of these showed traces of burning. In total fifty nine Choromytilus fragments, weighing 26,41g and one Patella fragment weighing 0,4g were recovered. Forty eight of the fifty nine fragments came from the excavation.

Choromytilus is common along the west coast of the Cape Province and is often found in middens. It is also present at most excavated sites between the coast and the Karroo. While some species of shell are habitually used for decorative purposes e.g. Turbo sarmaticus (Schweitzer 1979:49; Schweitzer and Wilson 1982:86), the black mussel does not appear to have had this use. Several mussel shells were found wrapped in a leaf at De Hangen (Parkington and Poggenpoel 1971:26) and according to the authors, were intended for future use, possibly as spoons or scoops.

4.5.3 OSTRICH EGGSHELL

Ostrich eggshell is a common component of most later stone age sites

EXCAVATION	C. Merid	W(g)	Patella sp.	W(g)	Total	Total W(g)
Surface cleaning	9	4,20			9	4,20
Below surface	8	1,95			8	1,95
Veg patch I						
Soil around bedding	2	10,20			2	10,20
Bedding I						
Bedding patch II	2	0,70			2	0,70
Corner veg	1	0,01			1	0,01
Bedding on rock	4	0,40			4	0,40
Bedding on rock II						
Leaf patch						
Leaf patch extn	1	0,50			1	0,50
Twigs	2	0,20			2	0,20
BP III	7	0,60			7	0,60
BP IV	4	0,20			4	0,20
Brown soil	8	2,15			8	2,15
Sub-total	48	21,11			48	21,11
TALUS COLLECTION	11	5,30	1	0,40	12	5,70
Grand total	59	26,41	1	0,40	60	26,81

TABLE 4.1: MARINE SHELL RECOVERED FROM THE EXCAVATION AND TALUS COLLECTION

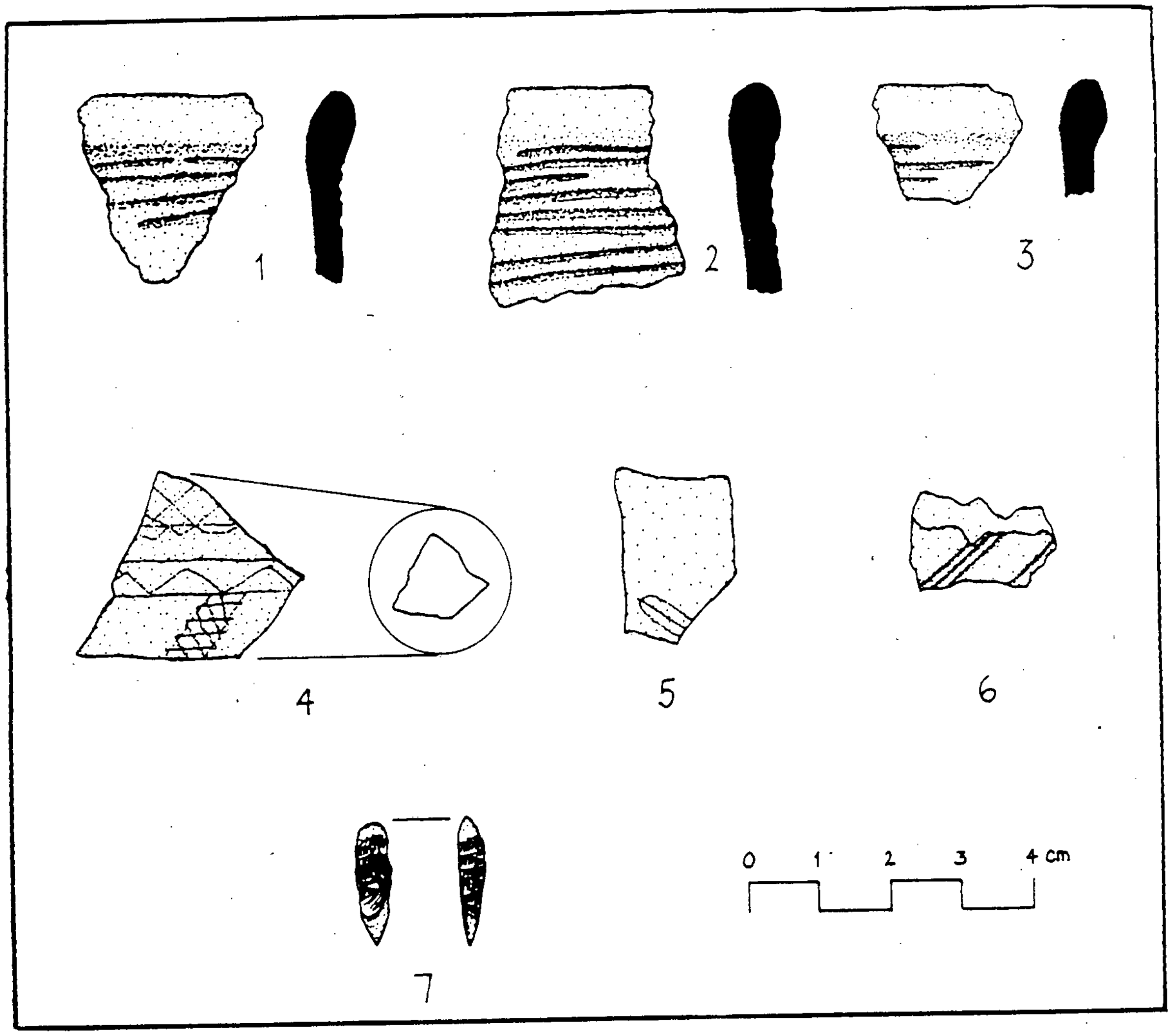
EXCAVATION	Unmod	W(g)	Unfin bead	Bead	Decortd	Modified
Surface cleaning	6	1,10	2	7		
Below surface	5	2,10	1	6		
Veg patch I						
Soil around bedding	1	0,20		4		
Bedding I				5		
Bedding patch II	1	1,20		7		
Corner veg				2		
Bedding on rock						
Bedding on rock II						
Leaf patch				1		
Leaf patch extn						
Twigs				8		
BP III	1	2,50		18		
BP IV				13	1	1
Brown soil	6	2,50		6		
Sub-total	20	9,60	3	77	1	1
TALUS COLLECTION	73	36,40	3	3	3	2
Grand total	93	46,00	6	80	4**	3*

* All show traces of water container hole
** Incised line decoration (see fig. 4.7)

TABLE 4.2 : OSTRICH EGGSHELL RECOVERED FROM THE EXCAVATION AND TALUS COLLECTION

in southern Africa. It was useful in both its whole and broken state. A number of unmodified shell fragments were recovered. Seventy three fragments weighing a total of 36,4g came from the surface and sub-surface collection, while twenty fragments weighing 9,6g were recovered from the excavation. The pieces tended to be small as the weights demonstrate. Characteristics of the OES sample are presented in Table 4.2.

Whole shells were often used as water containers. For this purpose, a hole was bored at the one end into which a plug of leaves or resin could be inserted if it was to be carried or stored. Numerous fragments of shell showing traces of this type of perforation have been found at archaeological sites in the south western Cape. Three shell fragments of this type were found at PL 41. Whole specimens have also been found on occasion. At Bruinkop in the Sandveld a cache of four eggshell water containers was uncovered at the rear of a shelter (Manhire 1987:75) and five were recovered from a shell midden at Eland's Bay (Horwitz 1979). In some instances, containers were decorated with fine, incised lines on the outer surfaces (see Deacon 1984:171,179). Four fragments from PL 41 show traces of this type of decoration and three of these are reproduced in Figure 4.7. Simple line decoration is present on three of these while the fourth is decorated with a series of more intricate patterns in the form of cross-hatching and bordered triangles. Judging by the breakage points, all four were are part of larger pieces although these could not be found.



1,2,3 POTTERY - DECORATED RIM SHERDS

1. L12 I SURFACE SCRAPE 2. I7 III SURFACE SCRAPE 3. K10 II SURFACE

4,5,6 OSTRICH EGGSHELL - DECORATED FRAGMENTS

4. J6 IV SURFACE SCRAPE 5. K7 IV SURFACE SCRAPE 6. G3 IV BEDDING IV

7 DRILL/BORER (CCS)

P8 I SURFACE SCRAPE

FIGURE 4.7: ARTEFACT ILLUSTRATIONS - DECORATED POTTERY AND OSTRICH EGGSHELL, STONE DRILL.

Ostrich eggshell beads have been a popular form of adornment for many thousands of years. Their use is well documented at a number of sites throughout southern Africa (Yates, in prep). Eighty beads were found at PL 41. Three came from the surface collection and the rest were recovered from the excavation. Yates has measured all of these and notes that they tend to be smaller than those in other samples from the south western Cape (Yates, pers comm). The use of a 1,5 mm mesh sieve is likely to have increased the recovery of small beads.

Only six unfinished beads were found. These are small, irregularly shaped framents which have a small conical hole drilled through the centre, often from one side only. It is not always possible to determine how drilling took place on the finished beads as secondary wear has often removed traces of this process. Some however are not as worn, and show bi-conical (drilled from both sides) holes while others have clearly only been drilled from the one side. It has been suggested (Deacon,J. 1984:395) that stone borers - blade or bladelet pieces retouched on two or more sides - were used to make the holes. These often become polished during use. One borer at PL 41 shows extreme polish on the tip and butt and is illustrated in Figure 4.7. Such extreme and uniform wear would have resulted if the tool were revolved at high speed. Some sort of haft would have been necessary for such use to have occurred. Similar tools from Melkhoutboom cave have traces of mastic present and suggest that hafting did take place (Deacon, H., 1976).

Five small beads strung on a length of fibrous twine were recovered from Bedding Patch III. Interspersed between the beads were smaller reddish 'balls', which at first appeared to be beads. Microscopic examination showed however that they were balls of ochre which had formed in the gaps. This is likely to have occurred after ochre was applied as a paste to the whole necklace. Several beads from different parts of the deposit also showed traces of ochre.

4.5.4 POTTERY

One hundred and fifty two potsherds weighing a total of 340,06g were found. Characteristics of the pottery sample are presented in Table 4.3. Most of the sherds originate from the body or base of several vessels, while twelve sherds bear traces of rim. No shape reconstruction or diameter estimates could be made. Some sherds have broken in a way which suggests that the pots were constructed using the coil method and were always grit tempered. Several decorated sherds are present at PL41 and have also been noted at other sites in the Kloof. All decoration consists of incised, parallel lines on the neck, running parallel to the rim and examples of rim types and decoration are presented in Figure 4.7.

Apart from being an important cultural and temporal marker, pottery is useful in looking at spatial distributions. Decorated sherds are particularly useful since conjoining fragments can be matched. By plotting the location of conjoining fragments general trends for movement can be established. Twenty four sherds at this site could be joined to others. In all except two cases, where the matches were with

	Unmod sherds	W(g)	Rim sherds	Decorated sherds
TALUS COLLECTION*	131	340,06	12**	9**

* No pottery recovered from excavation
** See fig. 4.7

TABLE 4.3: POTTERY RECOVERED FROM THE TALUS COLLECTION

three and five sherds respectively, the matches were with one other sherd. The spatial distribution will be discussed in more detail in Chapter 5.

4.5.5 PLANT REMAINS

No detailed analysis of this material was conducted. Nevertheless, some general observations about the location and state of preservation are in order.

Organic material originating from the prehistoric occupation was only preserved in the interior of the shelter. While fragments of plant material were scattered over most of the shelter surface, the greatest concentrations were found in the bedding patches along the rear wall of the shelter. While the positioning of this material was consistent with its use as bedding material, the types of plant remains present suggested that some, such as iridaceous corm bases and tunics were introduced as the by products of edible plant species, while others with no known dietary implications, such as grasses, were specifically introduced as padding and insulation for shallow sleeping hollows. Patches of leaves found amongst the bedding material may have found their way onto the site as a result of rodent or aeolian activity.

No wooden implements were recovered though a number of small, curled woodshavings were present throughout the bedding units suggesting that maintainance or preparation of such implements was taking place. Though much more ephemeral, the types of plant remains found here was consistent with those from other sites in the mountains (Parkington &

Poggenpoel 1971,1987; Kaplan 1987; Liengme 1987.)

4.5.6 BONE

Parkington and Poggenpoel (1971:7) noted that the faunal remains from De Hangen were extremely fragmented and of small size. Similarly, the faunal remains from PL 41 were highly fragmented and consisted of the remains of small animals. In addition to the fragmentation which appeared to have occurred at the time when it was used, a number of fragments showed traces of carnivore gnawing suggesting that other agents may have been responsible for part of the accumulation and its fragmentation.

The faunal sample consisted of three thousand nine hundred and eight pieces weighing a total of 771,91g of which twenty eight percent (1099/357,8g) consisted of tortoise bone and carapace. The rest was made up of small mammal, rodent, bird, reptile, fish and adiagnostic bones. The observations, separated into excavated and surface collections, are presented in Tables 4.4 (a) and (b). The degree of fragmentation of the sample prevented a detailed species listing being drawn up though species presence has been noted. Only one piece of worked bone was found and consisted of a fragment of longbone which had been retouched along one edge.

4.5.6.1 TORTOISE

Considering that the dry weight of the carapace of an average size

LAYER	TORT	W(g)	OTHER	W(g)	TOTAL	W(g)
Surf cleaning	85	39,00	222	34,11	307	73,11
Below surf	122	118,95	401	52,80	523	171,75
Veg patch I	-	-	27	2,90	27	2,90
Soil around bedding	34	29,20	153	17,93	187	47,13
Bedding I	17	4,80	120	19,52	137	24,32
Bedding patch II	20	12,20	260	38,85	280	51,05
Corner veg	-	-	32	1,80	32	1,80
Bedding on rock	9	10,10	30	2,95	39	13,05
Bedding on rock II	4	0,70	31	2,55	35	3,25
Leaf patch	-	-	69	6,40	69	6,40
Leaf patch extn	3	1,00	19	22,00	22	23,00
Leaf patch extn II	1	3,60	5	3,10	6	6,70
Twigs	5	3,70	61	9,20	66	12,90
Bedding patch III	21	5,60	107	13,75	128	19,35
Bedding patch IV	39	11,90	119	35,30	158	47,20
Brown soil	26	12,40	76	28,42	102	40,82
Sub-total	386	253,15	1732	291,58	2118	544,73
TALUS COLLECTION	711	104,65	1079	122,53	1790	227,18
Grand total	1097	357,80	2811	414,11	3908	771,91

TABLE 4.4(a) : BONE RECOVERED FROM THE EXCAVATION AND TALUS COLLECTION

TYPE	TOTAL	W(g)	
Mammal	303	190,30	*
Rodents	450	16,60	**
Bird	15	5,40	
Fish	39	3,20	***
Tortoise	386	253,15	
Other reptile	10	1,90	
Adiagnostic	900	92,18	
Total	2118	544,73	

species present :

* baboon (<u>Papio ursinus</u>), dassie (<u>Procavia capensis</u>), Klipspringer, (<u>Oreotragus oreotragus</u>), medium bovid (?), small carnivore (?).

** porcupine (<u>Hystrix africaeaustralis</u>).

*** either Clanwilliam sandfish (<u>Labeo seeberi</u>) or Clanwilliam yellowfish (<u>Barbus capensis</u>), (S. Hall pers comm, 1987)

TABLE 4.4(b) : DETAILED BREAKDOWN OF THE EXCAVATED BONE ASSEMBLAGE

Chersina angulata weighs approximately 200g, it follows that not many specimens are represented in the excavated sample. Based on the number of humeri, only seven individuals could be identified. An almost complete plastron and incomplete carapace was recovered from 'below surface' and whilst partially charred showed no signs of having been used as a container.

Considering the size difference between the two sample areas it would seem that trampling by animals and climatic factors on the exposed talus have further contributed to the extreme fragmentation. For example, the frequency and weight of tortoise from the talus was seven hundred and thirteen (104,82g) while that from the excavation was three hundred and eighty six (253,15g), figures which point to variable preservation histories in the two areas.

4.6 LITHIC MATERIAL

A total of 20 678 pieces of stone were recovered from the surface collection and excavation. The method of recovery, which has already been described, ensured that minute fragments of stone debitage were collected along with the larger pieces. The assemblage is classified according to the scheme proposed by J. Deacon (1984:370-400). Some deviation from this system has however occurred particularly in the classification of the waste category where specific types have been lumped together rather than subdividing them. For example, unretouched flakes and chips are not sub-divided into shape classes.

The assemblage was broken up into four sections namely waste, utilised, formal and other. The first part of the discussion will be devoted to defining the artefact classes and raw material types while the second part will examine the assemblage in detail. Since two methods of recovery were involved i.e. surface collection and excavation these will be discussed separately though an attempt will be made to consolidate the information from the different zones.

4.6.1 WASTE

This class consists mainly of the by-products of stone tool manufacture which show no signs of secondary use. Included in this category are chips, chunks, flakes, blades, bladelets and cores.

4.6.1.1 CHIPS

These are small pieces having a maximum dimension of less than ten millimeters. These have not been classified according to their origin i.e. from flakes, chunks or bladelets as Deacon suggests (1984:371).

4.6.1.2 CHUNKS

Pieces which are not chips and displaying one or two negative flake scars.

4.6.1.3 FLAKES

Pieces with dimensions of ten millimeters or more which display a positive bulb of percussion on the ventral surface. These pieces have not been further classified according to shape though blades and bladelets are included in this category. These are usually defined as being twice or more times as long as they are broad, with bladelets usually defined as having a width of less than twelve millimeters.

4.6.1.4 CORES

Pieces which display three or more negative flake scars. These can be sub-divided into specific core types as follows:-

Bi-polar cores: These have recently been described by Barham (1987,45-50). Though blades and bladelets are frequently struck when using this technique, other types of flakes are also produced. The technique involves placing the core on an anvil and striking it with a hammerstone which produces flakes and results in the striking platform becoming concave and chisel-like. According to Barham this technique is selected when certain highly siliceous materials are knapped or when small pieces of raw material are used for cores, particularly if these small pieces are pebbles of the type found in river gravels.

Single platform cores: These have had irregular shaped flakes removed by striking from a common platform.

Bladelet cores: Deacon (1984:372) has described these as having one, or occasionally more platforms from which parallel sided flakes of bladelet dimensions have systematically been struck.

Irregular cores: Pieces from which three or more flakes have been struck from a number of different platforms.

4.6.2 UTILISED PIECES

These pieces show damage on one or more working edges. They do not conform to any particular shape and are most likely to be flakes used on a casual basis for cutting.

4.6.3 FORMAL

Tools that fall into this category conform to specific shapes that are repeated across a number of different raw materials. They appear to have been shaped in this way to perform specific tasks. All of the formal tool definitions in this section are described in Deacon (1984). Some qualification of the various tool types is necesssary however as in some cases her methodology has not been strictly adhered to.

4.6.3.1 SCRAPERS

These have not been sub-divided into size or shape classes since most conform to a type known as 'thumbnail' scrapers. One backed scraper was recovered. In plan this is 'boat-shaped' and has scraper retouch and backing respectively along the opposing margins of the dorsal surface.

4.6.3.2 ADZES

These pieces are uniform in design and in plan are lozenge-shaped and have one or two concave working surfaces on the longer margins of the dorsal surface with characteristic step flaking present on the working edges.

4.6.3.3 BACKED POINT

These pieces are usually microlithic with backing along one of the longer margins of the dorsal surface and at right angles to this along the butt end.

4.6.3.4 DRILLS/BORERS

These are usually backed along both margins. Since many of the examples of this tool recovered from sites have been used, the tip often appears blunt and often displays polish. It has been suggested that this could be the result of using these tools in making the holes in ostrich eggshell beads (Deacon, J.,1984:395).

4.6.3.5 MISCELLANEOUS BACKED PIECE (MBP)

These are irregularly shaped pieces displaying backing retouch at some point along the margins.

4.6.3.6 MISCELLANEOUS RETOUCHED PIECES (MRP)

These are irregularly shaped pieces which display traces of retouch at some point along the margins.

4.6.4 OTHER

This class includes items which cannot be classified in terms of the above categories. Unused river cobbles,quartz crystals and ochre fall into this class.

4.7 RAW MATERIALS

Nine raw material types have been identified as occurring at the site. These are hornfels, quartz, crypto-crystalline materials (CCS - which includes such materials as chert, jasper and chalcedony), silcrete, quartzite, phyllite, shale, ochre and haematite. All of the above can be found in the Doorn River gravels in a variety of sizes and shapes although some are more common than others. The following section is devoted to descriptions of the various raw materials.

4.7.1 HORNFELS

A type of metamorphosed shale which when found in its natural state has a cortex covered by an orange to brown patina. When broken open the interior is bluish-black in colour and since it is hard and fine grained produces flakes with sharp, durable edges.

4.7.2 QUARTZ

This whitish, translucent, highly siliceous material is perhaps the most widely used material of the Later Stone Age since it has a wide distribution across southern Africa. While it provides flakes with sharp edges it is brittle and makes controlled flaking difficult.

4.7.3 CRYPTO-CRYSTALLINE SILICATES (CCS)

This overall term refers to a number of less common raw materials. These are fine grained and have varying origins and histories (Mountain 1968; Haughton 1969). They have excellent flaking properties though they can often only be found in small pieces away from primary sources. No primary sources of this type of material have been identified in the research area and it is assumed that much of the material used for artefact production has its origin in the glacial tillites which are being eroded by the Doorn River.

4.7.4 QUARTZITE

A type of metamorphosed sandstone with highly variable structure which grades from fine to coarse grains. Pieces having fine grain are easily flaked but this becomes more diificult as the grain size increases and the material gets progressively less siliceous. While flakes have sharp edges these quickly become serrated with use. Quartzite is very often used for grindstones and hammerstones thus serving a function which does not require a cutting edge.

4.7.5 SILCRETE

This is generally a highly siliceous material with varying amounts of quartz inclusions. The colour varies from grey to brown though it also occurs in reddish hues. The siliceous nature makes it an easy material to knap in a controlled manner and produces flakes with sharp edges.

4.7.6 PHYLLITE

This is sometimes called Bokkeveld Quartzite. It is fairly soft and granular with numerous mica inclusions giving the surface a shiny, speckled appearance. It does not have good conchoidal properties and rather tends to fracture into elongated, flat pieces. This material is often used for reamers (see Thackeray 1977:47).

4.7.7 SHALE

This is a highly variable sedimentary rock which tends to fracture along the numerous bedding planes if struck. This property and the fact that it tends to be rather soft makes it an unsatisfactory material for the production of tools intended for cutting though flakes of this material are encountered.

4.7.8 OCHRE

This material is not used for tool manufacture. It consists predominantly of iron oxide and occurs in colours from deep red to light yellow. Its greatest use is as a pigment and mixed with other media has been used to produce the numerous rock paintings in the area. Traditionally it has also been applied to items of clothing and ostrich eggshell beads.

4.8. *SURFACE ASSEMBLAGE*

Table 4.5 represents the absolute frequencies of the surface assemblage classified according to artefact type and raw material while the same observations represented as percentages of raw material per artefact category and percentages of artefact categories per raw material are presented in Tables 4.6 and 4.7 rèspectively. Observations in Tables 4.6 and 4.7 are presented graphically in Figures 4.8 - 4.35 and Figures 4.36 - 4.43 respectively.

A number of observations can be made when examining these tables and figures. Firstly, the characteristic tool types of the assemblage can be established and secondly, an assessment of the importance (and availability) of different raw materials is possible. More specifically it is possible to see which raw materials are selected for making certain tools. It is evident that the greatest part of the assemblage consists of waste material and ochre which means that only

	HF	QZ	CCS	QZIT	SIL	PH	SH	H	OCHR	Total
Chip	2336	3304	385	54	12	11	21	0	0	6123
Chunk	237	1160	105	67	8	21	14	1	0	1613
Flake	4572	2731	684	750	124	33	260	1	0	9155
Blade	15	5	2	6	5	0	0	0	0	33
Bladelet	79	200	44	4	11	0	1	0	0	339
Sub-total	7239	7400	1220	881	160	65	299	0	0	17263
Core irreg	18	37	12	8	3	0	0	0	0	78
Core bipolar	119	150	23	1	4	0	3	0	0	300
Core bladelet	1	7	5	0	0	0	0	0	0	13
Core s-platform	2	2	0	1	0	0	0	0	0	5
Core radial	1	0	0	0	0	0	0	0	0	1
Sub-total	141	196	40	10	7	0	3	0	0	397
Total	7380	7596	1260	891	167	65	299	2	0	17660
Chunk: utl marg	4	2	1	0	1	0	0	0	0	8
Flake: utl marg	66	17	18	4	3	0	0	0	0	108
Sub-total	70	19	19	4	4	0	0	0	0	116
Hammerstone	0	0	0	1	0	0	0	0	0	1
Grooved stone	2	0	0	0	0	0	0	0	0	2
Grindstone upper	0	0	0	1	0	0	0	0	0	1
Grindstone lower	0	0	0	6	0	0	0	0	0	6
Sub-total	2	0	0	8	0	0	0	0	0	10
Total	72	19	19	12	4	0	0	0	0	126
Adze	190	0	36	1	3	0	0	0	0	230
Scraper	20	58	57	1	12	0	0	0	0	148
Bkd scraper	0	0	1	0	0	0	0	0	0	1
Bkd bladelet	1	1	5	0	0	0	0	0	0	7
Bkd flake	0	0	0	0	1	0	0	0	0	1
Bkd point	0	0	1	0	0	0	0	0	0	1
Drill	0	1	2	0	0	0	0	0	0	3
Segment	0	1	2	0	1	0	0	0	0	4
Mbp	2	2	3	0	0	0	0	0	0	7
Mrp	34	10	13	0	4	0	0	0	0	61
Total	247	73	120	2	21	0	0	0	0	463
Ochre	-	-	-	-	-	-	-	-	1390	1390
Water worn pebble	2	0	2	0	0	0	0	0	0	4
Quartz crystal	-	23	-	-	-	-	-	-	-	23
Total	2	23	2	0	0	0	0	0	1390	1417
Grand total	7701	7711	1401	905	192	65	299	2	1390	19666

TABLE 4.5: ABSOLUTE FREQUENCIES OF STONE ARTEFACTUAL MATERIAL FROM THE SURFACE COLLECTION

	HF	QZ	CCS	QZIT	SIL	PH	SH	H	OCH	T%
Chip	38,15	53,96	6,29	0,88	0,20	0,18	0,34	0,00	0,00	100
Chunk	14,69	71,92	6,51	4,15	0,50	1,30	0,87	0,06	0,00	100
Flake	49,94	29,83	7,47	8,19	1,35	0,36	2,84	0,01	0,00	100
Blade	45,45	15,15	6,06	18,18	15,15	0,00	0,00	0,00	0,00	100
Bladelet	23,30	59,00	12,98	1,18	3,24	0,00	0,29	0,00	0,00	100
Sub-total	41,93	42,87	7,07	5,10	0,93	0,38	1,71	0,01	0,00	100
Core irreg	23,08	47,44	15,38	10,26	3,85	0,00	0,00	0,00	0,00	100
Core bipolar	39,67	50,00	7,67	0,33	1,33	0,00	1,00	0,00	0,00	100
Core bladelet	7,69	53,85	38,46	0,00	0,00	0,00	0,00	0,00	0,00	100
Core s-platform	40,00	40,00	0,00	20,00	0,00	0,00	0,00	0,00	0,00	100
Core radial	100,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	100
Sub-total	35,52	49,37	10,08	2,52	1,76	0,00	0,00	0,00	0,00	100
Total	41,79	43,01	7,13	5,05	0,95	0,37	1,69	0,01	0,00	100
Chunk: utl marg	50,00	25,00	12,50	0,00	12,50	0,00	0,00	0,00	0,00	100
Flake: utl marg	61,11	15,74	16,67	3,70	2,78	0,00	0,00	0,00	0,00	100
Sub-total	60,34	16,38	16,38	3,45	3,45	0,00	0,00	0,00	0,00	100
Hammerstone	0,00	0,00	0,00	100,00	0,00	0,00	0,00	0,00	0,00	100
Grooved stone	100,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	100
Grindstone upper	0,00	0,00	0,00	100,00	0,00	0,00	0,00	0,00	0,00	100
Grindstone lower	0,00	0,00	0,00	100,00	0,00	0,00	0,00	0,00	0,00	100
Sub-total	20,00	0,00	0,00	80,00	0,00	0,00	0,00	0,00	0,00	100
Total	57,14	15,08	15,08	9,52	3,17	0,00	0,00	0,00	0,00	100
Adze	82,61	0,00	15,65	0,43	1,30	0,00	0,00	0,00	0,00	100
Scraper	13,51	39,19	38,51	0,68	8,11	0,00	0,00	0,00	0,00	100
Bkd scraper	0,00	0,00	100,00	0,00	0,00	0,00	0,00	0,00	0,00	100
Bkd bladelet	14,29	14,29	71,43	0,00	0,00	0,00	0,00	0,00	0,00	100
Bkd flake	0,00	0,00	0,00	0,00	100,00	0,00	0,00	0,00	0,00	100
Bkd point	0,00	0,00	100,00	0,00	0,00	0,00	0,00	0,00	0,00	100
Drill	0,00	33,33	66,67	0,00	0,00	0,00	0,00	0,00	0,00	100
Segment	0,00	25,00	50,00	0,00	25,00	0,00	0,00	0,00	0,00	100
Mbp	28,57	28,57	42,86	0,00	0,00	0,00	0,00	0,00	0,00	100
Mrp	55,74	16,39	21,31	0,00	6,56	0,00	0,00	0,00	0,00	100
Total	53,35	15,77	25,92	0,43	4,54	0,00	0,00	0,00	0,00	100
Ochre	-	-	-	-	-	-	-	-	100,00	100
Water worn pebble	50,00	0,00	50,00	0,00	0,00	0,00	0,00	0,00	0,00	100
Quartz crystal	-	100,00	-	-	-	-	-	-	-	100
Total	0,14	1,62	0,14	0,00	0,00	0,00	0,00	0,00	98,09	100
Grand total	39,15	39,21	7,12	4,60	0,98	0,33	1,52	0,01	7,07	100

TABLE 4.6: PERCENTAGE REPRESENTATIONS OF RAW MATERIALS PER ARTEFACT CATEGORY - SURFACE COLLECTION

	HF	QZ	CCS	QZIT	SIL	PH	SH	H	OCHR	Total
Chip	30,23	42,64	27,41	5,97	16,92	7,02	0,00	0,0	0,0	31,31
Chunk	3,08	15,02	7,49	7,18	4,15	32,31	4,68	50,0	0,0	8,20
Flake	59,52	35,61	49,11	83,87	63,73	47,69	86,96	50,0	0,0	46,55
Blade	0,19	0,06	0,14	0,66	2,59	0,00	0,00	0,0	0,0	0,17
Bladelet	1,05	2,58	3,21	0,44	6,22	0,00	0,33	0,0	0,0	1,72
Sub-total	94,00	95,97	87,08	97,35	83,33	100,00	99,00	100,0	0,0	87,78
Core irreg	0,23	0,49	0,86	0,88	1,55	0,00	0,00	0,0	0,0	0,40
Core bipol	1,53	1,98	1,57	0,22	2,07	0,00	1,00	0,0	0,0	1,53
Core bldlet	0,01	0,09	0,36	0,00	0,00	0,00	0,00	0,0	0,0	0,07
Core s-plat	0,03	0,03	0,00	0,11	0,00	0,00	0,00	0,0	0,0	0,03
Core radial	0,01	0,00	0,00	0,00	0,00	0,00	0,00	0,0	0,0	0,01
Sub-total	1,83	2,54	2,86	1,10	3,65	0,00	1,00	0,0	0,0	2,02
Total	95,83	98,51	89,94	98,45	86,98	100,00	100,00	100,0	0,0	89,80
Chunk:utl	0,05	0,03	0,07	0,00	0,52	0,00	0,00	0,0	0,0	0,04
Flake:utl	0,87	0,22	1,36	0,44	1,55	0,00	0,00	0,0	0,0	0,55
Sub-total	0,90	0,25	1,36	0,44	2,08	0,00	0,00	0,0	0,0	0,59
Hammerstone	0,00	0,00	0,00	0,11	0,00	0,00	0,00	0,0	0,0	0,01
Grooved st	0,03	0,00	0,00	0,00	0,00	0,00	0,00	0,0	0,0	0,01
Grstone upp	0,00	0,00	0,00	0,11	0,00	0,00	0,00	0,0	0,0	0,01
Grstone low	0,00	0,00	0,00	0,66	0,00	0,00	0,00	0,0	0,0	0,03
Sub-total	0,03	0,00	0,00	0,88	0,00	0,00	0,00	0,0	0,0	0,05
Total	0,93	0,25	1,36	1,33	2,08	0,00	0,00	0,0	0,0	0,64
Adze	2,48	0,00	2,50	0,11	1,55	0,00	0,00	0,0	0,0	1,17
Scraper	0,26	0,75	4,21	0,11	6,74	0,00	0,00	0,0	0,0	0,75
Bkd scraper	0,00	0,00	0,07	0,00	0,00	0,00	0,00	0,0	0,0	0,01
Bkd blade	0,01	0,01	0,36	0,00	0,00	0,00	0,00	0,0	0,0	0,04
Bkd flake	0,00	0,00	0,00	0,00	0,52	0,00	0,00	0,0	0,0	0,01
Bkd point	0,00	0,00	0,07	0,00	0,00	0,00	0,00	0,0	0,0	0,01
Drill	0,00	0,01	0,14	0,00	0,00	0,00	0,00	0,0	0,0	0,02
Segment	0,00	0,01	0,14	0,00	0,52	0,00	0,00	0,0	0,0	0,02
Mbp	0,03	0,03	0,21	0,00	0,00	0,00	0,00	0,0	0,0	0,04
Mrp	0,44	0,12	0,86	0,00	2,07	0,00	0,00	0,0	0,0	0,31
Total	3,21	0,95	8,57	0,22	10,94	0,00	0,00	0,0	0,0	2,35
Ochre	-	-	-	-	-	-	-	-	100,0	7,07
Pebble	0,03	0,00	0,14	0,00	0,00	0,00	0,00	0,0	0,0	0,02
Qtz cryst	-	0,30	-	-	-	-	-	-	-	0,12
Total	0,03	0,30	0,14	0,00	0,00	0,00	0,00	0,0	100,0	7,21
Total%	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,0	100,0	100,0

TABLE 4.7: PERCENTAGE FREQUENCIES OF ARTEFACT CLASSES WITHIN RAW MATERIAL CATEGORIES AND AS PERCENTAGES OF THE TOTAL - SURFACE COLLECTION

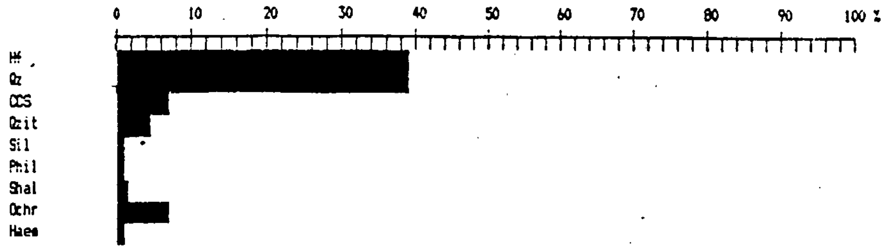


FIGURE 4.8 : TOTAL RAW MATERIAL PROFILE - SURFACE COLLECTION n = 19666

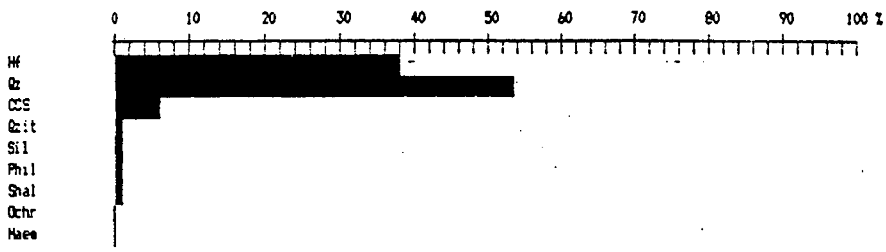


FIGURE 4.9 : CHIP PROFILE - SURFACE COLLECTION n = 6123

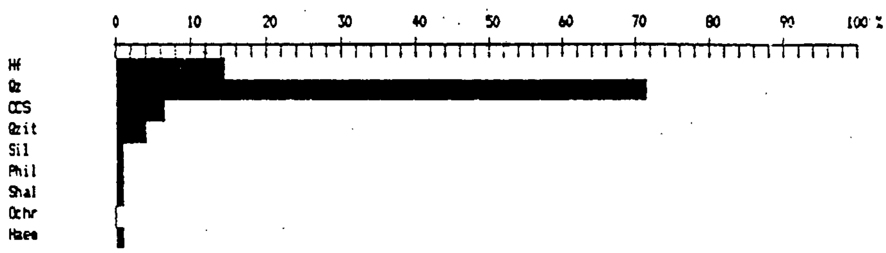


FIGURE 4.10 : CHUNK PROFILE - SURFACE COLLECTION n = 1613

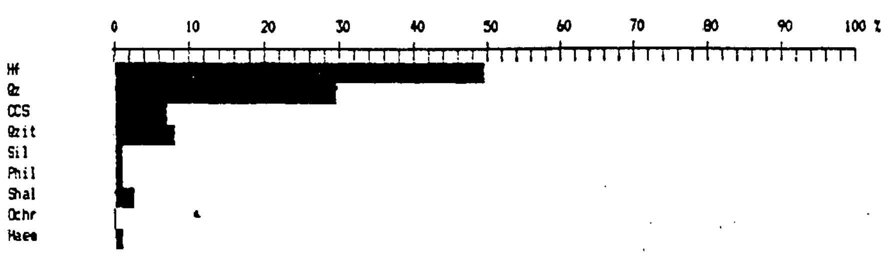


FIGURE 4.11 : FLAKE PROFILE - SURFACE COLLECTION n = 9155

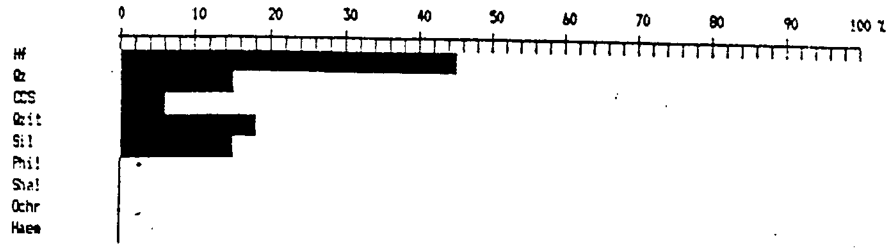


FIGURE 4.12 : BLADE PROFILE - SURFACE COLLECTION n = 33

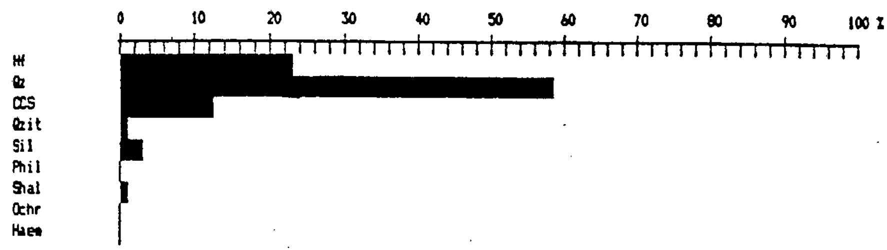


FIGURE 4.13 : BLADELET PROFILE - SURFACE COLLECTION n = 339

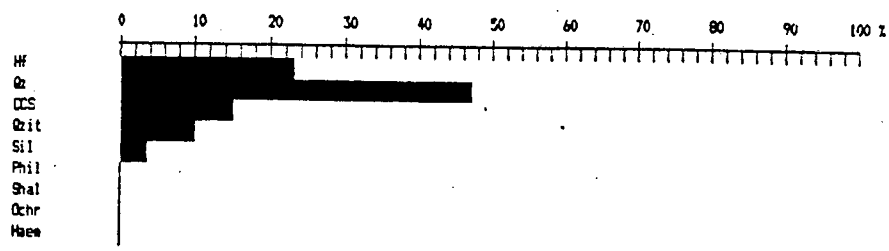


FIGURE 4.14 : IRREGULAR CORE PROFILE - SURFACE COLLECTION n = 78

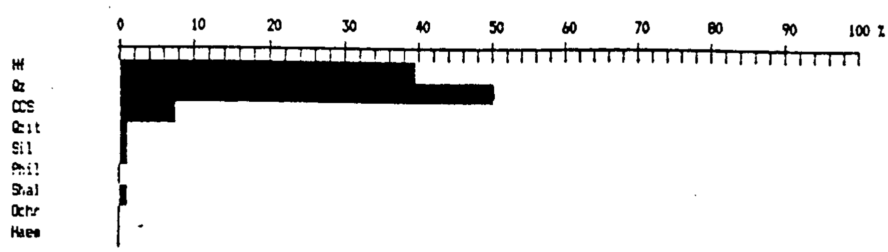


FIGURE 4.15 : BIPOLAR CORE PROFILE - SURFACE COLLECTION n = 300

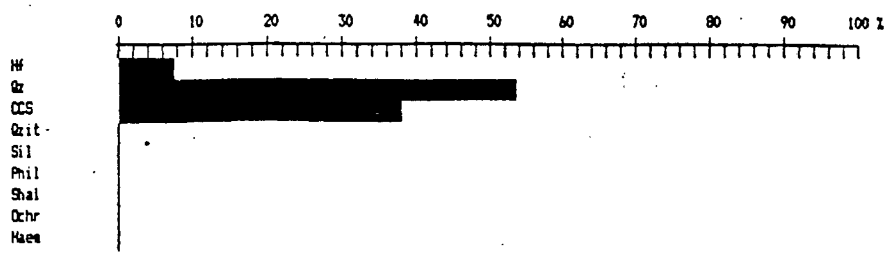


FIGURE 4.16 : BLADELET CORE PROFILE - SURFACE COLLECTION n = 13

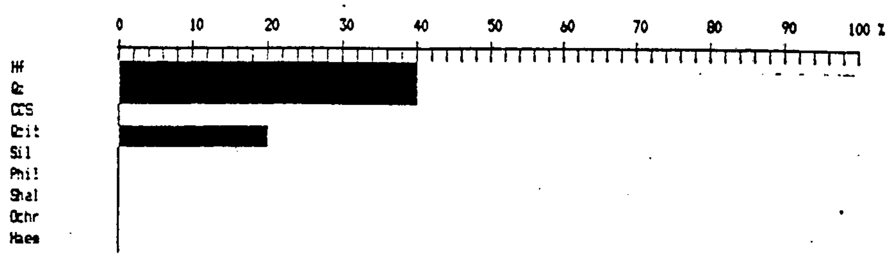


FIGURE 4.17 : SINGLE PLATFORM CORE PROFILE - SURFACE COLLECTION n = 5

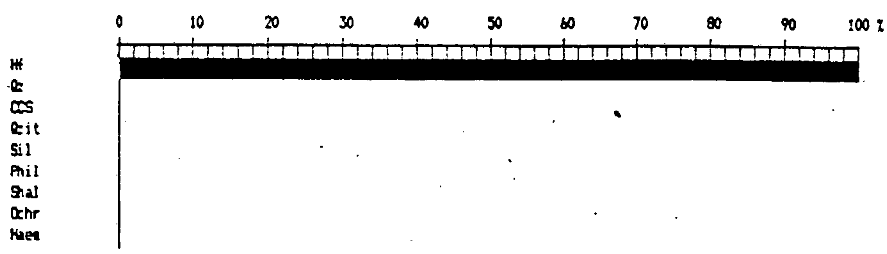


FIGURE 4.18 : RADIAL CORE PROFILE - SURFACE COLLECTION n = 1

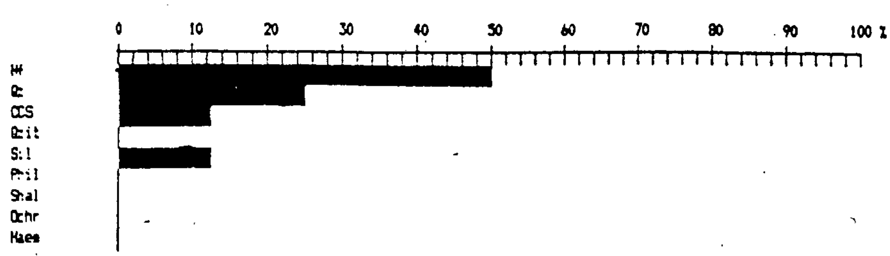


FIGURE 4.19 : UTILIZED CHUNK PROFILE - SURFACE COLLECTION n = 8

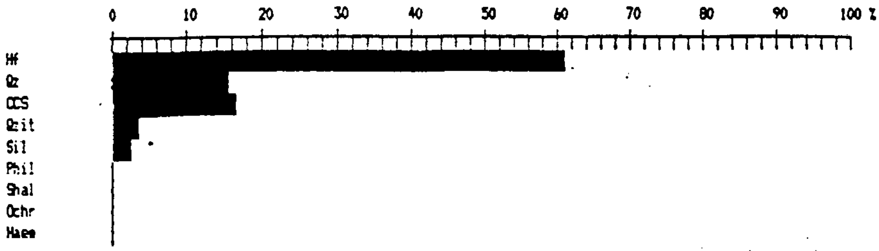


FIGURE 4.20 : UTILISED FLAKE PROFILE - SURFACE COLLECTION n = 108

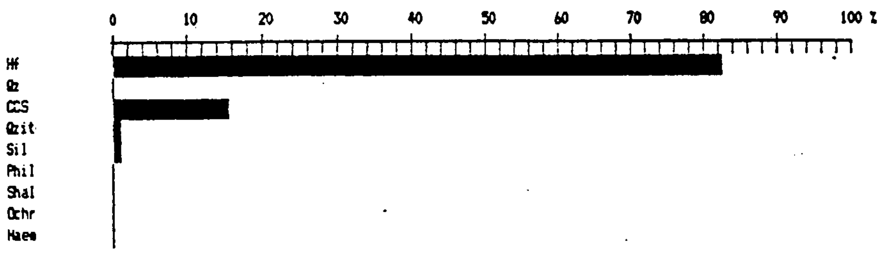


FIGURE 4.21 : ADZE PROFILE - SURFACE COLLECTION n = 230

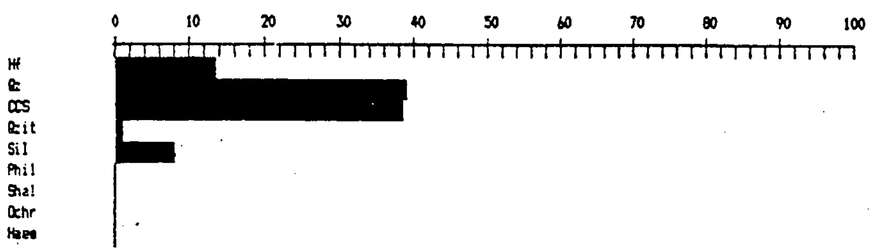


FIGURE 4.22 : SCRAPER PROFILE - SURFACE COLLECTION n = 148

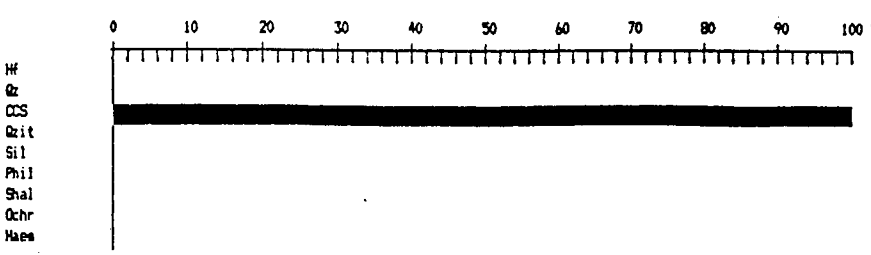


FIGURE 4.23 : BACKED SCRAPER PROFILE - SURFACE COLLECTION n = 1

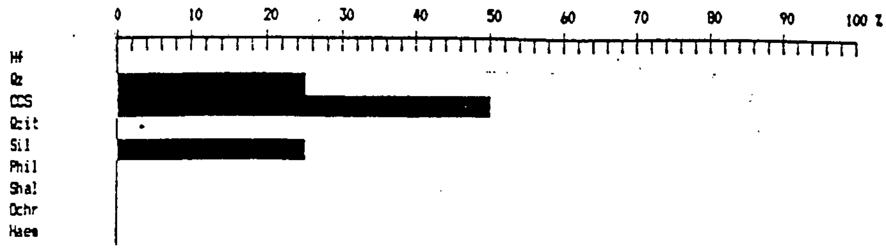


FIGURE 4.24 : SEGMENT PROFILE - SURFACE COLLECTION n = 4

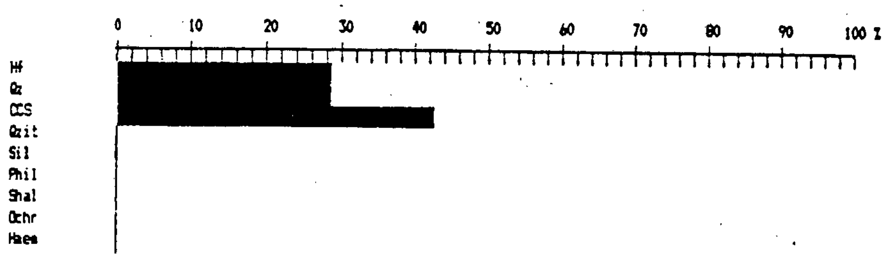


FIGURE 4.25 : MBP PROFILE - SURFACE COLLECTION n = 7

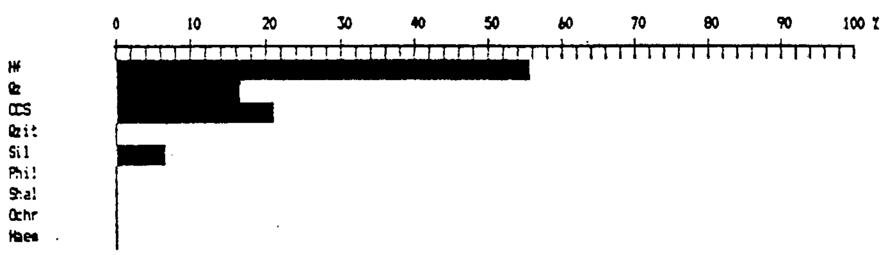


FIGURE 4.26 : MRP PROFILE - SURFACE COLLECTION n = 61

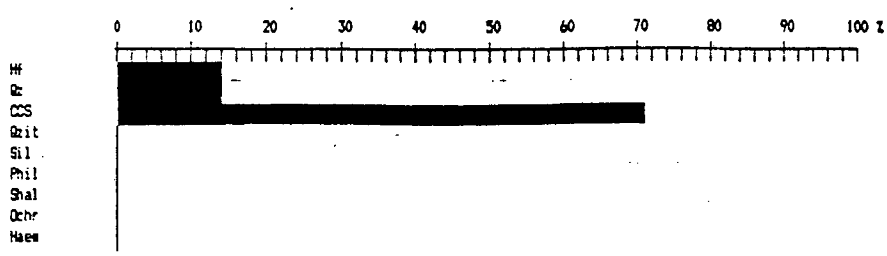


FIGURE 4.27 : BACKED BLADE PROFILE - SURFACE COLLECTION n = 7

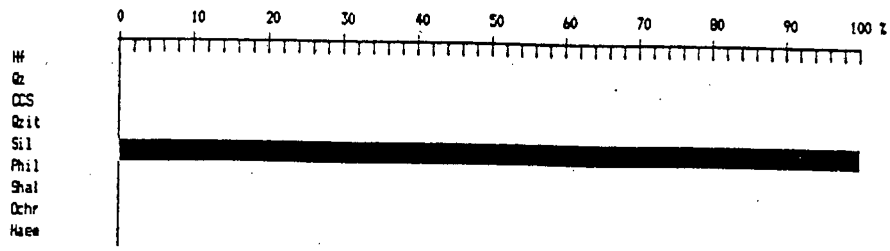


FIGURE 4.28 : BACKED FLAKE PROFILE - SURFACE COLLECTION n = 1

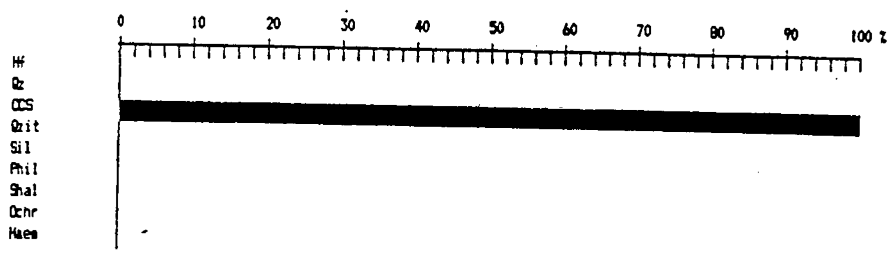


FIGURE 4.29 : BACKED POINT PROFILE - SURFACE COLLECTION n = 1

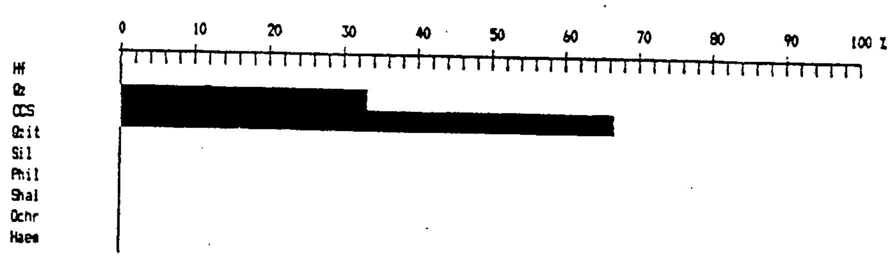


FIGURE 4.30 : DRILL/BORER PROFILE - SURFACE COLLECTION n = 3

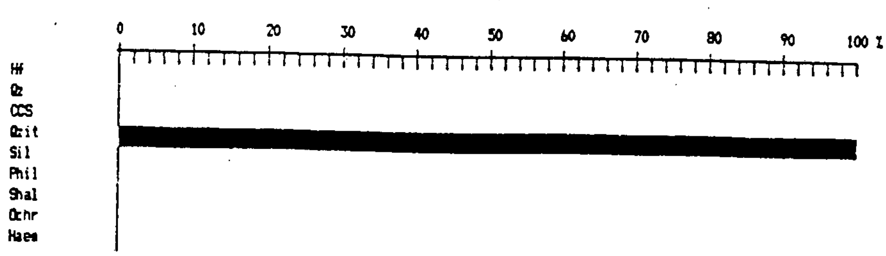


FIGURE 4.31 : HAMMERSTONE PROFILE - SURFACE COLLECTION n = 1

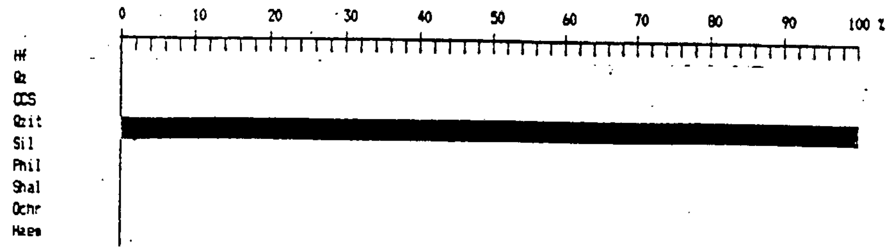


FIGURE 4.32 : UPPER GRINDSTONE PROFILE - SURFACE COLLECTION n = 1

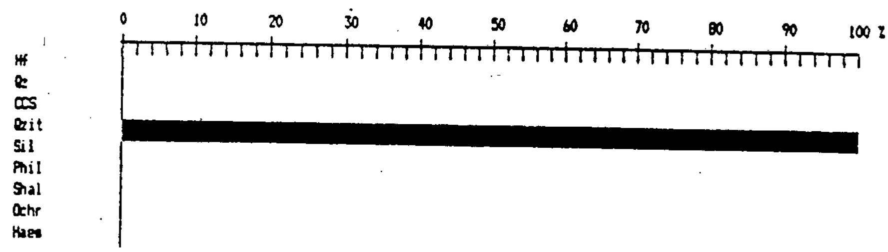


FIGURE 4.33 : LOWER GRINDSTONE PROFILE - SURFACE COLLECTION n = 6

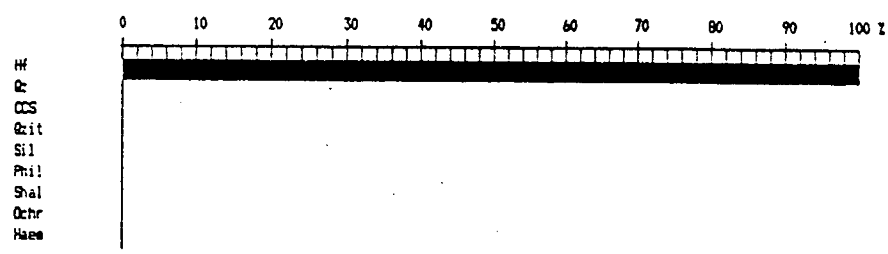


FIGURE 4.34 : GROOVED STONE PROFILE - SURFACE COLLECTION n = 2

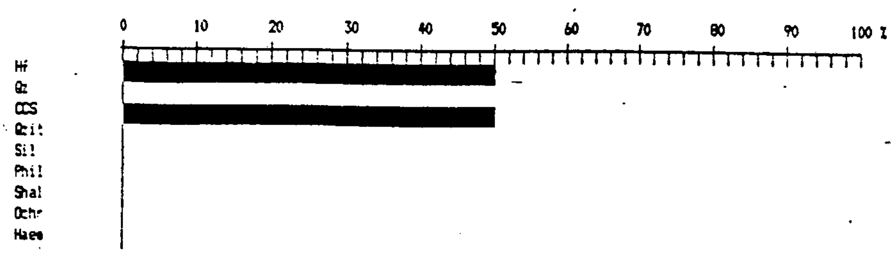


FIGURE 4.35 : WATERWORN PEBBLE PROFILE - SURFACE COLLECTION n = 3

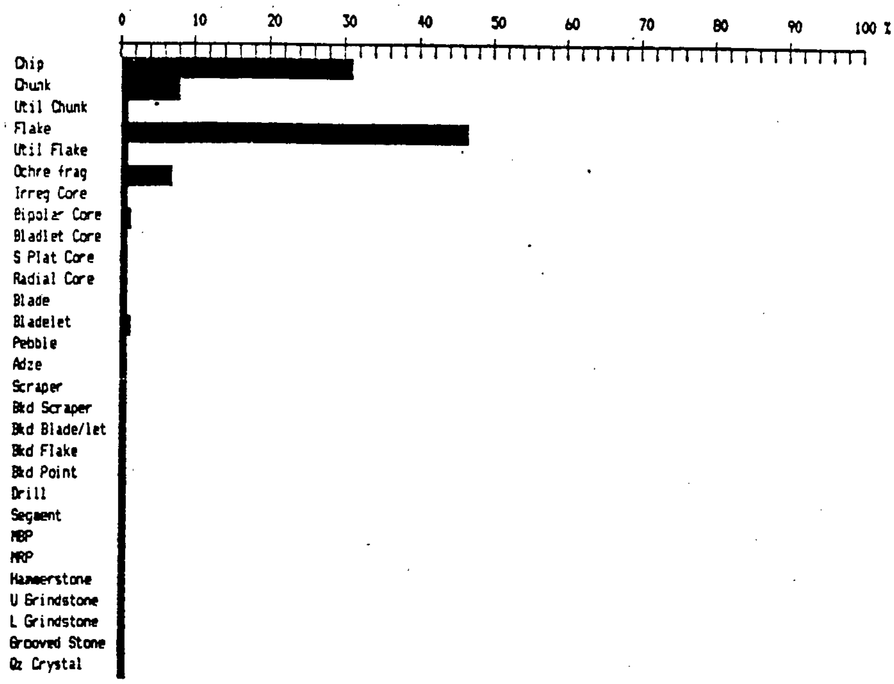


FIGURE 4.36 : TOTAL STONE PROFILE - SURFACE COLLECTION n = 19666

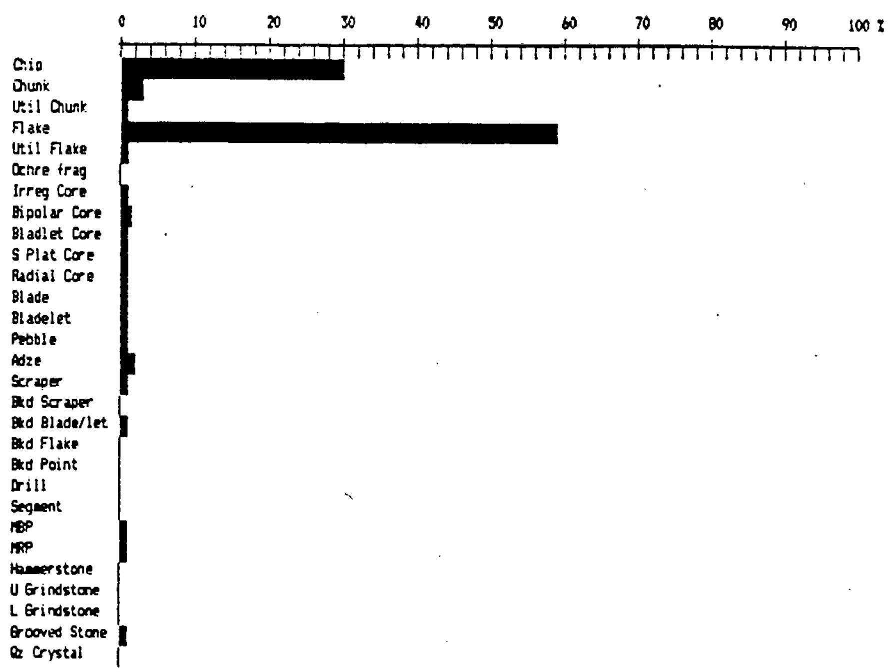


FIGURE 4.37 : HORNFELS PROFILE - SURFACE COLLECTION n = 7701

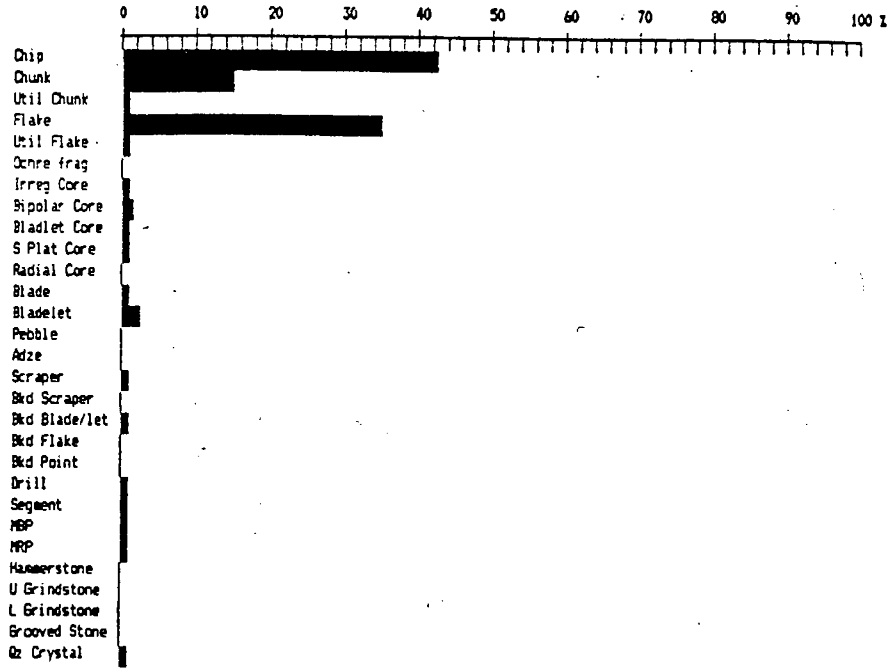


FIGURE 4.38 : QUARTZ PROFILE - SURFACE COLLECTION n = 7711

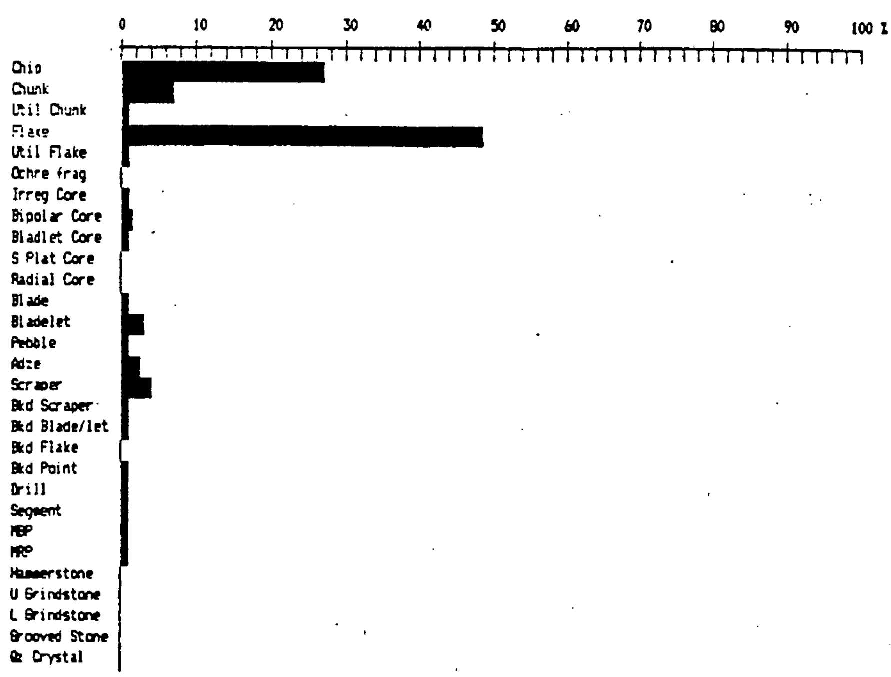


FIGURE 4.39 : CCS PROFILE - SURFACE COLLECTION n = 1401

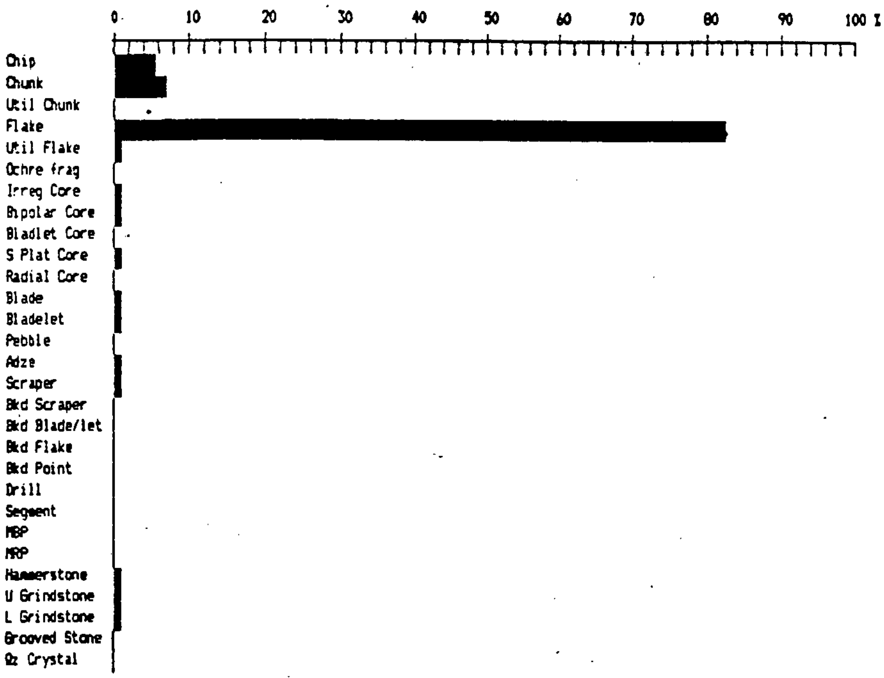


FIGURE 4.40 : QUARTZITE PROFILE - SURFACE COLLECTION n = 905

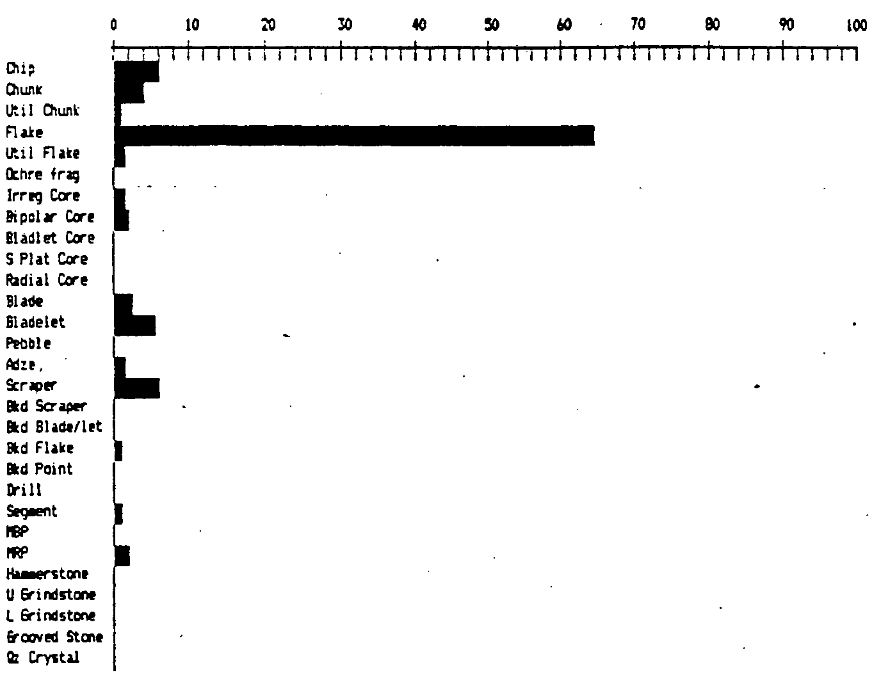


FIGURE 4.41 : SILCRETE PROFILE - SURFACE COLLECTION n = 192

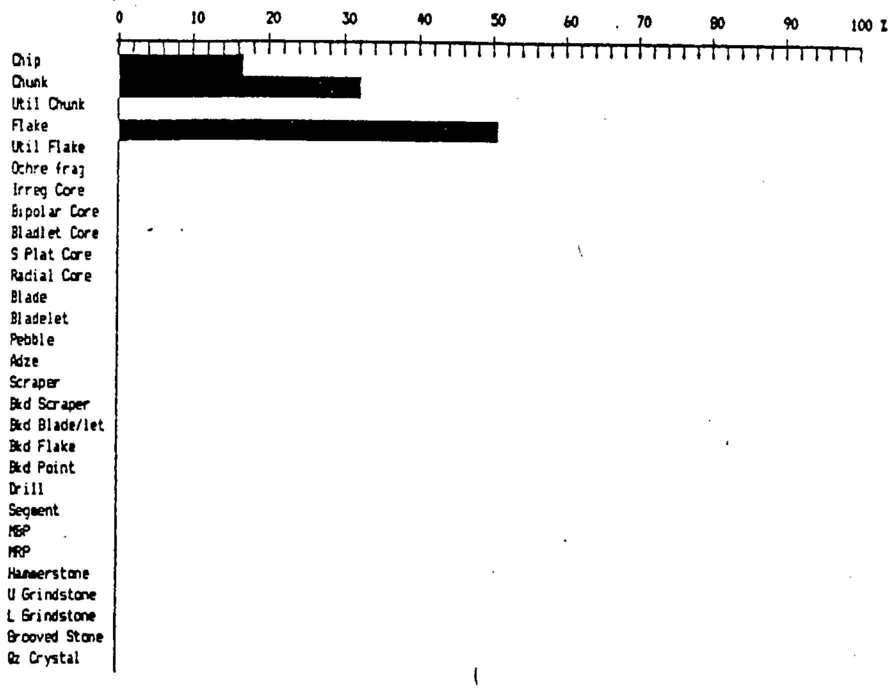


FIGURE 4.42 : PHYLLITE PROFILE - SURFACE COLLECTION n = 65

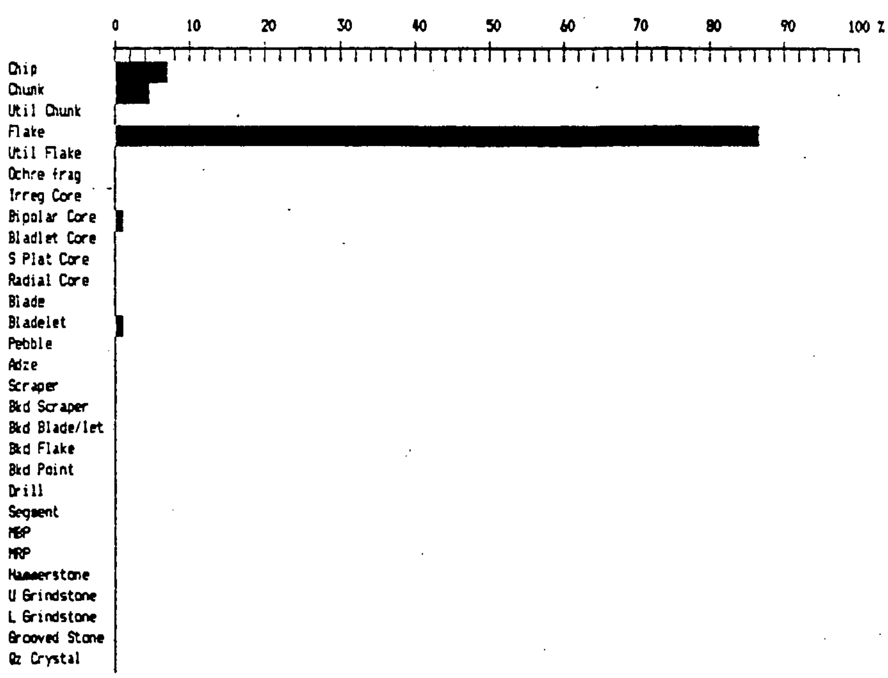


FIGURE 4.43 : SHALE PROFILE - SURFACE COLLECTION n = 299

a relatively small proportion of the assemblage consists of pieces which have either been specifically modified to perform certain tasks or have been modified during use. While adzes, scrapers and backed pieces are formally retouched, pieces which are considered to have been modified during use fall into the utilised category.

4.8.1 WASTE

The combined waste category makes up 89.8% of the assemblage and when ochre is included this proportion rises to 97.0%. The waste category as it appears in Table 4.5 is made up of two sub-classes namely flaking debitage and cores. Whereas flaking debitage makes up 87.8%, cores comprise only 2.2% of the total sample. The flaked waste consists mostly of chips, chunks and flakes and together these comprise 85.88% of the total sample giving an indication of the preponderence of this type of material. The core category is dominated by two types, irregular and bi-polar cores, though the latter is by far the most common type found. What may, however, be represented is a different flaking process taking place on other types of cores which due to reasons of size may have become unsuitable for flake production by other techniques but it is equally likely that the use of rounded fragments of raw material from the river gravels require this type of coring.

Two raw materials, hornfels and quartz, dominate the waste category and together total 84,8% of this class. The balance is dominated by CCS and quartzite which comprise 12.2% with phillite, silcrete and shale being represented by very low frequencies. Trends within the waste category can be related to a number of factors. The proportions of the various raw materials are a fairly accurate indication of the abundance of those materials and also indicate the availability of particular materials in the area in which the site is located. The frequencies of the materals in the waste class also reflect the variability in the flaking properties of the different materials since some, e.g. quartz, produce greater quantities of debitage during the reduction process. Nevertheless the amount of debitage, though it may always be greater for some materials, will still be dependant on the availability of material.

4.8.2 UTILISED PIECES

This class comprises only 0.64% of the total sample. It can be divided into two sections, smaller pieces showing damage to the cutting edge, and larger pieces which have had surface areas modified during use e.g. upper and lower grindstones, hammerstones and grooved stones. Identification of utilised pieces relies on some damage being visible particularly on the smaller pieces which have presumably been used for cutting. Obviously there is a possibility that some flakes with good cutting edges have been used but do not bear traces of such use and as such cannot be identified for inclusion in this category. It follows therefore that the numbers of pieces in this category should be taken only as an indication that such flake use has taken place and no significance should be placed on the figures themselves.

The material that is used for grindstones has to fulfil certain basic requirements. Lower grindstones must have at least one flat surface and be of a particular size and hammerstones and upper grindstones are usually made on cobbles and often both of these functions will be performed by a single cobble. Quartzite is the most commonly used material for these since it occurs naturally in slabs and as cobbles in the river gravels. Also it is hard and can thus survive the heavy use which is required.

4.8.3 FORMAL

This category makes up 2.35% of the total sample and is dominated by adzes and scrapers. Adzes are the most common tools and comprise 49.7% of the formal class with scrapers being the next most common comprising 32% of this class. The balance is made up of backed and miscellaneous backed pieces. The frequency of backed pieces is low making up only 5.2% of the formal category.

Tools in the formal category are consistent with those from many stone age sites in southern Africa. Variability between the different tool types would therefore seem to be due to functional requirements although variations may be noticed between temporally separated tool assemblages. Since it is believed that these tools were used to perform specific functions it follows that the raw materials must be suited to the use. The sample of adzes and scrapers allow us to examine raw material usage for these tools. 82.6% of adzes are made from hornfels and 15.7% from CCS. No adzes are made from quartz though as we have seen this is one of the dominant raw materials in the sample as a whole. In other words there is a distinct preference for siliceous materials other than quartz for the manufacture of adzes. 39.2% and 38.5% of scrapers on the other hand are made on quartz and CCS materials respectively while only 13,5% are made on hornfels. The differences between the trends for these two tools shows that while hornfels is consciously selected for adzes and quartz is avoided, almost the opposite is true in the case of scrapers. In other words the properties of quartz and hornfels are such that they are more suitable for particular types of tools while CCS and silcrete can be used for both of these and a range of other tools.

4.8.4 OTHER

The observations in Tables 4.5 - 4.7 is straightforward and does not reqire much explanation.

4.9 EXCAVATED STONE SAMPLE

The stone in this section is that which was recovered from the excavation below the level of the sub-surface scrape. A total of 1065 pieces of stone and ochre was recovered from several different layers and these observations are presented in Table 4.8 (a) & (b) The assemblages from the individual units are small and no single unit shows any noticeable variation. In all cases the assemblages are dominated by waste material with the balance consisting of a limited selection of utilised and formal artefacts. The observations from the

	WASTE			CORE				FORMAL					
LAYER	chi	chu	fl	bl	blet	irr	BP	utl	adz	scr	mrp	tot	%
VP I	4		2									6	0,59
SAB	54	2	51	1	2		2	2	3			117	11,56
B I	94	7	22							1		124	12,25
BP II	89	6	28				2		1	1	1	128	12,65
CV	62	1	7							1		71	7,02
BOR	11	1	16			2						30	2,96
BOR II	18		9									27	2,67
LP	44	2	7									53	5,24
LPext	5	2	9	1	1		1		1			20	1,98
LPext II			3				1					4	0,40
Twigs	38	1	12				1					52	5,12
BP III	70	2	23									95	9,39
BP IV	118	7	49		2					1		177	17,50
BS	68	2	30	1	4		1	1	1			108	10,70
Total	675	33	268	3	9	2	8	3	6	4	1	1012	100,00
%	66,7	3,1	26,5	0,3	0,9	0,2	0,8	0,3	0,6	0,4	0,1	100,0	

TABLE 4.8(a) : EXCAVATED STONE - ARTEFACT FREQUENCY

LAYER	HF	QZ	CCS	QZIT	SIL	PHIL	OCHR	Total
VP I		5			1			1
SAB	46	59	7	6			5	122
B I	34	77	5	8			7	131
BP II	36	85	6				4	132
CV	17	49	4	1			9	80
BOR	10	12	1	6	1		7	37
BOR II	10	14	3					27
LP	21	31	1				2	55
LPext	13	7					2	22
LPext II	3	1						4
TWIGS	18	31	2	1			2	54
BP III	29	61	4	1			3	98
BP IV	49	113	9	6			6	183
BS	42	49	9	5	2	1	6	114
TOTAL	328	594	51	34	4	1	53	1065
%	30,8	55,8	4,8	3,2	0,4	0,1	5,0	100,0

TABLE 4.8(b) : EXCAVATED STONE - RAW MATERIAL FREQUENCIES

individual units are presented in Tables 4.9 - 4.22.

The combined figures in Table 4.8 when compared to the figures in Tables 4.5 to 4.7 indicate that there is a considerable difference in the numbers of artefacts recovered from the different collections. Given this size difference it is uncertain what significance can be assigned to any differences or similarities between the two samples. Generally though it would appear that the proportions of the raw materials remain the same as do the artefact categories. The absence of backed pieces from the excavated units can be expected given the very low numbers of these tools in the surface collection.

4.10 SUMMARY

In certain instances the absence of artefact types i.e. pottery and backed pieces from the excavated layers is believed to reflect spatial rather than temporal variation. This will be dealt with in more detail in chapter five. The fact that radiocarbon dating suggests a temporal difference between the earlier and later units in the excavation and considering that there does not appear to be any major variation between the two samples other than quantity of material, would seem to suggest that no significant tool variation occurred within this period. This is important when one considers that much of the artefactual information for sites in the south western Cape are derived from surface assemblages and suggests that surface assemblages from sites that fall within the last 2000 years are accurate reflections of the tools used on the sites as a whole. This would

	HF	QTZ	CCS	QZIT	SIL	PHIL	OCHR	H	Total
Chip	24	65	4	1					94
Chunk		6		1					7
Flake	10	6		6					22
Blade									
Bldlet									
Sub-tot	34	77	4	8					123
Core irreg									
Core bi-pol									
Sub-tot									
Total	34	77	4	8					123
Flake: util									
Total									
Adze									
Scraper			1						1
Mrp									
Total			1						1
Ochre							7		7
Total							7		7
Grand total	34	77	5	8			7		131

TABLE 4.9: EXCAVATED STONE ARTEFACTS-BEDDING I

	HF	QTZ	CCS	QZIT	SIL	PHIL	OCHR	H	Total
Chip	14	45	3						62
Chunk		1							1
Flake	3	2	1	1					7
Blade									
Bldlet									
Sub-tot	17	48	4	1					70
Core irreg									
Core bi-pol									
Sub-tot									
Total	17	48	4	1					70
Flake: util									
Total									
Adze									
Scraper		1							1
Mrp									
Total		1							1
Ochre							9		
Total							9		9
Grand total	17	49	4	1			9		80

TABLE 4.10: EXCAVATED STONE ARTEFACTS-CORNER VEG

	HF	QTZ	CCS	QZIT	SIL	PHIL	OCHR	H	Total
Chip	13	73	3						89
Chunk		6							6
Flake	21	4	2		1				28
Blade									
Bldlet									
Sub-tot	34	83	5		1				123
Core irreg									
Core bi-pol	1	1							2
Sub-tot	1	1							2
Total	35	84	5		1				125
Flake: util									
Total									
Adze			1						1
Scraper		1							1
Mrp	1								1
Total	1	1	1						3
Ochre							4		4
Total							4		4
Grand total	36	85	6		1		4		132

TABLE 4.11: EXCAVATED STONE ARTEFACTS-BP II

	HF	QTZ	CCS	QZIT	SIL	PHIL	OCHR	H	Total
Chip		4							4
Chunk									
Flake		1			1				2
Blade									
Bldlet									
Sub-tot		5			1				6
Core irreg									
Core bi-pol									
Sub-tot									
Total		5			1				6
Flake: util									
Total									
Adze									
Scraper									
Mrp									
Total									
Ochre									
Total									
Grand total		5			1				6

TABLE 4.12: EXCAVATED STONE ARTEFACTS-VEG PATCH I

	HF	QTZ	CCS	QZIT	SIL	PHIL	OCHR	H	Total
Chip	13	53	3	1					68
Chunk	1	1							2
Flake	15	7	1						23
Blade									
Bldlet									
Sub-tot	29	61	4	1					93
Core irreg									
Core bi-pol									
Sub-tot									
Total	29	61	4	1					93
Flake: util									
Total									
Adze									
Scraper									
Mrp									
Total									
Ochre							3		3
Total							3		3
Grand total	29	61	4	1			3		98

TABLE 4.13: EXCAVATED STONE ARTEFACTS-BPIII

	HF	QTZ	CCS	QZIT	SIL	PHIL	OCHR	H	Total
Chip	18	26							44
Chunk		2							2
Flake	3	3	1						7
Blade									
Bldlet									
Sub-tot	21	31	1						53
Core irreg									
Core bi-pol									
Sub-tot									
Total									53
Flake: util									
Total									
Adze									
Scraper									
Mrp									
Total									
Ochre							2		2
Total							2		2
Grand total	21	31	1				2		55

TABLE 4.14: EXCAVATED STONE ARTEFACTS-LEAF PATCH

	HF	QTZ	CCS	QZIT	SIL	PHIL	OCHR	H	Total
Chip	2	3							5
Chunk		2							2
Flake	9								9
Blade	1								1
Bldlet		1							1
Sub-tot	12	6							18
Core irreg									
Core bi-pol		1							1
Sub-tot		1							1
Total	12	7							19
Flake: util									
Total									
Adze	1								1
Scraper									
Mrp									
Total	1								1
Ochre							2		2
Total							2		2
Grand total	13	7					2		22

TABLE 4.15: EXCAVATED STONE ARTEFACTS-LEAF PATCH EXTN

	HF	QTZ	CCS	QZIT	SIL	PHIL	OCHR	H	Total
Chip									
Chunk									
Flake	3								3
Blade									
Bldlet									
Sub-tot	3								3
Core irreg									
Core bi-pol		1							1
Sub-tot		1							1
Total	3	1							4
Flake: util									
Total									
Adze									
Scraper									
Mrp									
Total									
Ochre									
Total									
Grand total	3	1							4

TABLE 4.16: EXCAVATED STONE ARTEFACTS-LEAF PATCH EXTN II

	HF	QTZ	CCS	QZIT	SIL	PHIL	OCHR	H	Total
Chip	26	89	3						118
Chunk		6		1					7
Flake	23	16	5	5					49
Blade									
Bldlet		2							2
Sub-tot	49	113	8	6					176
Core irreg									
Core bi-pol									
Sub-tot									
Total									176
Flake: util									
Total									
Adze									
Scraper			1						1
Mrp									
Total			1						1
Ochre							6		6
Total									6
Grand total	49	113	9	6			6		183

TABLE 4.17: EXCAVATED STONE ARTEFACTS-BP IV

	HF	QTZ	CCS	QZIT	SIL	PHIL	OCHR	H	Total
Chip	11	26	1						38
Chunk		1							1
Flake	6	4	1	1					12
Blade									
Bldlet									
Sub-tot	17	31	2	1					52
Core irreg									
Core bi-pol	1								1
Sub-tot	1								1
Total	18	31	2	1					53
Flake: util									
Total									
Adze									
Scraper									
Mrp									
Total									
Ochre							2		2
Total							2		2
Grand total	18	31	2	1			2		54

TABLE 4.18: EXCAVATED STONE ARTEFACTS-TWIG

	HF	QTZ	CCS	QZIT	SIL	PHIL	OCHR	H	Total
Chip	2	8			1				11
Chunk			1						1
Flake	6	4		6					16
Blade									
Bldlet									
Sub-tot	8	12	1	6	1				28
Core irreg	2								2
Core bi-pol									
Sub-tot	2								2
Total	10	12	1	6	1				30
Flake: util									
Total									
Adze									
Scraper									
Mrp									
Total									
Ochre							7		7
Total									7
Grand total	10	12	1	6	1		7		37

TABLE 4.19: EXCAVATED STONE ARTEFACTS-BEDDING ON ROCK

	HF	QTZ	CCS	QZIT	SIL	PHIL	OCHR	H	Total
Chip	2	13	3						18
Chunk									
Flake	8	1							9
Blade									
Bldlet									
Sub-tot	10	14	3						27
Core irreg									
Core bi-pol									
Sub-tot									
Total									
Flake: util									
Total									
Adze									
Scraper									
Mrp									
Total									
Ochre									
Total									
Grand total	10	14	3						27

TABLE 4.20: EXCAVATED STONE ARTEFACTS-BEDDING ON ROCKS II

	HF	QTZ	CCS	QZIT	SIL	PHIL	OCHR	H	Total
Chip	10	41	3						54
Chunk	1			1					2
Flake	30	14	3	4					51
Blade				1					1
Bldlet		2							2
Sub-tot	41	57	6	6					110
Core irreg									
Core bi-pol		2							2
Sub-tot		2							2
Total	41	59	6	6					112
Flake: util	2								2
Total									
Adze	2		1						3
Scraper									
Mrp									
Total	4		1						5
Ochre							5		5
Total							5		5
Grand total	45	58	7	6			5		122

TABLE 4.21: EXCAVATED STONE ARTEFACTS-SOIL AROUND BEDDING

	HF	QTZ	CCS	QZIT	SIL	PHIL	OCHR	H	Total
Chip	24	37	5		2				68
Chunk			1	1					2
Flake	14	11	2	2		1			30
Blade				1					1
Bldlet	2		1	1					4
Sub-tot	40	48	9	5	2	1			105
Core irreg									
Core bi-pol		1							1
Sub-tot		1							1
Total	40	49	9	5	2	1			106
Flake: util	1								1
Total	1								1
Adze	1								1
Scraper									
Mrp									
Total	1								1
Ochre							6		6
Total							6		6
Grand total	42	49	9	5	2	1	6		114

TABLE 4.22: EXCAVATED STONE ARTEFACTS-BROWN SOIL

however not necessarily always be the case. If the cave deposit was substantial and contained artefactual residues spanning a longer period of time than is the case at PL41 then the surface artefacts may only reflect the final phase of occupation.

CHAPTER 5

SPATIAL PATTERNING AT PL 41

5.1 INTRODUCTION

The study of intra-site spatial patterning can be used to resolve various aspects of past human behaviour. For example, it can be used in its simplest application to establish the size of a population that inhabited a site, or it can be applied in more complex ways to establish areas of specific activity. The generation of any archaeological deposit is subject to a great number of variables, the most important of which is the way in which the human occupants relate to their immediate physical environment. While some aspects of site use will be duplicated no matter what the setting (e.g. sleeping areas), there are likely to be those which are determined by the expedient use of the physical environment of the individual site. Thus, while certain aspects of site use can be generalised to a degree and are repeated at a number of different sites, each of these will also display patterns of use which are the unique response to the physical organisation of the site.

Had it been the norm in the past to abandon sites after only one use the analysis of spatial patterning would have been much less complicated. This was however obviously not the case (though there may exist some examples of this behaviour) and as a rule most sites are subject to more than one episode of occupation. Such re-use of sites has more than likely resulted in the disturbance of spatial patterns from previous occupations as well as overlaying and mixing assemblages which are temporally discrete from one another. While the human factor may be responsible for severe disruption of patterning, natural post-depositional forces are also known to play a role in this process. Both of these are likely to have varied from site to site for various reasons and while the nature and extent of subsequent human disturbance is difficult to ascertain, natural forces respond to climate (particularly rainfall) and gravity and thus to a certain extent disturbance due to these factors can be predicted and measured when gradient is taken into account (Webling, 1985). Gravitational forces can play a role in disturbance by human and animal agents as well in that the surface may be loosened and material scuffed to the surface which then becomes subject to other forces. Of course while natural disturbances can be predicted, there is still the probability that the material moved in this way has already been disturbed.

In the light of these we may be led to question the usefulness or applicability of spatially oriented studies of assemblages. When considering the potential usefulness such studies may hold in understanding human behaviour then it is clear that it is a worthwhile exercise to attempt to overcome some of the problems which beset this field of study. While spatial archaeology has been with us for some time, it has only been within the last ten to fifteen years that an attempt has been made to develop a rigorous scientific approach in studying spatial patterns which nowadays is most often accomplished using sophisticated statistical techniques. These techniques must be specifically tailored to deal with the many varied problems which one faces on different sites. Examples of some of the varied problems and the statistical methods used to solve them have recently appeared in print (Hietala, 1984). While these serve to emphasise the power of statistics in the analytical process, they also make it patently clear that many of the methods require a detailed knowledge of statistical processes which often fall outside the realm of the archaeologists' expertise. While both this work and that of Hodder and Orton (1976) illustrate the usefulness of statistics at both the local and global scales, a paper by Kintingh and Ammerman (1982) suggests an alternative approach to spatial analysis. They advocate methods which make far more use of the problem context than do traditional quantitative techniques and suggest that computer programmes in which the steps are guided by intuitively derived rules be used. In other words they advocate a method which while utilising computer technology, places great importance on the contextual knowledge of the archaeologist.

As has already been pointed out, spatial analysis can be asked to resolve questions of varying complexity. The complexiity of the question will determine the complexity of the technique which is used to answer the question. In the context of the research in the south western Cape into the settlement patterns of the last 2000 years and specifically at PL 41 the questions are broad and are thus particularly amenable to the use of methods suggested by Kintingh and Ammerman. The main problems to be resolved at PL 41 are (1) how many people?, and (2) how long did they stay?. It is believed that these issues, if they can be answered, will be more useful than knowing precisely where on a site particular activities were performed. Some people might believe at first glance that these questions can easily be answered by looking at the size of the shelter and extrapolating numbers of people from anthropometric data. The problem is however somewhat more complex than this. Firstly, it must be established with certainty that the shelter is the only space used to accomodate occupants and if this proves to be the case then it must be ascertained what proportion of the shelter itself has been used. In other words, we must first examine areas outside the shelter to see if any temporary structures were erected to supplement the area available within the shelter. Since many of the small rockshelters in the research area dating within the last 2000 years more often than not have open talus areas bordering on them, such a possibility had to be tested. Apart from the implication this holds in establishing the number of people using the site, it is also pertinent to the investigation of social structure at the site and to the nature of the society as a whole at this time.

5.2 TECHNIQUES USED IN THE SPATIAL ANALYSIS OF PL 41

The techniques that were used in collecting the artefactual material have already been described in Chapter 4. This section will be devoted to the methods employed in assigning spatial value to the assemblage and the results of the spatial analysis.

A computer programme was devised to assist with the study of spatial patterns at PL 41 but has been designed in such a way that it can be used at other sites as well (Webling, in prep). Whereas in previous years large data bases could only be handled by mainframe computers, the current developments in micro-computer technology have made it possible to use these machines for handling large data bases. The advantage of this is that micro's are available to most institutions and are more user friendly than mainframe systems. This programme is designed to run on IBM and compatible machines having a single floppy disk drive and at least a 20MB internal hard drive. The data base can be accessed to produce two types of graphic display. The first of these enables a plot of the individual artefacts superimposed on the grid. A brief explanation of how this is achieved is necessary at this stage. While no point plotting takes place on site, artefacts are collected according to 50 x 50 cm quadrats within meter squares and on return to the laboratory are sorted, classified and entered into the data base using this notation. Each individual artefact must be entered according to a predetermined format which takes into account all the features which will be needed for the plotting section of the programme. Predetermining of artefact features is an important step which must be carefully considered as it becomes very difficult to add new features once data has been entered. Once entered, the computer allocates random X and Y co-ordinates to each item in a particular quadrat and this in turn enables a simulation of the distribution over the whole or portions of the site. The accuracy of this simulation is further enhanced by a weighting procedure which takes into account the quantities of material in each quadrat and weights the random distribution towards quadrats with high artefact densities. It is believed that the simulated distribution, while it can never precisely duplicate the original, will still allow accurate observations to be made. It is considered unlikely that many of the artefacts are in their original discard positions prior to being collected anyway for reasons that have already been mentioned. Therefore even an accurate point plotting of artefacts would be monitoring a disturbed pattern. It is however recommended that collection quadrats not exceed 50 X 50 cm if this plotting technique is to be reasonably accurate since at this scale there is less chance of items being plotted randomly too far from the position prior to collection. This could occur if the quadrat size was much larger than this (See Johnson in Hietala, 1984).

The second type of graphic display utilises artefact densities in the quadrats rather than the individual items. Observations are presented as differentially shaded quadrats superimposed on the grid, where shading corresponds to a pre-defined set of density divisions. The density divisions and the corresponding shading types can be seen with the distribution plots in Appendix 1. Different types of density observations can be displayed at the researchers' discretion, for example, the density of all stone artefacts regardless of raw material or type can be displayed on one diagram, but can also be refined and plotted according to raw material or artefact type only. In other words densities of adzes can be plotted for the whole site but if it was necessary then only adzes of a particular raw material could be selected and plotted. This plotting can be done for both lithic and non-lithic artefacts as long as the attributes which one may wish to plot have been entered in the initial stages of building the data base. Spatial information at PL 41 has been analysed utilising the second type of graphic display. If this type of density data is to be used for spatial analysis, it is essential that a sufficiently large area of the site has been sampled. If only one or two square meters in the centre of a large site have been sampled it would be impossible to comment on the patterning on the site as a whole.

To facilitate the discussion of the artefactual distribution at PL 41, the site has been divided into a number of zones as presented in Figure 5.1. These consist of the upper and lower halves, defined by the interface between rows 10 and 11 of the grid, and eastern and western zones with the boundary defined as the interface between columns G and H of the grid. Thus distribution is discussed in terms of either the broader upper or lower, east or west zones or in terms of the smaller upper or lower west and upper and lower east zones. These divisions are in no way linked to the programme output and are intended to aid with the discussion of the artefact distributions.

5.3 DEPOSITIONAL AND POST-DEPOSITIONAL FACTORS

Examination of the density distributions of all stone, bone and pottery (Appendix 1) showed that the bulk of these items occur in the upper half of the site and particularly in the eastern half of this zone while toward the western half, excluding the area within the shelter, there is a marked decrease in quadrat frequencies. This becomes even more noticeable in the eastern and western zones of the lower half. A cursory examination of the densities of these materials

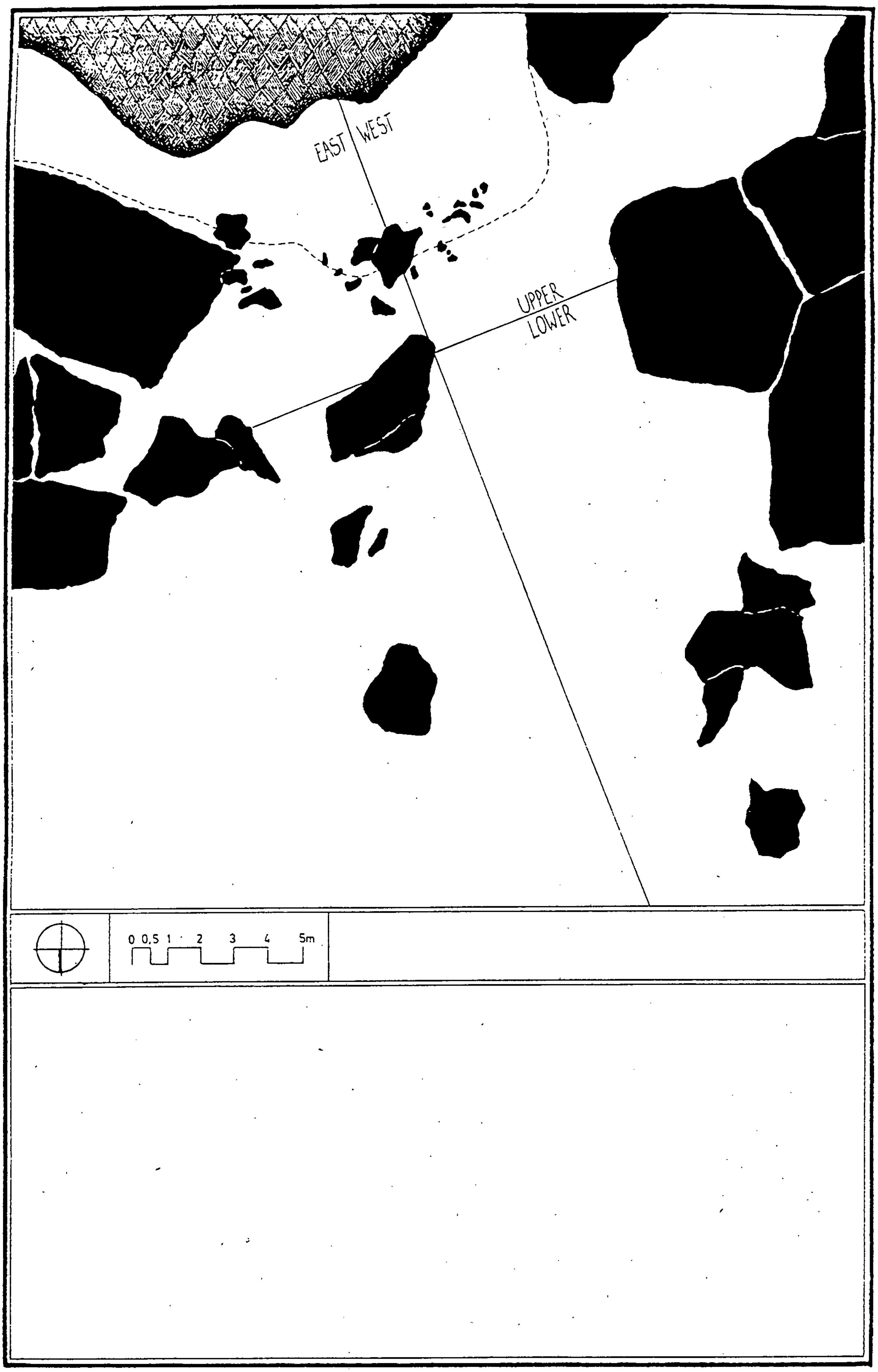


FIGURE 5.1: FOUR ZONES USED FOR SPATIAL ANALYSIS

makes it immediately obvious that the upper eastern zone outside the shelter is where the greatest amount of material is to be found and suggests that this area formed the focus of the occupation along with the adjacent portion of the shelter. It is also obvious from these observations that no other foci are present elsewhere on the site. If we presume that there is a direct link between high artefact density and occupation focus for this site then it follows that material falling outside this area, although somehow linked to it, is indicative of the use of the site as a whole around the occupation focus. In other words, although a domestic focus is identified, certain tasks have taken place away from this area and have thus resulted in a widespread distribution of artefacts. Widespread distribution on the periphery of a focus point can also be due to various agents of post-depositional movement causing displacement in a number of directions originating at the point of domestic focus.

Post-depositional movement could be responsible for much of the material occurring in the central and eastern sections of the lower half of PL 41. The reasons for suggesting this become clearer when reference is made to the density plot of 'all stone' artefactual material (Appendix 1). Two runoff channels can be identified on the density plot where movement of material between the upper and lower zones has occurred and these are labelled in Figure 5.2. Since slope angle lies predominantly in a north-south direction, movement of artefacts is most likely to occur from the upper to the lower zones due to gravitational factors than would be the case in the movement of artefacts laterally from the upper eastern to the upper western zones.

A,B,C ACCESS TO SITE

D LATERAL PATHWAY

E,F ACTIVE EROSION ZONES

1 ALCOVE

2 SHELTER/OVERHANG

FIGURE 5.2: AREAS OF POST-DEPOSITIONAL DISTURBANCE

In the upper zone movement of artefacts probably occurs due to scuffing by humans and animals since a natural pathway is defined in this part of the site by the arrangement of the rocks. This can be seen in Figure 5.2. A second natural pathway was identified in the same area as one of the runoff zones, around K/L 10,11,12,13, meaning that more than one factor was responsible for movement in this area.

Density plots also showed that artefactual material tended to be focussed outside the shelter. While some high quadrat densities are noticed towards the rear of the shelter in the excavated area, the concentration at J/K 7,8 is clearly not a continuation of a dense internal scatter. In fact there was an area of low frequency quadrats separating the concentration at J/K 7,8 from the higher frequency quadrats at the rear of the shelter. The external concentration can not be seen as a factor of conflation since other external areas, which are subject to the same environmental effects, do not exhibit the same trends. Periodic removal of 'rubbish' from occupation shelters has been suggested as a major cause of disruption of spatial patterning (Murray 1980:497; Binford 1983:190; Robey 1983). This practice usually occurs when debris becomes a hinderance to occupation either because it is taking up space or because it has become infested with vermin. At such time such debris will be removed and will most likely be dumped away from the areas of active use. Such behaviour is only likely to occur where a site is subject to intense and or extended use where large amounts of food and other debris are introduced.

Since PL 41 does not appear to have been subject to long periods of occupation this is not considered to be a likely cause of the high densities of material outside the shelter.

5.3 DENSITY DISTRIBUTIONS OF ARTEFACT CATEGORIES

The composition of the assemblage has already been discussed in Chapter 4. Bearing the comments on the general distributions in the previous section in mind , the following section will examine the distributions of, and relationships between the individual artefact categories with a view to analysing aspects of site structure. The sequence of discussion will progress from the class with the greatest number of pieces to that with the lowest. The distribution plots can be found in Appendix 1.

5.3.1 LITHIC ARTEFACTS

5.3.1.1 CHIPS

If the distributions of the different raw materials are examined, (specifically those having fifty or more pieces), it can be seen that they tend to follow the same pattern i.e. a concentration in the upper eastern zone outside the shelter and towards the alcove with clustering occurring around J/K/L/M 7,8,9. The fact that this type of debitage has little use after its initial production means that it is more likely to reflect the immediate area of production than most other stone artefacts. Although the sizes of the pieces makes them susceptible to movement by natural agents, the distribution of these items in the lower half of the site seems to suggest that not much significant movement has taken place. Briefly, the distributions indicate a more intense use of the upper eastern zone outside the shelter and minimal use of the upper western zone.

5.3.1.2 CHUNKS

These are more evenly distributed over the upper eastern and western zones though higher densities are to be found around in the upper eastern zone. No specific clustering is observed. As with chips, chunks tend to be located outside the shelter.

5.3.1.3 FLAKES

Although flakes form the largest single category of the assemblage, the pattern of distribution mirrors the previous two categories. Whereas the greater numbers of these items meant that there was a greater possibility for lateral movement from the eastern to the western zone by human agents, this does not appear to have occurred. A number of flakes are also found in the lower half of the site. Examination of the distribution of all flakes regardless of raw material shows two clusters in the upper eastern zone around K 8,9,10 and around Q 9, P 8.

Distributions of the individual raw materials shows that the dual clustering can be observed in hornfels, quartzite, quartz, CCS and silcrete while shale and phillite pieces tend to concentrate towards J

6,7,8. The greatest numbers of flakes are located outside the shelter with the exception of phyllite pieces, which though small in number, are found almost exclusively under the overhang.

5.3.1.4 CORES

Five core types are recognised and their individual distributions plotted. Only two of these types, bipolar and irregular cores occur in sufficient numbers to allow comment to be made of their distributions. While the distribution of all cores regardless of raw material indicates a concentration in the upper eastern zone outside the shelter the distribution of irregular cores suggests dual clustering whereas bipolar cores are more evenly distributed across the upper eastern zone.

5.3.1.5 UTILISED PIECES

The distribution of all utilized pieces regardless of raw material shows that most occur in the upper eastern zone outside the shelter. Although no specific clusters are observed there is a tendency for these to lie in the alcove or towards the outer edge of the upper eastern zone. The distributions of the individual raw materials all reflect this pattern.

5.3.1.6 MRP

Other than noting that these concentrate in the upper eastern zone, no specific comments can be made as few pieces are represented.

5.3.1.7 BACKED PIECES

Other than noting that these concentrate in the upper eastern zone, no specific comments can be made.

5.3.1.8 ADZES

The distribution of all adzes regardless of raw material shows that most of these lie in the upper eastern zone and though not clearly defined, dual clustering is again suggested. These clusters lie in the alcove and in the vicinity of J/K/L 8,9.

5.3.1.9 SCRAPERS

The distributions of all scrapers regardless of raw material shows that most of these fall in the upper eastern zone. The distribution of CCS scrapers suggests dual clustering though scrapers on other materials are fairly evenly distributed across the upper zone.

5.3.2 NON-LITHIC ARTEFACTS

5.3.2.1 BONE

The distribution of individual species has not been examined as the sample is very small and highly fragmented. The pattern of distribution for bone is different to the general pattern that has been observed for stone. While there is an overlap in the bone concentration with the stone concentration around J/K 7,8 , it tends not to be as widely distributed and is virtually absent in the alcove. In contrast to stone is the fact that a large amount of the bone is distributed under the shelter and that a concentration is observed around G/F 3,4 in the upper levels of the excavation. The largest amount of bone is lying in the upper eastern zone of the site.

5.3.2.2 POTTERY

Although there is less of this material than bone, pottery distribution corresponds to that of bone by concentrating in the area just inside the upper eastern zone and lying partly under the overhang. Few pieces are found in the alcove while the pieces under the overhang are limited to the vicinity of H/I 6,7. No pottery was recovered from the layers below the surface in the excavated squares. Refits showed that displacement had occured from south to north while there was little lateral movement.

5.3.2.3 OSTRICH EGGSHELL

Unmodified fragments tended to be concentrated around J/K 7,8 and thus lay partly under the overhang. Very few pieces were observed in the alcove and apart from a number of fragments found in the upper and lower western zones around F 10, most of this material was found inside the shelter. The clearest indication of patterning of all artefacts so far examined was exhibited in the distribution of finished and unfinished beads. Apart from two pieces, all were recovered from inside the shelter. Finished beads were recovered almost exclusively from the upper levels of the excavated squares.

5.3.2.4 MARINE SHELL

Only a small number of fragments were recovered. Some of these were recovered from the upper levels of the excavation and most of the fragments lie inside the shelter.

5.4 SUMMARY OF THE SPATIAL DATA

Several facts have emerged during the examination of the artefact distributions and at this point draw attention to the following:-

1. The direction of movement of artefacts due to natural agents is most likely to occur in a north-south direction following the slope of the site. Areas considered to promote this type of movement occur at the boundary of the upper and lower zones particularly around K/L 9,10,11 and F/G/H 9,10,11. Two runoff channels can be identified by the position of artefactual material that has been deposited along their courses. These can be seen in Figure 5.2.

2. Natural pathways can be identified and are labelled A,B,C and D on Figure 5.2. The position of two of these is likely to have assisted movement of material laterally and horizontally. Pathway 'B' allowed

access between the upper and lower eastern zones and overlapped one of the runoff channels. Thus while the use of the pathway may have moved artefactual material, its use is likely to have assisted subsequent natural slope movement. Pathway 'D' allowed access between the upper eastern and western zones and lateral scuffing probably occurred here. Pathway 'C' is not likely to have affected distributions which are under discussion here and pathway 'A' could be expected to have had minimal effect.

3. Even though we recognise that movement of artefacts has taken place, the gross patterning that was preserved suggested that no major distortion had occurred as a result of post-depositional movement.

4. The upper eastern zone has been identified as the location of the greatest amount of artefactual material. Although the area under the overhang was included as part of this, there are differences in both the amounts and types of material which were found in this zone. The area outside the shelter in the upper eastern zone can further be subdivided into two areas namely the alcove, and the rest of the area outside the shelter. The distributional data suggests that these two areas were utilised more heavily than others on the site.

5. There was no overall tendency for specific stone artefacts to be found in localised patches though there were indications of clustering in some cases. Some of the non-lithic artefacts did however display the tendency to have localised distributions. This is probably closely tied to the volume of use and maintainance of specific items as well

as indicating which items were used in specific areas.

6. The concentration of material in the upper eastern zone is understood to be a reflection of the deliberate scheduling of use for this part of the site and not as it might have been suggested, a factor of conflation. Conflationary factors are likely to have affected most areas outside the shelter to more or less the same degree and yet no other similar concentrations are evident. The distributional pattern confirms that no areas of the site other than the shelter show evidence of having been used as domestic foci with the erection of temporary structures. It would appear that only a part of the shelter itself was used for occupation.

5.5 INTERPRETATION OF THE SPATIAL DATA AT PL 41 WITH REFERENCE TO SITE STRUCTURE AT !KUNG CAMPS IN THE KALAHARI

The most important consideration to be borne in mind while interpreting the artefact distributions is the fact that more than one episode of occupation is probably represented. Radiocarbon dates from the excavated squares would seem to confirm this assumption. Therefore unless two or more occupations precisely overlap each other, site structure may be misinterpreted or at least exaggerated. Since at PL 41 clear stratigraphic units do not exist outside of the shelter, the problem of temporally separate occupations could not easily be overcome as the artefacts on their own cannot impart this information.

One possible way of resolving this problem is to compare the archaeological material to ethnoarchaeological situations where lengths and numbers of occupations are known and can thus be related to numbers of artefacts on these sites. Obviously such comparison cannot be expected to replicate the archaeological situation completely and at best can assist in the process of interpretation.

The Putslaagte data has been compared to a number of hunter-gatherer camps in the Kalahari analysed by John Yellen (1977). Of particular interest are his definitions of activity areas identified within the individual sites and what they represent in terms of use. The locations of the activity areas are presented in Figure 5.3. The following sections are devoted to a discussion of these definitions as well as relating them to the Pl 41 observations. It must be remembered that all of the Kalahari sites occur in the open and thus differ substantially from the PL 41 site which occurs within the confines of a shelter. For this reason his definitions are adapted to best fit the situation that faces us.

5.5.1 ABSOLUTE LIMIT OF SCATTER (ALS)

Yellen (1977,103) defines the ALS as the total area of the site and established it by drawing a boundary around the outer limits to include all artefactual material and scatters of charcoal. When measured, the area will provide an index of the amount of space used by a given number of people for a known length of time. When studying cave or shelter complexes (shelter plus the open areas out front),

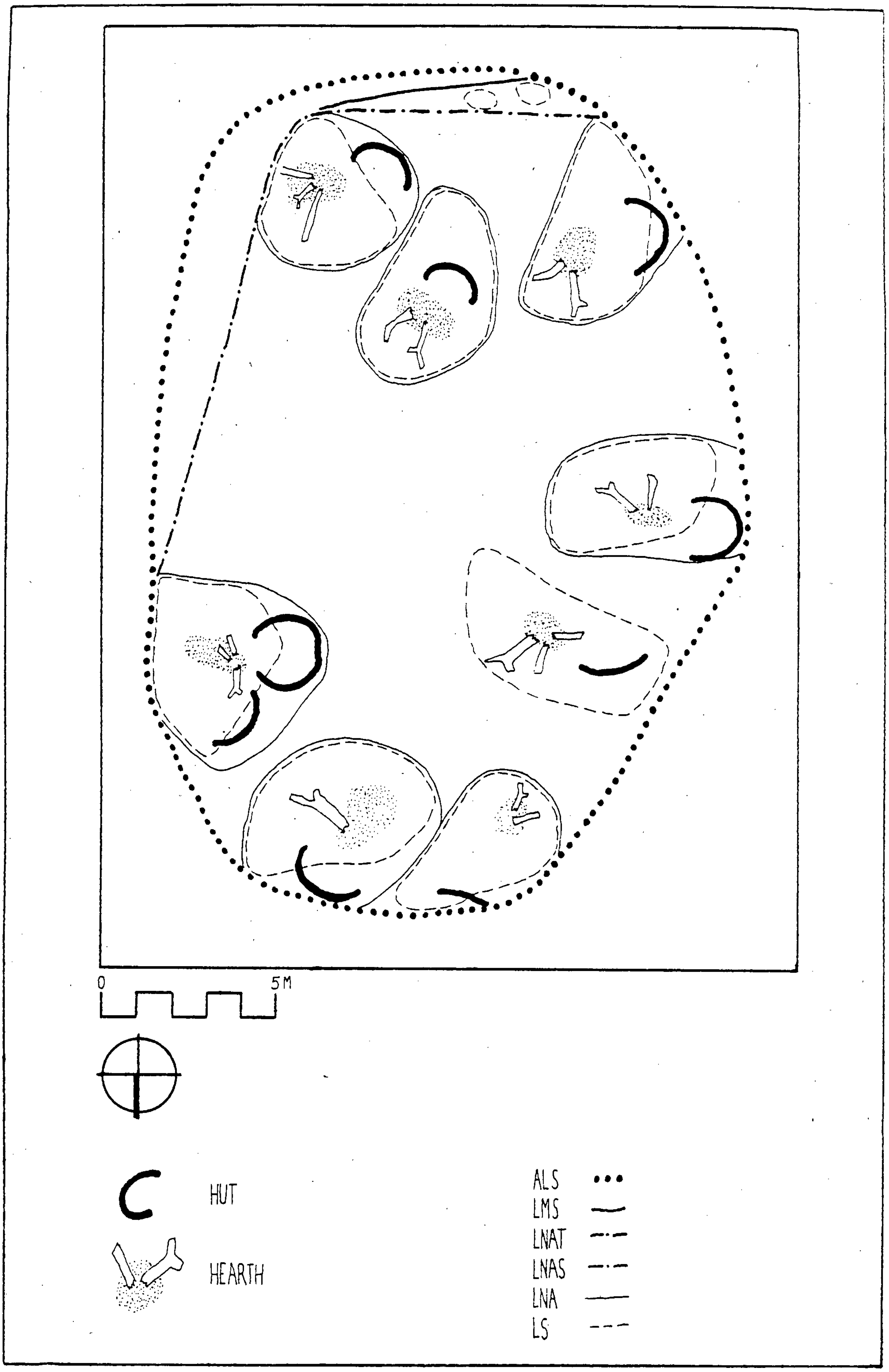


FIGURE 5.3: ZONES OF OCCUPATION AS DEFINED BY YELLEN

there is a tendency to assume that all of the available space has been used. This is of course not necessarily the case as the PL 41 observations have shown. It would therefore be a mistake to measure the ALS of a cave site using the physical boundaries as an indication of total space use rather than the extent of the artefactual scatter.

The ALS for PL 41 is defined in fig 5.4. While the establishing of this area follows hard and fast rules, some allowance has to be made in this situation for material which exists in some position due to reasons other than human deposition i.e. slope movement. The ALS for PL 41 can be seen as a close approximation of the area as it may have existed in the past. Similarly, some interpolation was necessary for areas that were not physically sampled and this was done by taking into consideration the general trends in the artefactual distribution. Having done this, the ALS of PL 41 when measured totals approximately 180 square meters.

5.5.2 LIMIT OF MOST SCATTER (LMS)

Yellen (1977,103) defined the LMS as the area which included all but those few odd scatters of charcoal and other remains that clearly lie on the fringes of the camp area. The material located between the LMS and ALS in Yellens' cases constitutes less than 5% of the total remains. The definition of this area thus relies on a subjective assessment of the remains. For PL 41 the LMS has not been defined as it closely resembles the LNAT.

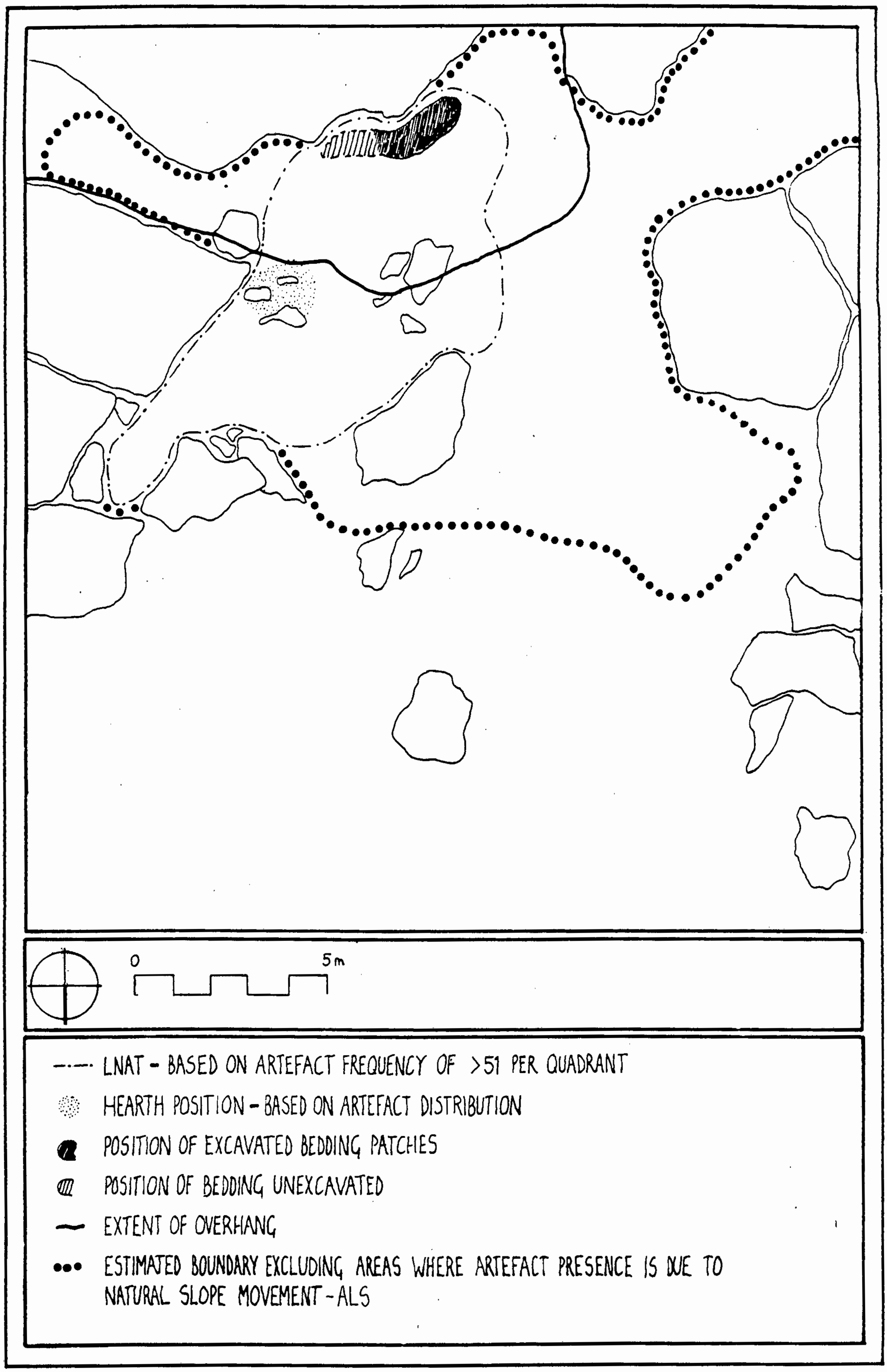


FIGURE 5.4: ZONES OF OCCUPATION AT PL41 BASED ON YELLEN'S CRITERIA.

5.5.3 LIMITED NUCLEAR AREA TOTAL (LNAT)

Yellen (1977:103) defined the LNAT as the area which included all huts, their associated hearths and debris surrounding the hearth. It is therefore an index of total area of domestic activity. This is perhaps the most significant index for bedding and ash sites where it is not always possible to identify discreet domestic areas. The LNAT for PL 41 is defined in Figure 5.4 and measures approximately 62 square metres.

5.5.4 LIMITED NUCLEAR AREA SCATTER (LNAS)

Yellen (1977:105) defined the LNAS as the total area of domestic scatter excluding the hut/s. In his opinion this is the most useful index for the archaeologist as hut remains are seldom preserved on archaeological sites. Sites in the post-2000 BP period in the south-western Cape do however preserve areas which can be equated to the hut in the form of sleeping hollows and associated hearths and thus as already stated LNAT is seen as the more useful index for these sites. This area is not defined for PL 41 as it was difficult to determine the extent of the hut equivalent.

5.5.5 LIMITED NUCLEAR AREA (LNA)

Yellen (1977:105) defined the LNA as the area including the domestic structure and the limited scatter of material surrounding it, including the hearth. In the Kalahari these two features are most often found together and are integral aspects of the individual domestic activity area. The area around the hearth is devoted to cooking and other outside domestic activity but also forms an important centrepoint for socialising. The windbreak on the other hand is used to store personal goods and to provide shelter from wind and sun and is not normally accessible to members of other family units. The hearth is normally situated in front of the opening to the windbreak. The association between the two is strong enough that in the Kalahari identification of hearths is sufficient to permit counting the number of LNA's which were present. The LNA as the focus of domestic activity is the area where the greatest densities of artefactual debitage accumulate and will tend to be concentrated outside the windbreak particularly around the hearth. This will include bone from cooking and eating, as well as material related to other activities such as beads and bits of leather etc. The scatter around the hearth was termed the LS (limited scatter) by Yellen. It does not include material from within the windbreak. The LNA is therefore identified by a number of features and represents the area used by a single family. It is possible to have one or more LNA's included within the LMS or ALS

If we assume that there is some continuity between artefact distributions on domestic locations in the Kalahari and those on archaeological sites then it follows that we should be able to identify the location and number of LNA's at these sites. As we have seen in a previous section the LNAT at PL 41 is located in the upper eastern sector of the site. Even without considering any specific evidence it follows that the LNA/LNA's must be located within this area as well. Apart from scattered charcoal, no hearths were identified anywhere on the site thereby excluding the use of these features to establish the number of LNA's. The area outside the shelter in the upper eastern zone where the greatest concentrations of material are located can tentatively be identified as the limited scatter (scatter found in front of the hut/windbreak) and the area under the shelter immediately adjacent to this as the equivalent of the windbreak. The distribution of bedding material along the rear wall of the shelter as well as the distribution of beads and pottery in this part of the shelter would seem to confirm this use. A concentration of bone in one area suggests that discard of this material was focussed and may indicate that a hearth was present close to this position. Furthermore the position of a hearth somewhere between the bedding and the concentration of material outside the shelter is consistent with the positioning of hearths at other 'bedding and ash' sites in the western Cape where frequently the hearths are more visible. It would appear from the distribution of the material that if more than one occupation is represented then these were located in more or less the same area on the site. The lack of identifiable hearths furthermore suggested that no extended occupation was represented at Pl 41 and seemed to be consistent with the small amount of food debris. Owing to the lack of hearths it is not possible to determine an area which can be defined as the LNA at PL 41. If it is assumed that bedding hollows and area immediately surrounding it are indicative of a hut equivalent then it is possible to make an estimate of such an area. At Pl 41 this would be in the order of 20 square meters.

5.6 POPULATION AND SPACE

!Kung 'household' areas (LNA's) vary in size depending on two factors, the size of the group and the length of occupation (Yellen 1977:110-115). This relationship is not exclusive to this group and similar observations have also been made amongst the Alyawara (O'Connell 1987:100). Yellen (1977:Appendix C 237-253) listed all the metrical observations for sixteen !Kung camps. This is presented in Table 5.1. I will only discuss the LNAT and the LNA as these are particularly relevant to the analysis of the PL 41 data.

Of the sixteen camps, only seven have LNAT's of less than one hundred square meters and these range from thirty four to eighty eight and a half square meters. In all cases where the LNAT totals less than sixty square meters, no more than two small families were represented (although three LNA's are represented in camps #6 and #9, one was occupied by a single, young adult male who spent most of his time with one or other of the two families). In these cases the sizes of the individual LNA's range from 8.55 to 26.36 square meters and are closely linked to length of occupation as can be seen in Table 5.1 (a) & (b). In other words although the estimated LNAT for PL 41 is sixty two square meters and while it may in fact not be a totally accurate reflection is nevertheless consistent with measurements for short term camps in the Kalahari occupied for periods of between two and nine days (the area of the LNAT would probably have been less but an

CAMP	DAYS	OCCUPANTS	SOC UNIT	NUCL FAM	REOCC	ALS	LMS	LNAT	LNAS
1	9	10/ 4A 6C	2	2	1	149,46	105,21	55,88	38,50
2	9	11/ 4A 7C	2	2	0	127,22	88,44	39,14	29,72
3	11	22/ 9A 13C	5	4	1	345,00	239,00	239,00	216,00
4	20	14/ 7A 7C	4	3	5	310,00	182,00	79,00	79,00
5	2	11/ 4A 7C	2	2	0	59,00	38,00	26,00	14,00
6	3	12/ 5A 7C	3	2	0	165,00	96,00	34,00	32,00
7	10	17/10A 7C	5	4	1	151,00	88,50	88,50	71,00
9	2	12/ 5A 7C	3	2	0	83,50	74,00	47,00	40,50
10	12	24/13A 11C	7	5	0	348,50	330,50	325,50	325,50
11	3	24/13A 11C	7	5	0	187,50	158,00	158,00	158,00
12	3	17/10A 7C	5	4	0	174,50	146,50	146,50	146,50
13	5	17/10A 7C	5	4	0	157,50	144,50	115,50	111,50
14	7	23/15A 8C	8	6	0	329,00	261,00	199,50	199,50
15	1	17/10A 7C	5	4	0	151,50	121,00	121,00	121,00
16	6	19/12A 7C	6	5	0	238,00	177,50	159,00	159,00

camp 8 excluded as occupant data unavailable
ALS, LMS, LNAT, LNAS - areas of scatter measured in square meters
OCCUPANTS A/C - adults/children

TABLE 5.1(a): SUMMARY OF YELLEN'S WINTER CAMP DATA

CAMP	LNA'S						
	1	2	3	4	5	6	7
1	26,32	26,36					
2	12,11	25,52					
3	35,87	21,97	25,48	15,79	5,89		
4	15,96	3,24	19,72	19,88			
5	11,08	8,55					
6	11,98	2,36	9,58				
7	15,73	10,00	16,89	5,37	5,08		
9	10,44	14,16	6,26				
10	16,47	16,85	16,68	19,35	13,33	21,68	22,14
11	13,08	7,29	4,51	7,29	9,69	5,59	9,28
12	12,08	10,43	16,43	5,68	14,29		
13	8,88	11,03	4,23	11,51	9,23		
14	23,31	20,90	17,98	12,59	14,55	27,24	8,90
15	8,99	8,19	9,61	14,29	7,30		
16	8,84	14,94	14,71	9,95	9,14	14,38	

LNA - areas measured in square meters

TABLE 5.1(b): SUMMARY OF YELLEN'S WINTER CAMP DATA arbitrary basis has to be used at PL 41 to set the boundaries). What this also means then is that if there has been re-occupation of the site, no more than three episodes of short duration are indicated. This conclusion is drawn by comparing the area of the PL41 LNAT with those recorded by Yellen. Similarly the area of the ALS in the Kalahari is an indication of the population size and length of occupation. However in the case of camps three and seven, both of which were occupied for virtually the same length of time and included one phase of re-occupation and had virtually the same populations, the ALS of camp three is almost double that of camp seven. From this it may be concluded that the ALS is not as useful an index for comparison as the LNAT.

The bedding patches that were identified along the rear wall of the shelter indicate that people slept singly, parallel to the wall and it is possible to relate the space represented by these hollows to numbers of people. To do this it is necessary to have some idea of the physical stature of the people who used these spaces. A number of skeletons have been recovered from sites in the western Cape and provide proof that populations who inhabited these areas were of Khoi-san type and probably not unlike the present 'Bushmen' of the Kalahari. Dart (1937) and later Wells (1960) both conducted projects to measure !Kung and other groups in the Kalahari. Assesment of these observations shows that the average height for the !Kung is 1579 mm and while data for other groups indicates that variation of up to two centimeters may occur, this is not expected to affect an assessment of the use of space to any substantial degree.

While sleeping posture varies and the different positions require varying amounts of space, if we assume that the average adult occupant of PL 41 slept on his/her side with feet extended then space required would be in the order of 1560 x 300 mm (see Neufert 1980:11). On this basis we can speculate that no more than four adults could be accommodated at any one time in the sleeping area. Although I have not mentioned children they can be expected to occupy approximately half the amount of space of an adult.

5.7 SUMMARY

Considering the observations about the sizes of !Kung camps and domestic units that have been discussed in this section there seems to be sufficient evidence to suggest that the site PL 41 was never occupied by more than two small families. If however the configurations of the artefactual and bedding distributions are also taken into account then it is suggested that no more than one family unit may have been responsible for producing the remains at the site. While the ethnographic examples also allow duration of occupation to be suggested it is more difficult to assess whether or not any revisits took place. To fully understand how much debris is generated in a single phase of occupation it will be necessary to investigate a site which preserves stratified occupation units.

CHAPTER 6

DISCUSSION: PL 41 IN ARCHAEOLOGICAL CONTEXT

Preceding chapters have dealt with the archaeological component of PL 41 and have attempted to analyse space use at the site in terms of ethnoarchaeological examples from the Kalahari in an attempt to understand group size and lengths of occupation. The object of this chapter is to place the site in the context of the wider research in the south western Cape and particularly to use the observations to help understand the distribution and number of small, occupied sites which date within the last two thousand years.

6.1 RESEARCH BACKGROUND

The last two decades have seen intensive archaeological research being conducted in a belt which extends from the west coast between Elands Bay and Lamberts Bay to the Karoo margins some considerable distance to the east. A summary of this research was recently presented by John Parkington (1987) as an introductory paper to the volume, Papers in the Prehistory of the Western Cape, South Africa. This publication resulted from a workshop held at the University of Cape Town in 1984 which sought to review the research which had been conducted up until that date and to discuss the directions that future research should follow. In order to understand the goals of the research presented in this thesis, it is considered necessary at this point to examine previous research and conclusions which have been drawn from it.

Work began in 1968 and at that time the objective was to excavate a sequence which would serve as a window for prehistoric settlement in the south-western Cape (Parkington 1987:4). Excavations were conducted the site of De Hangen in the mountains to the east of the Olifants River Valley (Parkington and Poggenpoel 1971) but shallow deposits at the site revealed only a short sequence. It nevertheless provided a sample in which the authors could identify seasonal use of the locality. These factors were responsible for a shifting of the emphasis from sequence oriented studies to that of reconstructing movement strategies across the landscape which were believed to be the result of fluctuating availability of key resources in differing ecological zones. Faunal and floral remains discovered during excavation of the coastal site of Eland's Bay Cave and Diepkloof Shelter some eighteen kilometres inland seemed to confirm the complementary nature of settlement between the Cape Fold Belt and coastal sites and led to the formulation of a seasonal mobility hypothesis (Parkington 1972, 1977b, 1987). Briefly, this hypothesis envisaged people living at the coast in winter and in the mountains during summer. It was realised that as it stood the hypothesis was oversimplifying a more complex situation. Firstly, it was unlikely that such settlement patterns would have persisted unchanged throughout the Holocene, and secondly, it was realised that sites in the mountains may have formed part of a seasonal cycle focussing on the interior rather than coastal regions.

In an attempt to clarify these problems, the research focus was shifted to the Olifants River Valley which was seen as a more likely eastern boundary for a seasonal cycle focussing on the coast. The reasons for suggesting this were based on resource availability. The Olifants River Valley and the mountainous areas bordering it are generally well watered, even during summer, and permanently flowing rivers and streams would have drawn the larger game animals to the area at this time. Seasonal spawning runs of freshwater fish occurred during the summer months as well and it was believed that this would have been an additional incentive to summer occupation of this region and might have led to aggregations of people. The sites of Andriesgrond and Renbaan were excavated in the hope that traces of the exploitation of freshwater fish would be found and the programme was expanded to locate rock art sites and stone artefact scatters with a view to understanding the overall use of the area rather than looking exclusively at sites which clearly represented domestic locations. Aspects of the rock art, particularly numerous depictions of large groups of people, seemed to confirm the aggregation theory although very few fish remains were recovered in the excavations.

It was becoming increasingly clear that patterning was evident in the debris discarded at the shelters which had been excavated both in the Olifants River Valley and elsewhere. Patterning consisted of bedding patches along the rear wall of the shelter, rich in iridaceous plant remains, with ash deposits towards the front. Similarities were also being recognised between the composition of the many open surface assemblages and assemblages from the upper layers of excavated shelters displaying the 'bedding and ash' pattern. These were rich in adzes and scrapers while fewer backed pieces were present. Cape coastal pottery (Rudner 1968) was present on both of these types of sites as well, though not in excavated deposits with dates earlier than approximately 2000 BP.

At the same time Aaron Mazel had been sampling open artefact scatters in the Sandveld (Mazel 1978) and had noticed that in contrast to open scatters in the Cape Fold Belt and Olifants River Valley, these contained high numbers of backed pieces and scrapers. He saw these sites as being contemporary with the inland assemblages and postulated that the different assemblages represented technological adaptions to the exploitation of the different resources which characterised the two zones and that these could be related to seasonal use of the areas. The Sandveld assemblages were believed to indicate a greater degree of hunting with backed pieces representing parts of composite hunting equipment whereas the adze rich assemblages of the mountains could be related to the maintainance of wooden digging implements used to remove edible tubers from the rocky soils of the mountainous zone. The numerous plant remains and wood shavings that were being found in excavations in the mountain sites seemed to confirm these assumptions.

During the Olifants River Valley survey, some large deflation bays similar to ones in the Sandveld were found on the alluvial plains at the confluence of the Doorn and Olifants rivers. Two of the assemblages found at De Neus, as this site has come to be known, resembled the Sandveld pattern having greater numbers of backed pieces and scrapers while another two more closely resembled mountain sites and had greater numbers of adzes. Since both types of assemblages were found in the same place it seemed to contradict the idea that technological adaption to specific resource utilization was responsible for the variations being observed between assemblages in the Sandveld and the mountains. This occurrence was explained as an indication that an overlap of exploitation strategies had occurred here, although Parkington (1980:78) speculated that temporal differences could also have been responsible the juxtapositioning of the two types of assemblage. Other researchers who reviewed the observations also considered time as having played a role in the deposition of these assemblages (Deacon J. 1980; Sampson 1980)

Thus, dating of the Sandveld assemblages needed to be addressed, for whereas open assemblages and talus scatters in front of shelters in the mountains could be relatively dated by the presence of pottery, dating of the Sandveld open sites was more problematic. Although pottery is present at some sites it is usually not in abundance suggesting that most of these assemblages dated to before the introduction of ceramics to the south western Cape. Little or no organic material was preserved making radiocarbon determinations impossible. In addition, no excavated sites in this zone had produced comparable assemblages from a stratified deposit prventing dating the deflation hollow assemblages by association. In 1981 a programme of excavation was begun at Tortoise Cave, a small shelter some five kilometers from the coast (Robey 1984). Though small, it contained a substantial deposit which began accumulating before the major occupational hiatus (approximately 8000 - 4000 BP), an event which had been observed in the deposits at Elands Bay Cave and later at Spring Cave as well. The Tortoise cave levels post-dating 4000 BP contained many backed pieces and scrapers with lower frequencies of adzes whereas deposits after 1700 BP have relatively few backed pieces. The change in the stone tool assemblages occurred simultaneously with the appearence of ceramics and domesticated sheep at this and other sites in the south-western Cape.

While these excavations were in progress another programme of research was instituted to sample hitherto unstudied assemblages on open sites and on talus slopes between the coast and interior Sandveld (Manhire 1987). A goal of this programme was to record rock art sites from the same area. Manhire recognised four assemblage types (1984:76-78) though only two of these are relevant to this discussion. These were termed the 'deflation hollow assemblages' and the 'talus slope assemblages'. The latter is synonomous with small, deposit bearing shelters frequently encountered in the rocky koppies which occur in the Sandveld. These are characterised by relatively higher numbers of adzes compared to scrapers and pottery is almost always present, while backed pieces are virtually absent. The deflation hollow assemblages have already been described and no new ones were found that had different assemblages to those noted by Mazel. The fact that adzes were being recorded on these sites was contrary to the model proposed by Mazel (1978) and Parkington (1980) although compared to sites in the Cape Fold Belt, adze numbers were still rather low. Nevertheless, it indicated that the type of settlement that was represented by the mountain scatters was duplicated in the Sandveld and appeared to have taken place sometime after the advent of pastoralism in the area. The locations of deflation hollow sites in low-lying, near coastal, riverine environments, differed from the locations of the talus slope scatters and appeared to represent a different settlement pattern. Comparing the assemblages with those from Tortoise Cave it seems as if the deflation hollow assemblages were deposited between 4000 and 3000 BP but according to Manhire the time span for this settlement is likely to have persisted up until approximately 1700 BP (1984:87). The presence of pottery at some deflation hollows is seen as a palimpsest of later occupation superimposed on the earlier ones, a fact which seems to be strengthened by the observation that pottery is more likely to occur in deflation hollows closer to rocky outcrops.

The settlement patterns in the Sandveld can be summarised as follows:- Prior to 8000 BP occupation focussed on large caves such as Elands Bay Cave. Changes in diet can be observed during this period from a predominantly terrestrial diet to one in which marine foods played a greater role and can be related to rising sea levels which brought the coast close to its present position during this time. Increasing aridity of the area between 8000 and 4000 BP was responsible for occupation focussing elsewhere for this period and when populations returned when the climate had ameliorated, settlement was concentrated in the deflation hollows. A shorter occupational hiatus between 3000 and 2000 BP is noticed in occupied shelters. It seems as if during this time interest was focussed on the coastline where a number of large 'megamiddens' dating to this period have been found and are probably partially synchronous with deflation hollow settlement. After

1700 BP a further significant shift in occupational focus took place with settlement concentrating on shelters in relatively high-lying rocky outcrops, accompanied by changes in the types and frequencies of stone tools. During this time the first appearrance of pottery and domesticated animals is noted and is seen as being directly related to the influx of pastoralists who were now occupying the lower lying plains (Parkington et al 1986).

Only three excavated sites in the mountains have deposits predating 5000 BP namely Klipfonteinrand (Thackeray 1977), Aspoort (Smith and Ripp 1978) and Renbaan Cave (Kaplan 1987). In other words these caves were occupied during the hiatus in the Sandveld and along the coast implying that although conditions may have been more severe than at present, occupation was sustained in the mountains. In contrast to the rarity of sites during this time and in the following two millenia, the period after 2000 BP is marked by a significant increase in the number of sites. Numerous domestic locations are noted and excavated sites such as De Hangen, Renbaan Cave, Andriesgrond and more recently Putslaagte 41 have deposits of the 'bedding and ash' type and, while many other examples are known, they have not yet been excavated. These are often identifiable by the deposits inside the shelters or by the scatters of material which lie outside in which the presence of pottery and adzes particularly are noticed.

Many rock art sites have been located in both the Sandveld and mountains, often occurring in clusters around shelters with deposits of the bedding and ash type. There has been a growing realisation that these sites are part of the settlement pattern of the post-2000 BP period and that apart from the distributional information which can be deduced, the presence of large numbers of depictions allows comment to be made about the social conditions prevailing at the time. Since the first structured rock art sampling took place (Maggs 1967, 1971), great advances have been made in the interpretation of the meaning of the depictions and their role within the society (Lewis-Williams 1981, 1982). Subsequent rock art surveys in the two zones of the research area (Manhire 1980; Van Rijssen 1980; Golson 1984; Halkett 1987) have shown similarities in the content of the sites not only in this area but with sites in other areas of southern Africa. The significance of the correlation between painted sites and domestic locations becomes clearer when the reasons for a floreat of paintings such as is represented here are considered. Parkington et al. (1986) see the increase of painting as an indication of increased ritual behaviour amongst residual hunter-gatherers. This behaviour can be attributed to a combination of social and ecological stress which occurred as a direct result of the influx of pastoralists into the south western Cape around 2000 BP.

6.2 SOCIO-ECONOMIC CHANGES

Now that we are in the position to know more accurately the temporal differences between the assemblages in the deflation hollows and the adze dominated sites in the mountains, this does not detract from the assessments that have been made about the economic activities that are represented by the different tool kits (Mazel 1978; Mazel and Parkington 1979,1981; Parkington 1980). Assemblages with high frequencies of backed pieces are presumed to reflect an economy in which hunting of large and medium game was an important part, while adze rich assemblages and associated plant food waste reflect an economy in which plant foods played a greater role. The absence of great numbers of backed pieces on the latter suggests that hunting of large game was no longer practised to the same extent as before. Research in the Sandveld has suggested that collection of marine organisms, particularly molluscs, was increasing. The black mussel (<u>Choromytilis meridionalis</u>) for example seems to have been collected in large numbers between 3000 and 2000 BP in all probability by groups who were occupying the deflation hollows at this time (Buchanan 1986; Manhire 1987).

In contrast to the greater numbers of large and medium antelope species represented at Elands Bay cave before 9000 BP, the period after the hiatus is marked by much lower numbers (Klein and Cruz-Uribe 1987). Post-hiatus layers at Elands Bay cave and Tortoise cave indicate that the emphasis had shifted to the exploitation of small and medium bovids and greater numbers of hyraxes (<u>Procavia capensis</u>) are also noticed. After 2000 BP large and medium bovids in faunal samples are the exception rather than the rule while the remains of small bovids, hyraxes and tortoises are abundant and occur along with edible plant remains. Similar trends are evident in the faunal lists from sites in the mountains such as Renbaan cave and De Hangen. During this period the remains of domesticated sheep appear at some sites such as Tortoise Cave, DiepKloof and De Hangen and are associated with the appearance of pottery.

Thus it is clear that dietary changes occurred after 2000 BP which saw greater emphasis being placed on smaller food parcels. The fact that such changes occur at approximately the same time as the appearance of domesticated sheep and pottery is seen as highly significant. The current view is that pastoralists had moved into the lower lying areas of the western Cape where good grazing could be found and had displaced both hunter-gatherers and their prey who had previously ranged freely over these areas. Hunter-gatherers were forced to seek sustenance in the higher lying, less attractive Koppies and mountains where the nutrient poor soils could not support large herds of game for extended periods of time (Moll 1987:125). It would therefore seem that the change in diet can be related to an adaption to the areas that were now being occupied. Although the occasional large and medium bovid is found in the faunal lists, many small antelope particularly <u>Raphicerus sp.</u> are represented. These can survive in most environments and being non-gregarious they occupy individual territories. This habit means that they are more difficult to hunt in conventional ways. It has been suggested that nets were used to trap these animals, (though they may also have been caught with snares), and examples of this technique depicted at some rock art sites in the mountains have been reported (Manhire et al 1985). If this is the case then it means that dietary shifts were accompanied by technological adaptions which as we have seen is also reflected in the stone tool assemblages.

While the substitution of one food source by another may not have affected the overall intake, more effort was probably required to gather these foods. The greatest impact, however, was likely to have been felt in the area of social relationships. Ethnographers studying the Kalahari San have stressed the important role of hunted large game animals in ensuring group cohesion through meat sharing (Wiessner 1977; Lee 1979; Katz 1982). It has also been noted that smaller food items are not usually shared beyond the immediate nuclear family and are therefore not as significant in social terms. It has been shown in Chapter two that the extent of sharing and the need for monitoring such sharing is responsible for the spatial layout and orientation of nuclear family units in !Kung camps and differences observed between layouts of dry season aggregation camps and wet season dispersed camps can be ascribed to variations in the diet. It is suggested that similar ritual and social significance was attached to the meat of large and medium bovids in the Holocene of the south western Cape and that changing circumstances after 2000 BP caused severe disruption to the status quo.

6.3 SETTLEMENT AND POPULATION

Alongside dietary shifts after 2000 BP there was also a rescheduling of occupation. Whereas in the previous two millennia occupation focussed on open deflation bays in the Sandveld and Olifants River Valley, later occupation focussed mainly on small shelters with open talus slopes in front of them. Not all sites dating to this period contain large deposits. The greater percentage contains only very ephemeral scatters of artefacts or rock art or combinations of these. As such these probably represent very short, temporary occupations whereas sites with deep deposits indicate periods of longer use or palimpsests of visits which have refocussed on particular localities i.e. De Hangen, Renbaan Cave, Andriesgrond, PL 41 etc. Although it has been suggested that smaller groups were the norm during the late period (Manhire 1987:93), it is difficult to gauge group size prior to this time. Though deflation hollows are larger and do not place physical restraints on settlement, the large assemblages of stone tools found here are also likely to represent palimpsests of a number of occupations of such localities. Since the number of such bays is limited, reoccupation is more likely to have occurred in these localities and we must consider the possibility that seasonal aggregation of a number of smaller groups may have occurred here. Consequently, we cannot assume that larger groups are represented by these settlements.

Although the archaeology prevents us from determining whether or not aggregation and dispersal were part of the settlement pattern in the south-western Cape during the late Holocene, this should not prevent us from examining the Kalahari ethnographies. These document such behaviour and allow us to look at the way in which settlement manifests itself in the two phases. We have already examined these settlement patterns in detail in Chapter two utilising results of research conducted by Yellen (1977) and Brooks et al (1984). While concentrating on the dispersed phase of the traditional settlement pattern Yellen also describes the larger aggregated sites. We have also seen that differences between the arrangement of domestic units in the two phases can be related to inter-visibility of neighbours particularly during sharing of the meat of large game animals that have been communally hunted. In more recent years observations have showed that changes to the traditional pattern of settlement have occurred in the Kalahari as a result of experimentation with other economic systems particularly where these involve hoarding behaviour.

Both the dispersed traditional pattern and the present day long term encampments display similarities which are not evident in the large, traditional aggregated camps. These similarities are noticed in the degree to which inter-visibility is diminished. Whereas in the traditional system this is due to a lower degree of sharing based on the size of the food parcels being collected, in the latter case lowered inter-visibility is due to lack of sharing and breakdown of group cohesion brought about by hoarding of personal goods and foodstuffs. An important fact which is evident in the demographics of small post-2000 BP sites in the south western Cape is the physical constraints which would have been imposed on groups choosing to occupy them. The spatial information from PL 41 has demonstrated that occupation of the site is unlikely to have composed of more than two small nuclear families. The spatial distribution of artefacts has also demonstrated that no external structures were erected on the talus area in front of the shelter and thus no extra occupants were accomodated in this area. Examination of the sizes of other excavated sites and the distribution of bedding patches inside the shelters, shows that all of these could only accomodate small numbers of people and which if compared to the Kalahari observations represent the smallest groups in dispersed cycle camps (see Liengme 1987 for diagrams of these sites). Thus in the period after 2000 BP no site yet excavated on its own represents a situation resembling an aggregated camp as has been observed in the Kalahari except perhaps the deflation hollows of the Sandveld. These however have not been yet been examined in a way which will allow speculation of this point and in any event these appear to have limited temporal continuity. This could imply one of three things. Firstly, aggregation took place in the open where large numbers of people could be accomodated, or secondly aggregation consisted of much smaller numbers of people and thus is not recognised as such. Thirdly, it is possible that aggregation no longer took place at predetermined times of the year. If one accepts that some social disruption had occurred then it is unlikely that the occasions at which ritual and other social events took place remained unchanged. Social occasions may have occurred on an ad hoc basis with varying numbers of people and may only have been of short duration.

Lyn Wadley (1987) has attempted to address the problem of aggregation and dispersal by way of evidence from a number of excavated sites in the Transvaal. She feels that the two phases will be recognisable from the different artefact sets that will be deposited on sites within these phases. The recognition of the different assemblages relies heavily on the assumption that aggregation sites will be used for ritual activity whereas dispersal sites will not. Thus identification of quantities of ritual objects in the assemblage are sufficient for this evaluation. As far as other parts of the assemblage go however she states: "On the stone tool evidence alone, there is so much variation between the sites that it is difficult to decide on their status as aggregation and dispersal sites" (1987:60). Wadley has furthermore assumed that aggregation involves large groups camping for a period of time at the same location and states :"One potential disadvantage of the aggregation hypothesis is that the shelter (Jubilee shelter) is small and it is not easy to visualise a large group of comfortably accommodated in it" (1987:58). She goes on to assume that the terrace outside the shelter would have been used as extra camping space. It has been shown that at PL41 the terrace was not used for camping. As has been pointed out in chapter 5 of this thesis spatial organisation cannot be assumed on the basis of a cursory visual inspection. Having failed to make an assessment of the social/spatial organisation of her sites makes it difficult to assess the potential of Wadley's hypotheses to understanding aggregation and dispersal.

The food remains commonly found in post-2000 BP deposits in the western Cape suggests that diet consisted largely of the types of foodstuffs which would not be shared beyond the nuclear family, as has been shown for the !Kung. If this situation was, as has been suggested, the result of people having been restricted to an area where the diversity and occurrence of large and medium game animals was greatly reduced, it may mean that foraging of smaller food parcels may have been taking place on a greater scale than previously. The fact that food with greater ritual and social significance had all but been removed from the exchange networks may have significantly changed group structure as a whole. In other words settlement may have taken the form of the dispersed phase of the Kalahari for protracted periods and when aggregation did take place, it may have occurred in a different form to what we have come to expect i.e. inter-visibility was no longer necessary resulting in wider spacing of nuclear family units. If we accept that aggregation may not be motivated by ecological reasons alone and that it is a required event during which ritual activities and exchange of personnel take place, then such locations must be present in the archaeological record although in a very different form to the one that we have come to expect. Clustering of sites observed in the Putslaagte (Halkett 1987) could therefore be explained as palimpsests of occupation recurring in a particular area but may also represent an aggregation of nuclear families occupying different rockshelters.

The great number of paintings found in and around domestic locations in the Cape Fold Belt and the Sandveld is believed to point to an increase in ritual behaviour necessitated by the increased stress that was felt by hunter gatherers after the advent of pastoralism (Parkington et al 1986). An increase in ritual practises has been observed amongst foragers in the Kalahari who work as labourers on farms in the Ghanzi district (Guenther 1976 a & b). Parkington et al (1986:316) note that ritual events such as the trance dance "allow participants and spectators alike to protest adverse conditions, release pent-up frustrations, emphasise feelings of fellowship and bolster a sagging communal self image". The increase in ritual activity in societies under some form of stress has been predicted by Laughlin and D'Aquili (1979:280 in Parkington et al 1986:314). Thus it seems likely that the influx of pastoralists into the south-western Cape resulted in some form of stress for foraging groups and that the increase of ritual activity is manifested in the great number of rock paintings which seem to date after 2000 BP. Although no similar depictions are found in the Kalahari this is likely to be the result of the lack of rocky outcrops. Paintings are found where such features are present i.e. Tsodilo Hills (Manhire, pers comm). If ritual activity in the Kalahari was accompanied by painting this must have occurred on other surfaces e.g. ostrich eggshells.

Another scenario suggested as an explanation of the Putslaagte site clustering is that the shelters are contemporaneously occupied shelters of nuclear families who formed part of a slightly larger group envisaged as being of the order of a group which would be found in one of Yellen's winter camps. For reasons which have already been presented such groups may no longer have felt the need to cluster closely together. This is possible when we consider that similar clusters have been noticed in other parts of the research area.

6.4 HISTORICAL OBSERVATIONS

As can be seen in Table 6.1 , many of the excavated sites have deposits which overlap with the early colonial period. It is for this reason that the accounts and observations of European explorers travelling into the interior are considered pertinent to evaluating

SITE	LAB NO.	DATE BP	MATERIAL	LEVEL
ANDRIESGROND	Pta-2482	430 ± 50	charcoal	Main Ash Conc.
	Pta-2480	1640 ± 50	charcoal	Charcoal Flecked
DE HANGEN	Pta- 167	90 ± 50	charcoal	Grass Layer
	Pta- 346	390 ± 45	bedding	Grass Layer
	Pta- 125	380 ± 45	charcoal	Main Ash Conc.
	Pta- 188	450 ± 45	charcoal	Main Ash Conc.
DIEPKLOOF	Pta-1055	390 ± 30	bedding	Second Bedding
	GaK-4597	1590 ± 45	bedding	Grass Layer
	GaK-4595	1590 ± 45	charcoal	Main Ash Conc.
RENBAAN	Pta-3768	1150 ± 50	bedding	Bedding Patch 3
	Pta-3783	1910 ± 60	charcoal	Orange Speckle
PUTSLAAGTE 41	Pta-4230	230 ± 50	bedding	Bedding 1
	Pta-4229	1900 ± 50	charcoal	Brown Soil

TABLE 6.1: RADIOCARBON DATES FROM SELECTED EXCAVATED SITES IN THE SOUTH WESTERN CAPE.

and elucidating some of the speculations based on the archaeological remains.

Observations made by Portuguese seafarers in the two centuries prior to the Dutch occupation of the Cape in 1652, and later by the Dutch themselves, attest to the presence of an already established pastoral economy in the south western Cape by this time (Smith 1984:131). Parkington (1984) has examined some of the literature relating to the Dutch period and has pointed out that frequent inconsistencies in the terminology referring to the indigenous inhabitants point to the existence at this late stage of history of at least two distinct social groups. The group most often encountered and often actively sought out, possessed large herds of cattle and sheep while the other group when they are mentioned appear not to have had any. They are described as living by hunting of small game and collecting plant food (Schapera and Farrington 1933:1-33, in Parkington 1984:161). The latter were often encountered in the mountains whereas the former inhabited the plains between the coast and the Cape Fold Belt mountains. As greater interaction took place between colonists and the pastoralist groups they had begun to be referred to by their specific names i.e. Namaqua, Chariguriqua etc. whilst the foraging groups were referred to collectively as Soaqua or Sonqua (Parkington 1984:156). After 1700 AD the social boundaries became blurred. By this time, frontier farmers acting in contravention of the policies of the Dutch East India Company had begun trading stock with the various northern pastoralist groups and as time went by trading gave way to forced removal of stock. This situation led to open conflict resulting in the eventual decimation and subjugation of the pastoralist society as it had existed before this time (Penn 1987). It would seem that the blurring of the social boundaries was the result of such action in that pastoralists who had lost their stock and were unable to aquire new herds via reciprocal relationships with other groups, resorted to a lifestyle reminiscent of the Soaqua and took to stealing cattle from colonists and remaining pastoralists alike.

Parkington has further noted that in the earlier observations clear distinctions can be made between the groups on the basis of physical attributes, language and material goods (1984:159-162). Some passages also allude to the sizes of groups and the way in which camps were organised. Soaqua are referred to as small people who hunt with bows and poisoned arrows, whose language was full of clicks and who were known to inhabit low huts made of branches as well as caves. They were intimately aquainted with the routes through the mountains and are seldom mentioned as having possessed any stock. Pastoralist groups however are recorded as having possessed large herds of domesticated stock. Further, there are few records of pastoralists which point to any great amount of hunting being carried out nor of specific hunting equipment such as bows and arrows being carried as standard equipment. They inhabited large camps made up of a number of mat-covered huts arranged in a circle. In one such account as many as 73 such huts are noted in one camp. There is also mention of people without stock acting as messengers. These people lived on the periphery of such camps and suggest that client relationships existed although whether these were with Soaqua, or with herders who had lost their stock, is uncertain.

This short summary points to there being distinct and noticeable differences between the indigenous inhabitants of the south western Cape and suggests that two main groups existed. It seems that the groups who occupied the mountains and rocky outcroppings were hunter-gatherers and much of the archaeological remains in these areas can be attributed to these people. It should however be stressed that what European observers were seeing was a situation which was the result of hunter-gatherers having to adapt to an increasingly pastoralist dominated landscape after 1800 years ago. Ironically, the arrival of the colonial powers marked the beginning of the process which saw pastoralist people (and residual hunter-gatherers) having to adapt to colonial domination probably in much the same way as hunter-gatherers had had to adapt to the arrival of pastoralists. Within a relatively short space of time european colonisation was to lead to the almost total dissolution of these two indigenous social systems as they had existed before this time.

CHAPTER 7

CONCLUSION

One of the primary goals of this project was to demonstrate spatial patterning of archaeological remains on a site in an area known as the Putslaagte. This site is one of a number of similar localities that was recognised during fieldwork in 1981. These sites were identified as domestic locations on the basis of the archaeological remains that were found and since these domestic locations were found to occur in clusters, some explanation was sought as to the social and temporal conditions that may have given rise to such clustering. Spatial patterning was understood to be a way of looking at numbers of people who had occupied the sites as this was crucial to understanding group dynamics. Prior to this investigation it was not possible to show that occupation, or rather domestic activity, was limited to the shelter and that no domestic structures had been erected on the terraces in front of the caves. It was important to know this as group size at individual sites affected our understanding of site clustering. This investigation was considered relevant to archaeological research in the south western Cape as a whole since sites and site clusters dating to the same period are found throughout the area which has for some two decades formed the focus of research for the Department of Archaeology at the University of Cape Town. Excavations and artefact plotting were conducted in 1985 at a site called PL 41 to examine these aspects.

Domestic sites are recognised by the consistent manner of spatial arrangements of the remains, particularly those inside the caves and shelters. These take the form of bedding hollows and hearth deposits and frequently these deposits are accompanied by large scatters of artefacts on the terraces which lie in front of the shelters. Radiocarbon dating of a number of these sites that have been excavated show that they date after 2000 BP. It has been recognised that at about this time a major shift in the focus of settlement of hunter-gatherers took place, probably as a result of pastoralism being introduced to the south western Cape. These settlement changes were accompanied by dietary shifts characterised by an increase in the plant component and a shift in emphasis from large and medium game animals to smaller species such as steenbok, dassies and tortoises for the meat component. Up till now it was accepted that the greater number of adzes found on these sites represented some technological adaption to the altered circumstances of settlement and its accompanying dietary changes. Recently though, excavations at Klipfonteinrand 2 (Nackerdien 1989) has suggested that adzes are present in assemblages dating back to 3400 BP in the south western Cape. Whilst this early date is consistent with the appearence of adzes in sites along the southern Cape coast, for example Byneskranskop 1 (Schweitzer and Wilson 1982), it is very early for the area under discussion in this thesis. We will need to examine more sites with deposits extending back to the mid-Holocene before we will fully understand the implications of this occurrence.

While archaeological remains can impart a certain level of information about group size, they will never on their own be sufficient to promote an understanding of the complex relationships which exist between sites. Modern ethnographic studies of the !Kung San conducted over the last thirty or so years have provided examples of social factors at work in determining the spatial layouts of campsites. Yellen's work has been particularly useful as he has mapped a number of these camps in detail as well as providing information on the length of occupation and group size. His work has proved valuable to understanding patterns of debris found at PL 41. Subsequent analyses of the assemblage has showed that spatial patterning of artefacts could be identified and these patterns when considered alongside the ethnographic observations made it possible to more accurately assess group size and also length of occupation.

Analysis of the literature pertaining to the !Kung showed that as a result of contact with other societies, the traditonal ideology and social structure have undergone certain changes and these can best be seen in the way camp layout has deviated in some ways from the traditional pattern. Dietary shifts have accompanied the changes as people increasingly herd domesticated stock. It was felt that the changes that have taken place in the Kalahari could be used as an analogy of changes that occurred in the south western Cape after the introduction of pastoralism. It has been assumed that the increase in the number of rock art sites after this time were due to an increase of ritual activity as residual hunter-gatherers were subjected to increased levels of ecological and social stress. They were increasingly denied access to large and medium game, which apart from the dietary implications, formed an important part of exchange networks which maintained group cohesion. We have seen that !Kung camp plans, where the meat of large game is shared, differ from those where the emphasis is on individually collected food items. Food debris on archaeological sites after 2000 BP more often than not resemble the food in the Kalahari which is seldom shared beyond the nuclear family. We have seen that the traditional pattern of movement of the !Kung is cyclical with nuclear families aggregating around water holes in the summer but dispersing during the winter months. Since the site PL 41 resembles a dispersed phase campsite in the Kalahari we have to pose the question of whether aggregated camps are recognised in the archaeological remains in the south western Cape duplicating the cyclical movement of San in the Kalahari.

A number of scenarios were put forward in the introduction to this thesis as to what might have given rise to clusters of domestic sites. One of these suggested that clusters might represent aggregations of a number of families. The fact that the pattern of aggregation differs substantially from the pattern observed in the Kalahari may be due to changes in the social structure of groups as a result of dietary shifts particularly in the sense that ritual sharing was no longer occuring and thus inter-visibility was no longer a necessary factor in camp layout. Radiocarbon age determinations lack the precision required to test the theory that site clusters are the result of simultaneous occupation rather than a palimpsest of a number of temporally discreet visits. Our only chance for resolving this issue would be to excavate more sites within the clusters and conduct an intensive refitting programme looking particularly for refits between the different sites. While refits of pottery, stone and ostrich eggshell would suggest links, one would not be able to rule out the possibility that these could occur without simultaneous occupation being represented. People could have picked up and re-used items found in an unoccupied site. Our best chance of resolving the issue would be if we could find body parts of individual animals distributed amongst the sites. While this may seem to contradict the hypothesis that sharing was diminished, it is not impossible to imagine that if a large game animal was caught it would have been shared in the traditional manner.

Thus, in the absence of these types of links it remains impossible to distinguish between the hypothesised scenarios of occupation advanced in Chapter One. The precise temporal relationships between sites will have to be investigated in the future if we are to fully understand human settlement patterns and population size in the late Holocene.

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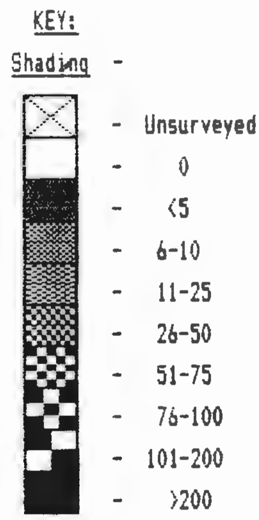
APPENDIX 1.

LISTING OF DENSITY PLOTS

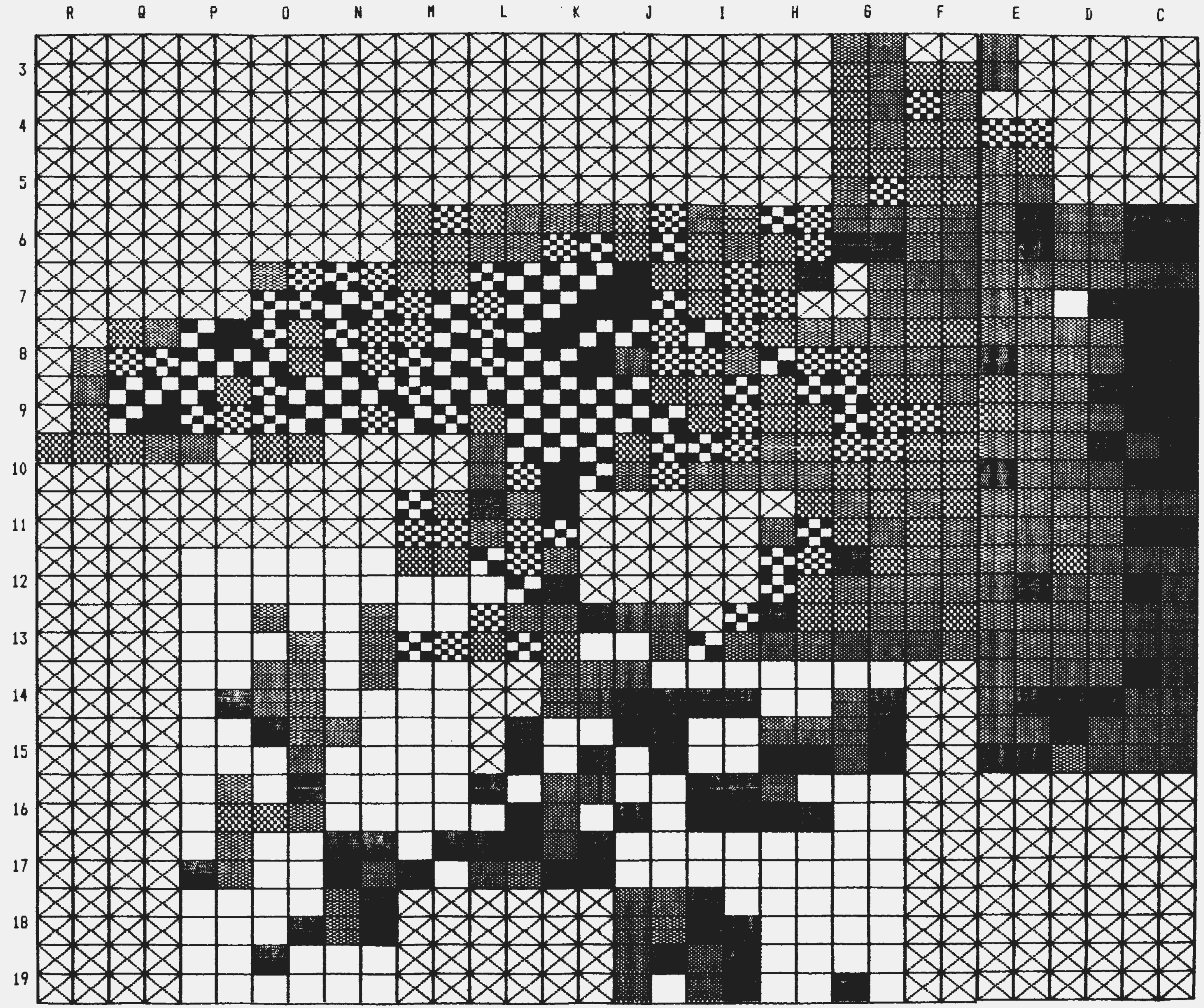
1. ALL ARTEFACTS : COMBINED RAW MATERIALS
2. ALL ARTEFACTS : QUARTZ
3. ALL ARTEFACTS : HORNFELS
4. ALL ARTEFACTS : CCS
5. ALL ARTEFACTS : QUARTZITE
6. ALL ARTEFACTS : SHALE
7. ALL ARTEFACTS : SILCRETE
8. ALL ARTEFACTS : PHILLITE
9. ALL ARTEFACTS : HAEMATITE
10. CHIPS : COMBINED RAW MATERIALS
11. CHIPS : HORNFELS
12. CHIPS : QUARTZ
13. CHIPS : CCS
14. CHIPS : QUARTZITE
15. CHIPS : SHALE
16. CHIPS : PHILLITE
17. CHIPS : SILCRETE
18. CHUNKS : COMBINED RAW MATERIALS
19. CHUNKS : QUARTZ
20. CHUNKS : HORNFELS
21. CHUNKS : CCS
22. CHUNKS : QUARTZITE
23. CHUNKS : PHILLITE
24. CHUNKS : SHALE
25. CHUNKS : SILCRETE
26. FLAKES : COMBINED RAW MATERIALS
27. FLAKES : HORNFELS
28. FLAKES : QUARTZ
29. FLAKES : QUARTZITE
30. FLAKES : CCS
31. FLAKES : SHALE
32. FLAKES : SILCRETE
33. FLAKES : PHILLITE
34. ALL CORES : COMBINED RAW MATERIALS
35. CORE IRREGULAR : COMBINED RAW MATERIALS
36. CORE IRREGULAR : QUARTZ
37. CORE IRREGULAR : HORNFELS
38. CORE IRREGULAR : CCS
39. CORE IRREGULAR : QUARTZITE
40. CORE BIPOLAR : COMBINED RAW MATERIALS
41. CORE BIPOLAR : QUARTZ
42. CORE BIPOLAR : HORNFELS
43. CORE BIPOLAR : CCS
44. CORE BIPOLAR : SHALE
45. CORE BLADELET : COMBINED RAW MATERIALS
46. CORE SINGLE PLATFORM : COMBINED RAW MATERIALS
47. BLADELETS : COMBINED RAW MATERIALS
48. BLADELETS : QUARTZ
49. BLADELETS : HORNFELS
50. BLADELETS : CCS
51. BLADELETS : SILCRETE
52. BLADES : COMBINED RAW MATERIALS

53. UTILIZED FLAKES : COMBINED RAW MATERIALS
54. UTILIZED FLAKES : HORNFELS
55. UTILIZED FLAKES : QUARTZ
56. UTILIZED FLAKES : CCS ,
57. UTILIZED CHUNKS : COMBINED RAW MATERIALS
58. MRP : COMBINED RAW MATERIALS
59. MRP : HORNFELS
60. MRP : QUARTZ
61. MRP : CCS
62. ALL BACKED PIECES : COMBINED RAW MATERIALS
63. ADZES : COMBINED RAW MATERIALS
64. ADZES : HORNFELS
65. ADZES : CCS
66. SCRAPERS : COMBINED RAW MATERIALS
67. SCRAPERS : QUARTZ
68. SCRAPERS : CCS
69. SCRAPERS : HORNFELS
70. SCRAPERS : SILCRETE
71. OCHRE
72. QUARTZ CRYSTALS
73. LOWER GRINDSTONES
74. OSTRICH EGGSHELL : FRAGMENTS
75. OSTRICH EGGSHELL : UNFINISHED BEADS
76. OSTRICH EGGSHELL : BEADS
77. OSTRICH EGGSHELL : WATER CONTAINER FRAGMENTS
78. POTTERY : COMBINED SAMPLE
79. POTTERY : UNDECORTATED RIMS
80. POTTERY : DECORATED RIMS
81. POTTERY : UNDECORATED FRAGMENTS
82. POTTERY : DECORATED FRAGMENTS
83. MARINE SHELL : ALL FRAGMENTS
84. BONE : COMBINED SAMPLE (INCL TORTOISE CARAPACE)

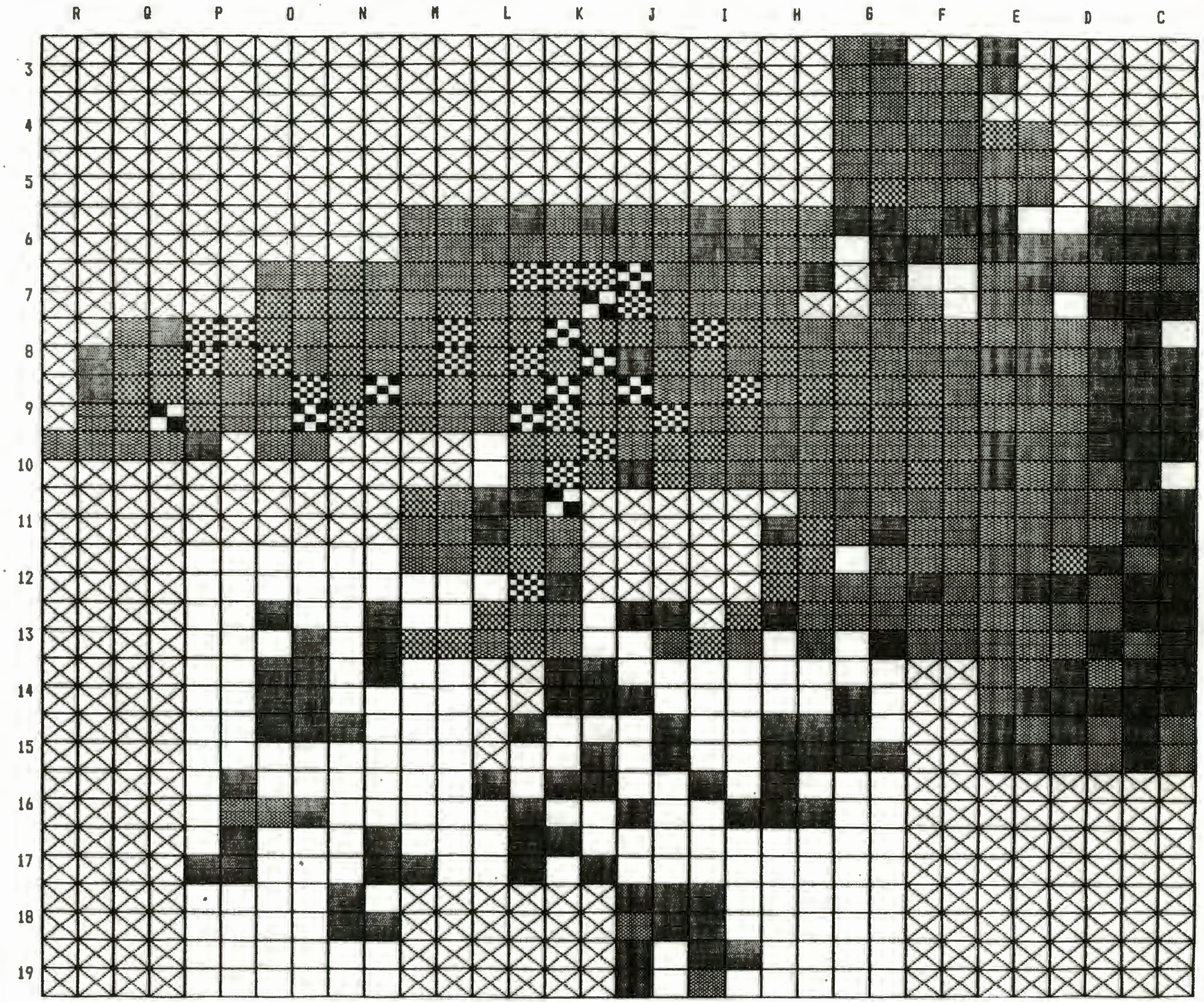


Key to shading on density plots - density expressed as number of artefacts per 50 x 50 cm quadrat.

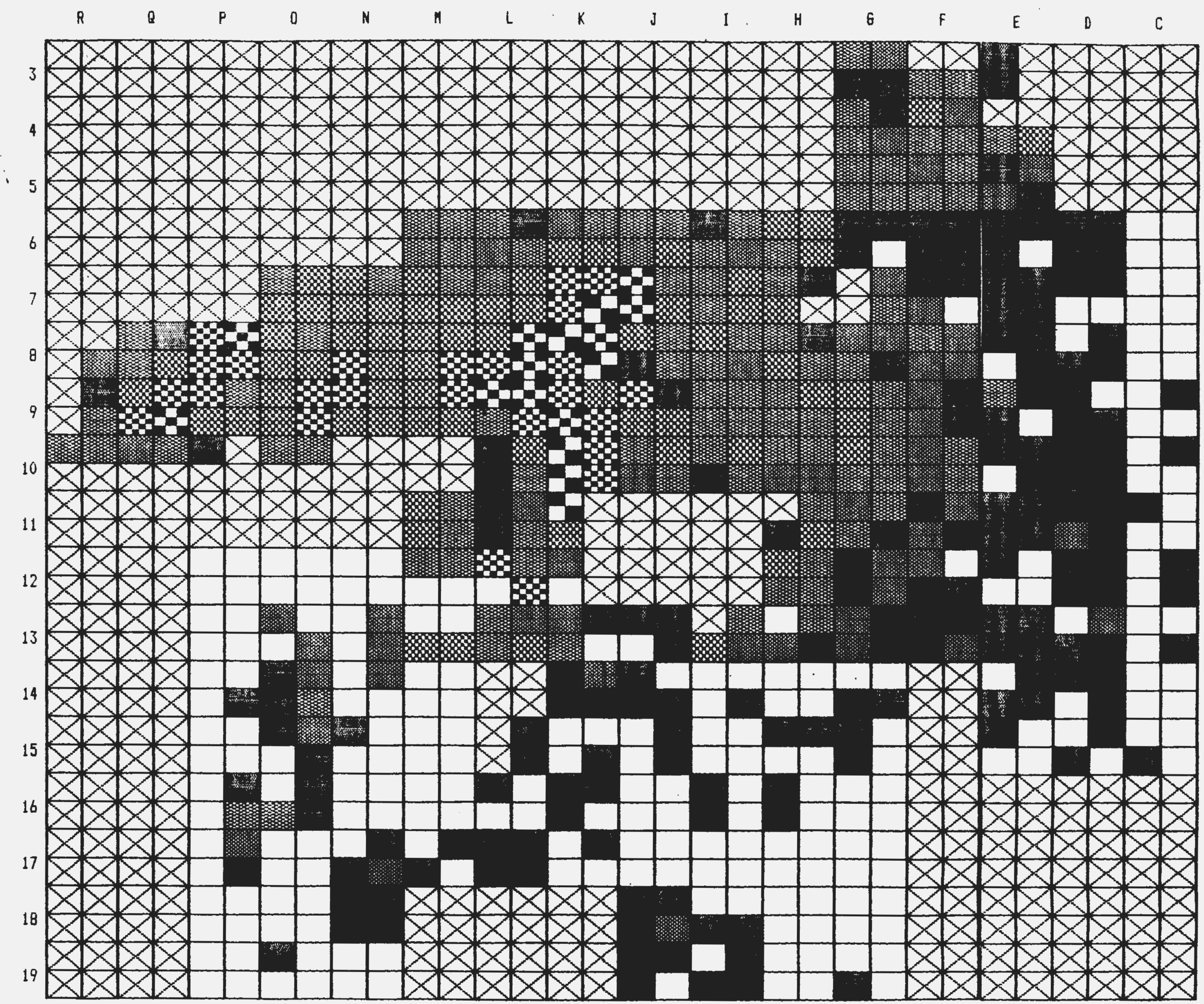
(Transparent overlay showing position of the shelter and rocks on the density plots can be found in the holder attached to the rear cover.)



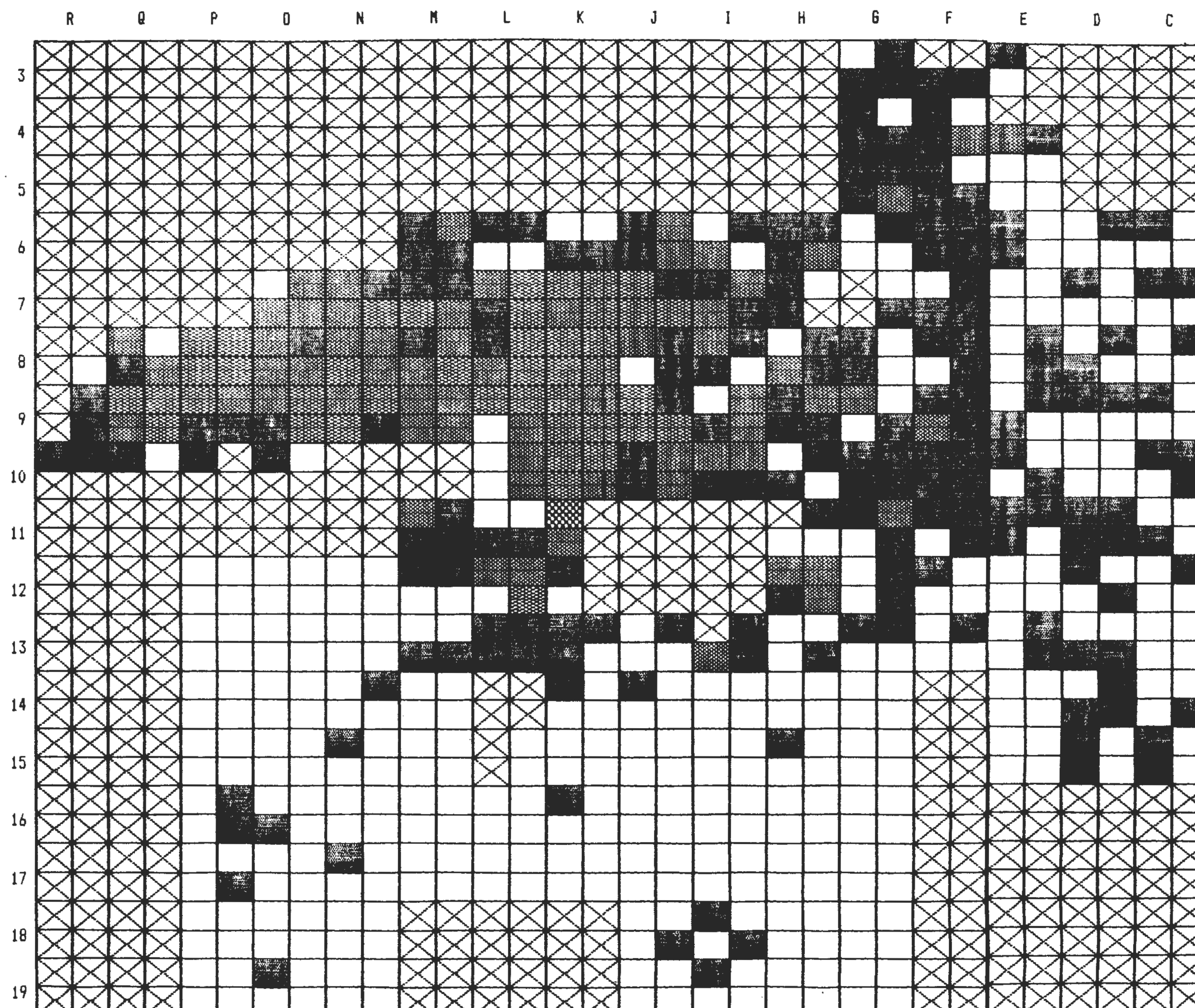
1. ALL ARTEFACTS : COMBINED RAW MATERIALS $n = 19666$



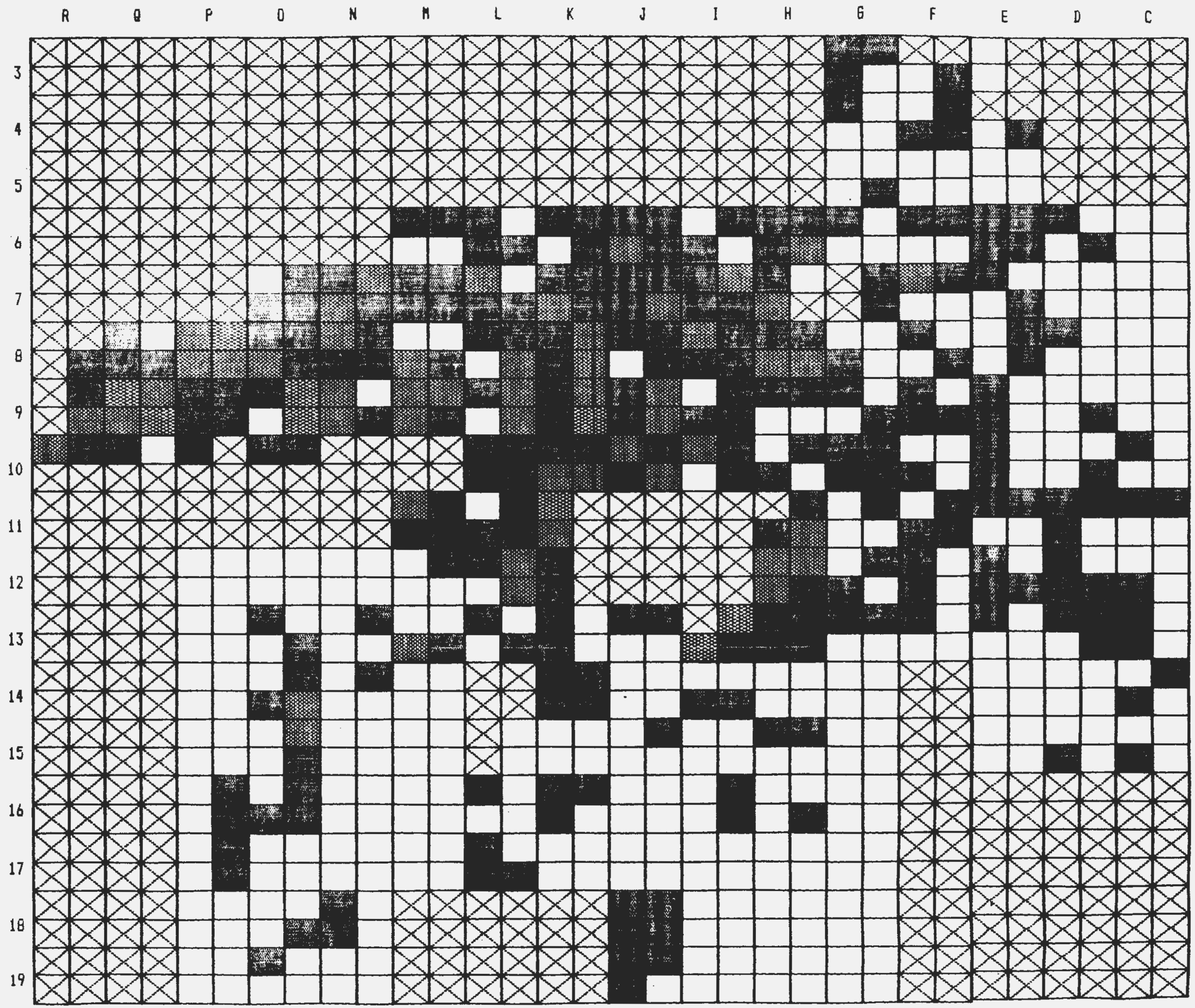
2.ALL ARTEFACTS : QUARTZ n = 7711



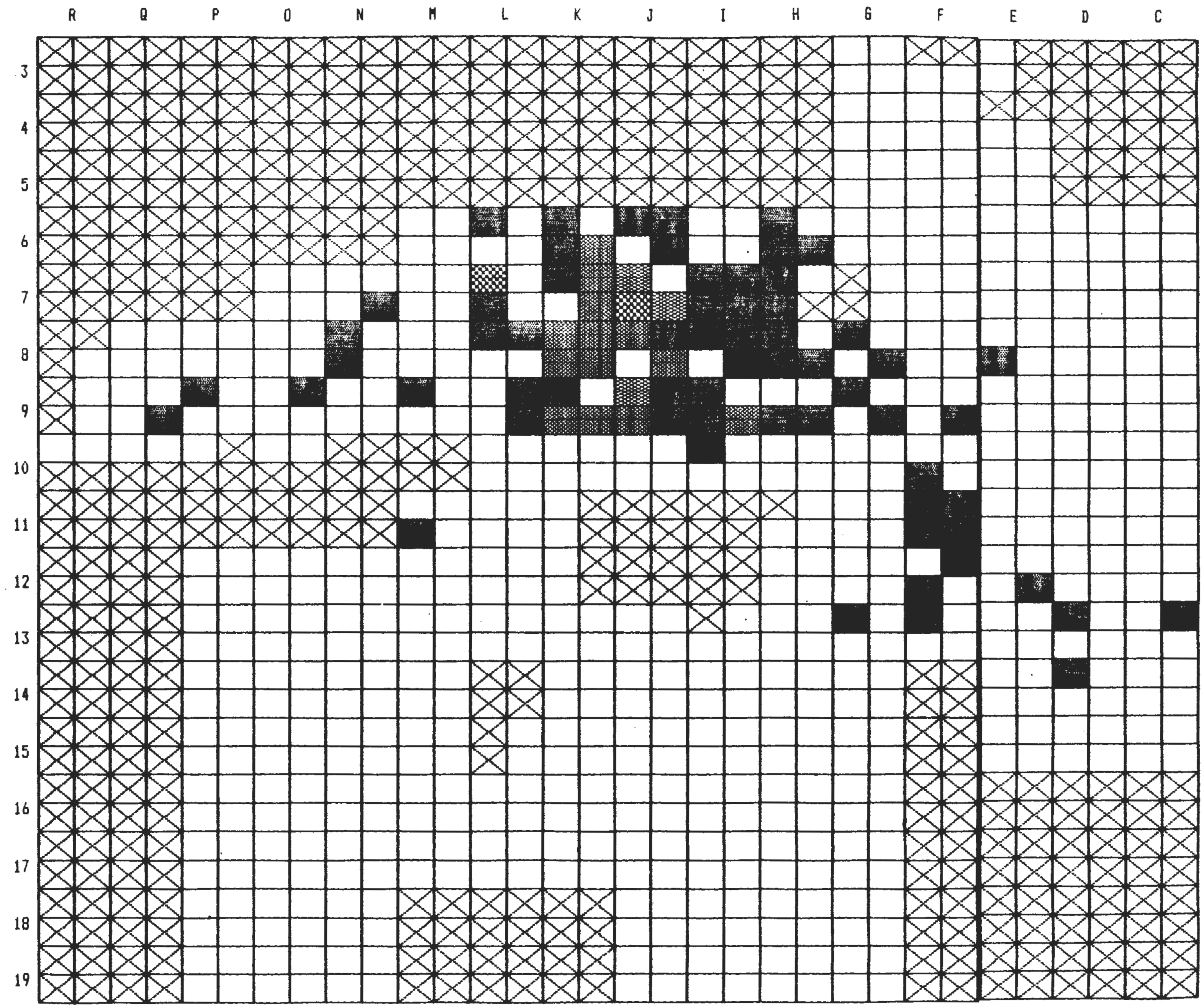
3. ALL ARTEFACTS : HORNFELS $n = 7701$



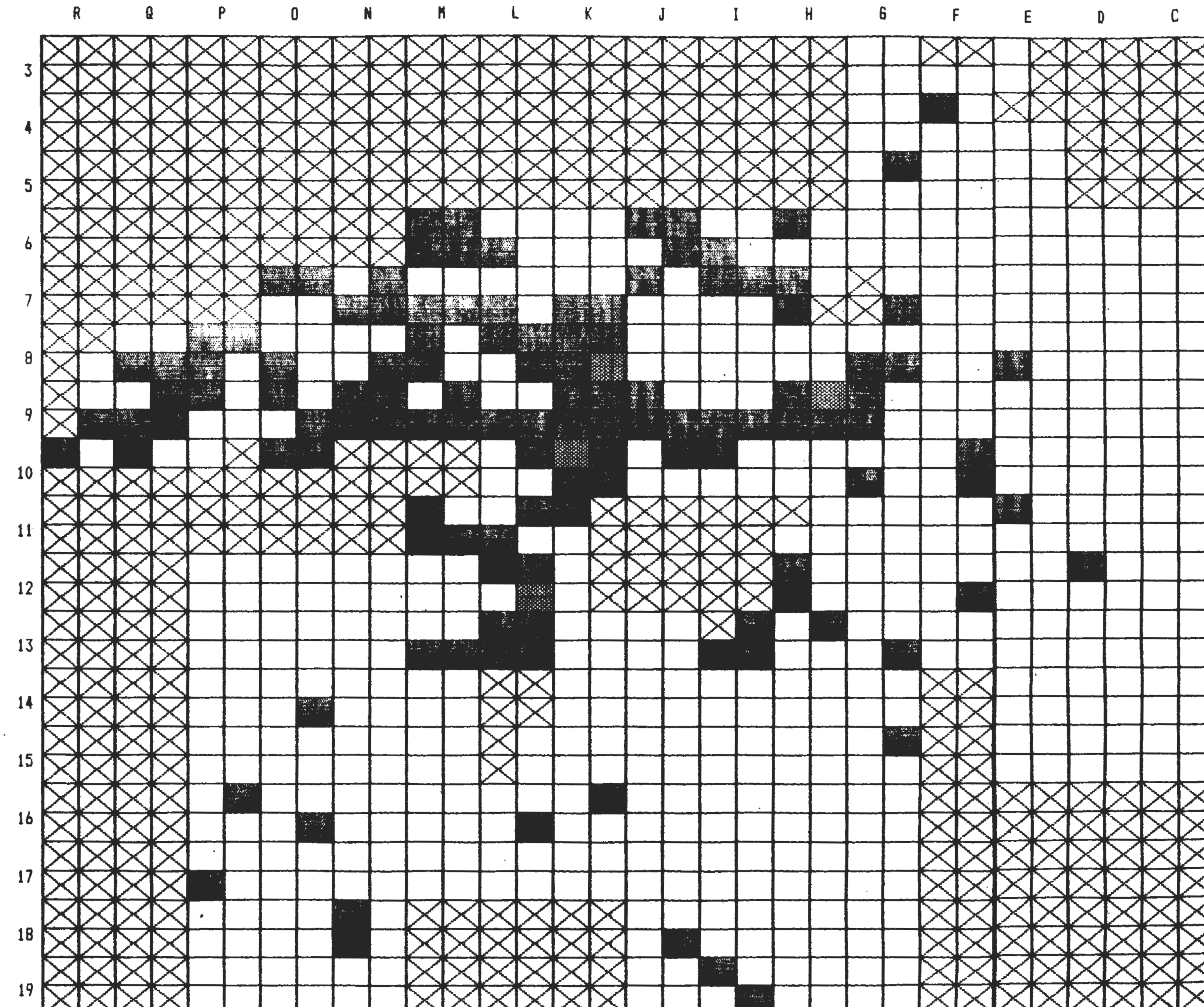
4 ALL ARTEFACTS : CCS n = 1401



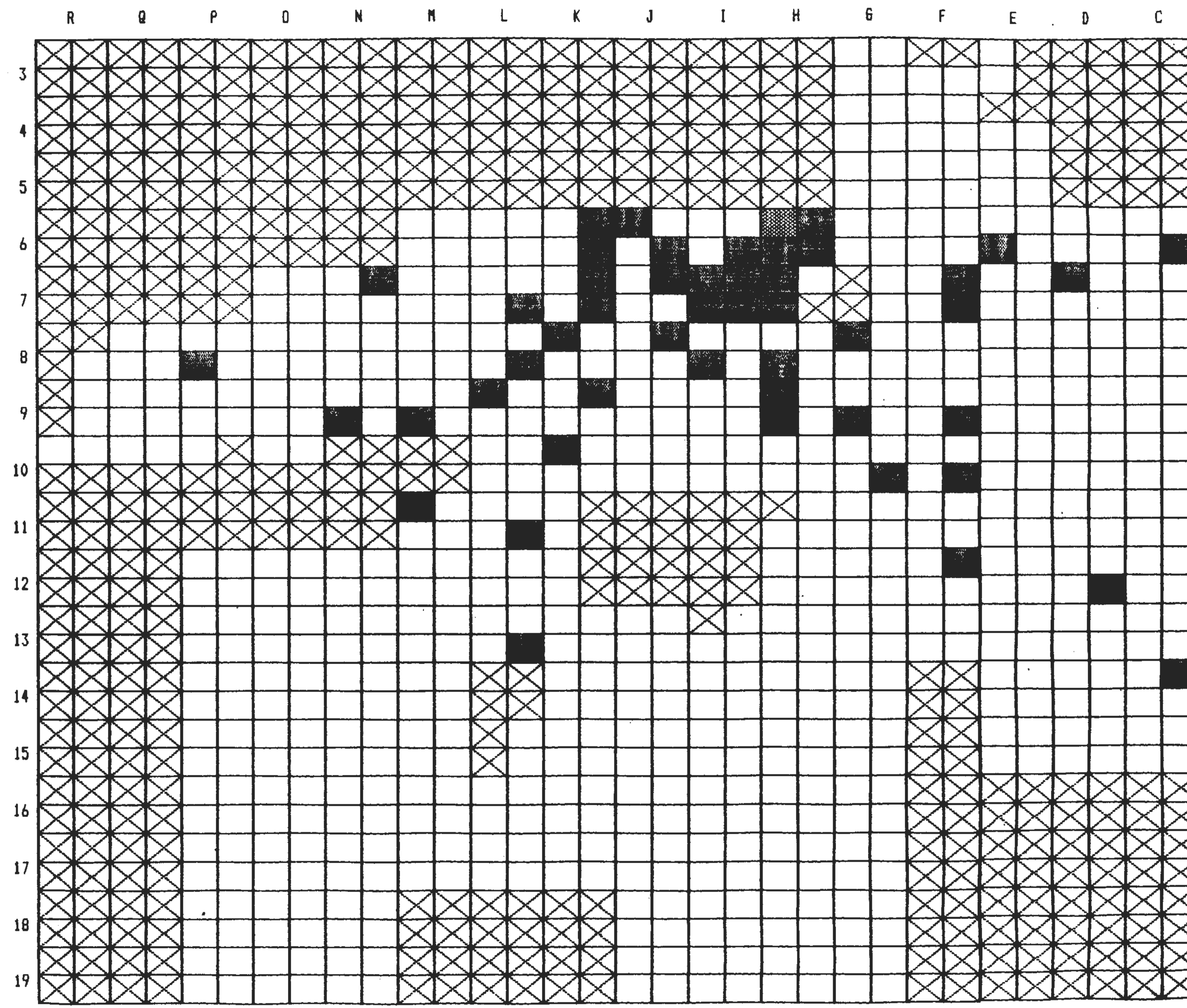
5 ALL ARTEFACTS : QUARTZITE n = 905



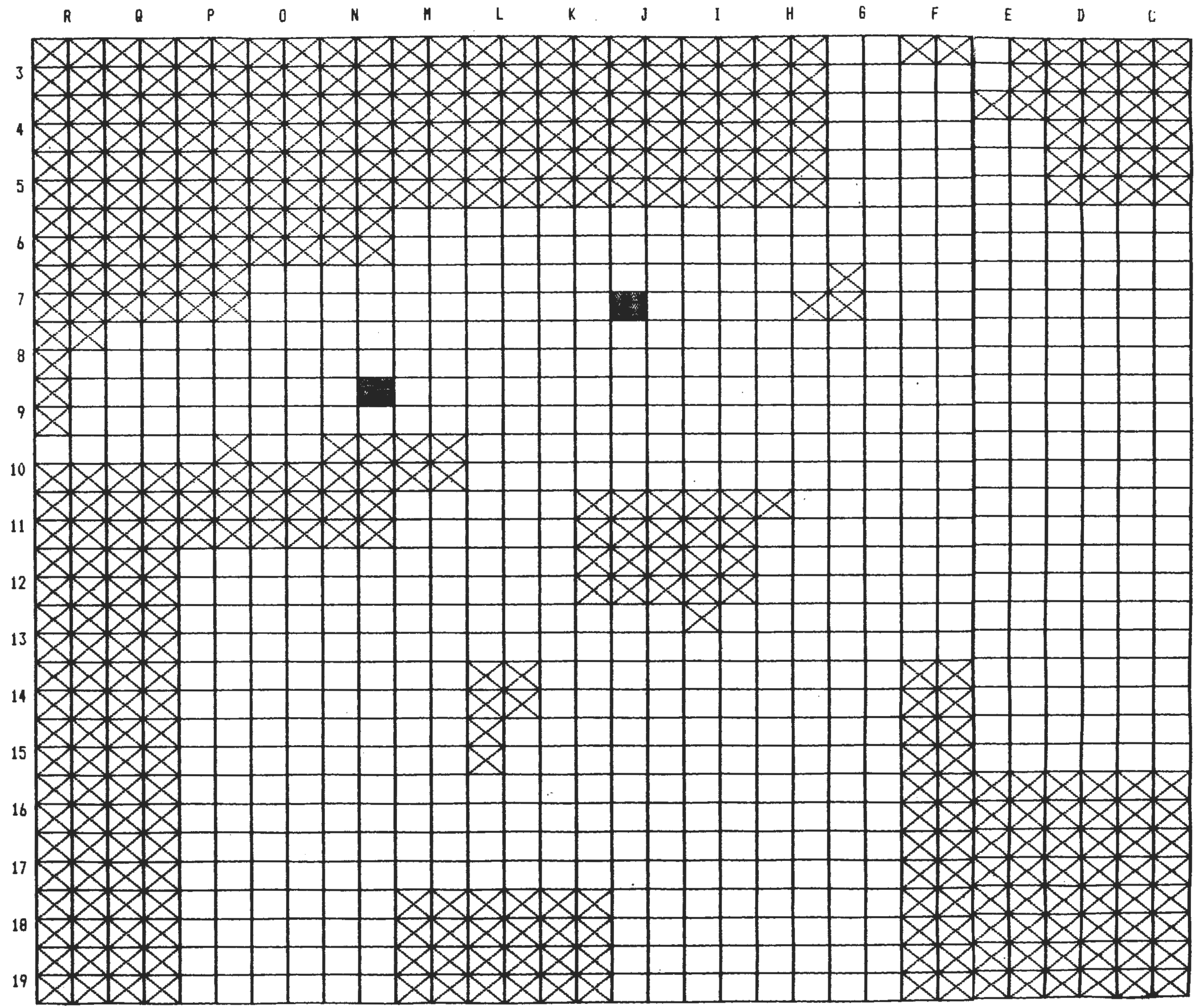
6 ALL ARTEFACTS : SHALE n = 299



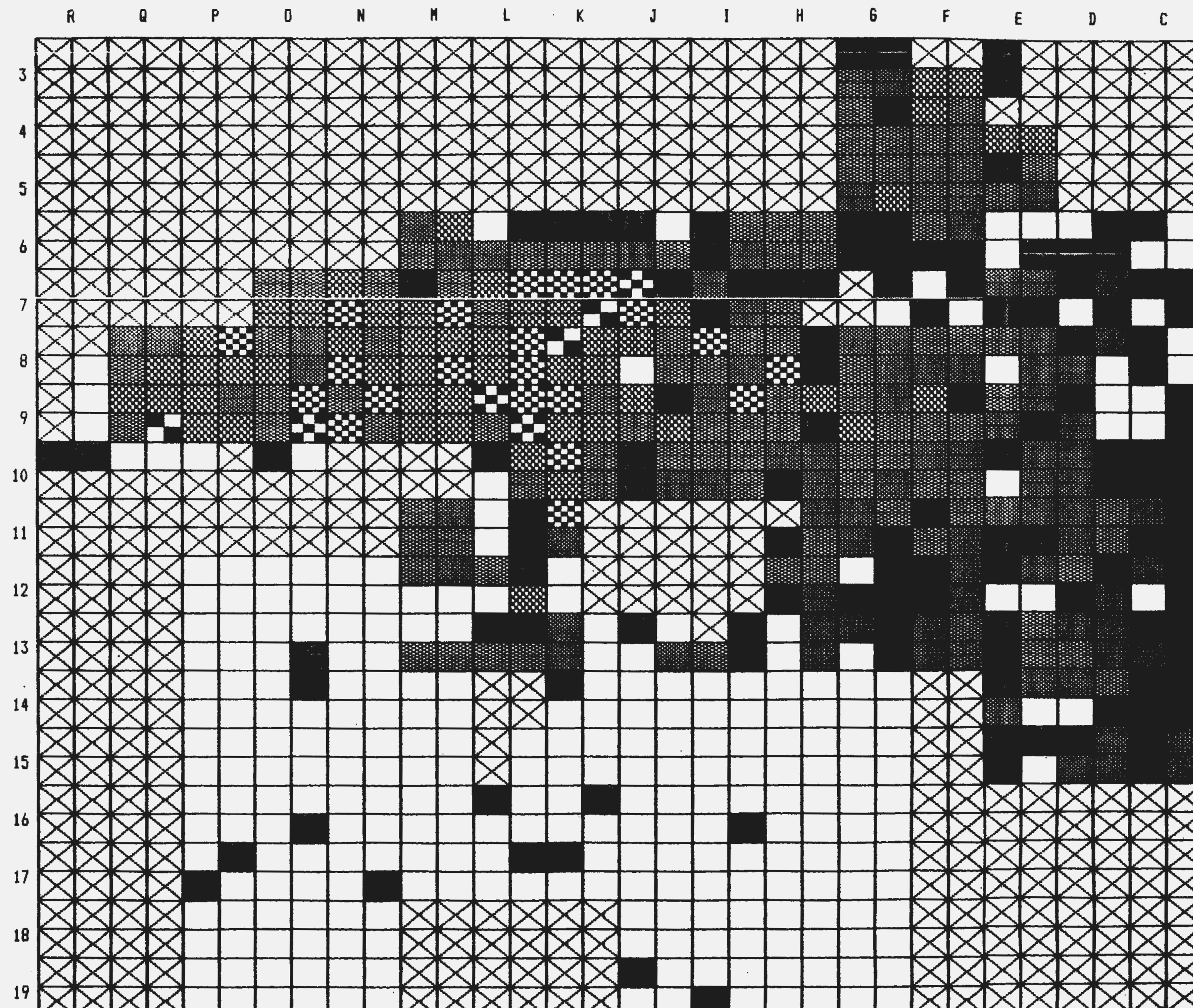
7 ALL ARTEFACTS : SILCRETE n = 192



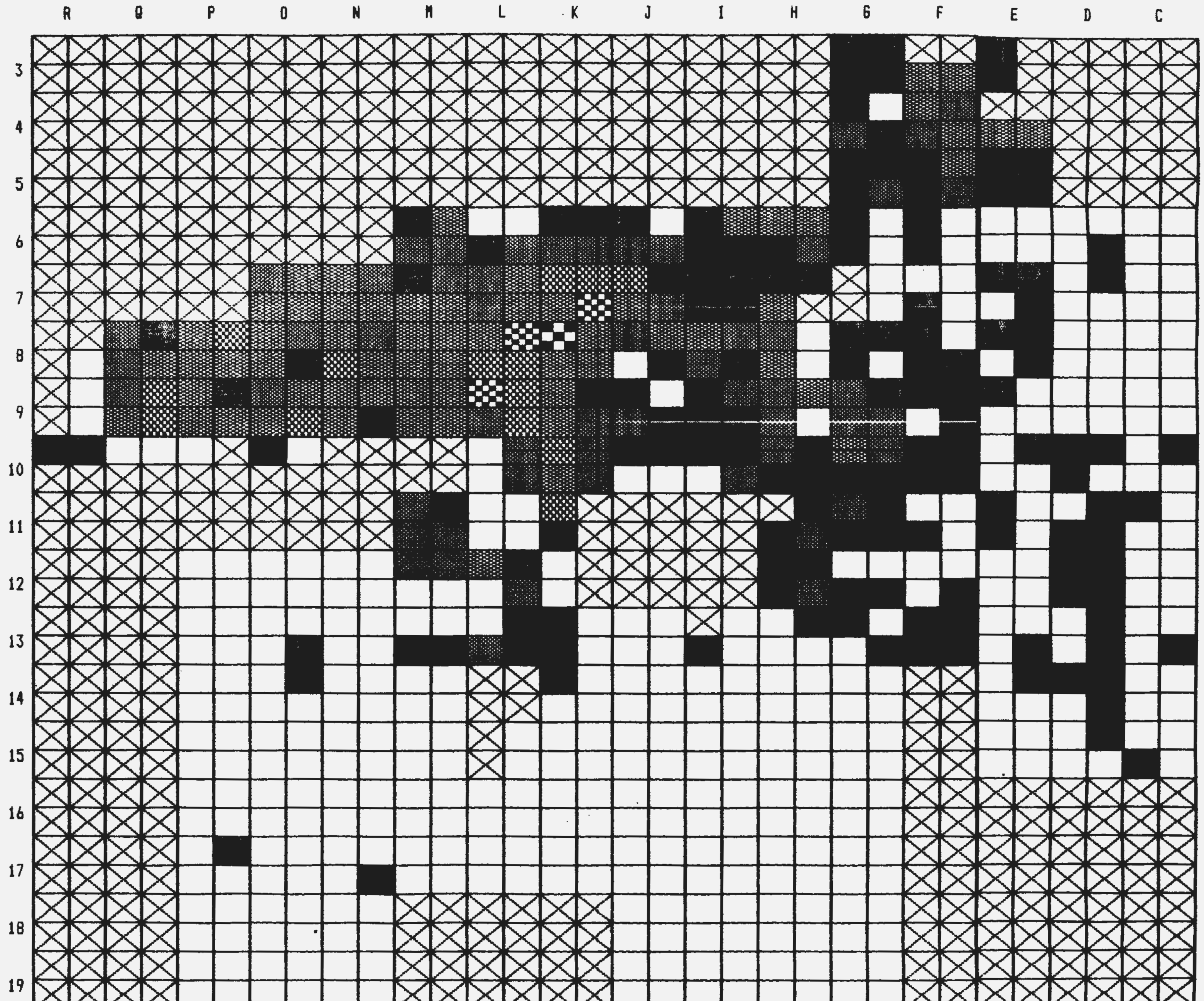
8 ALL ARTEFACTS : PHILLITE n = 65



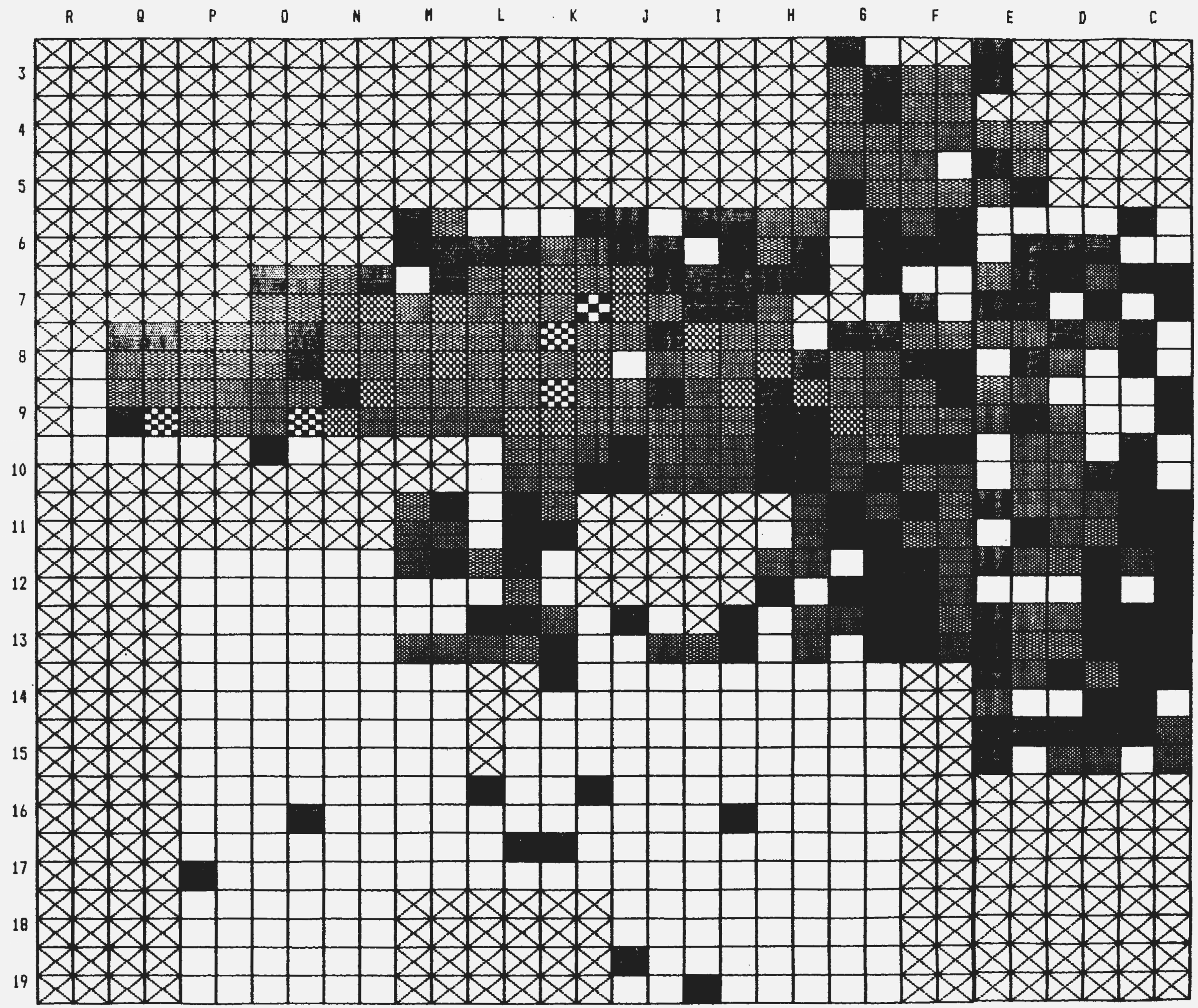
9 ALL ARTEFACTS : HAEMATITE n = 2



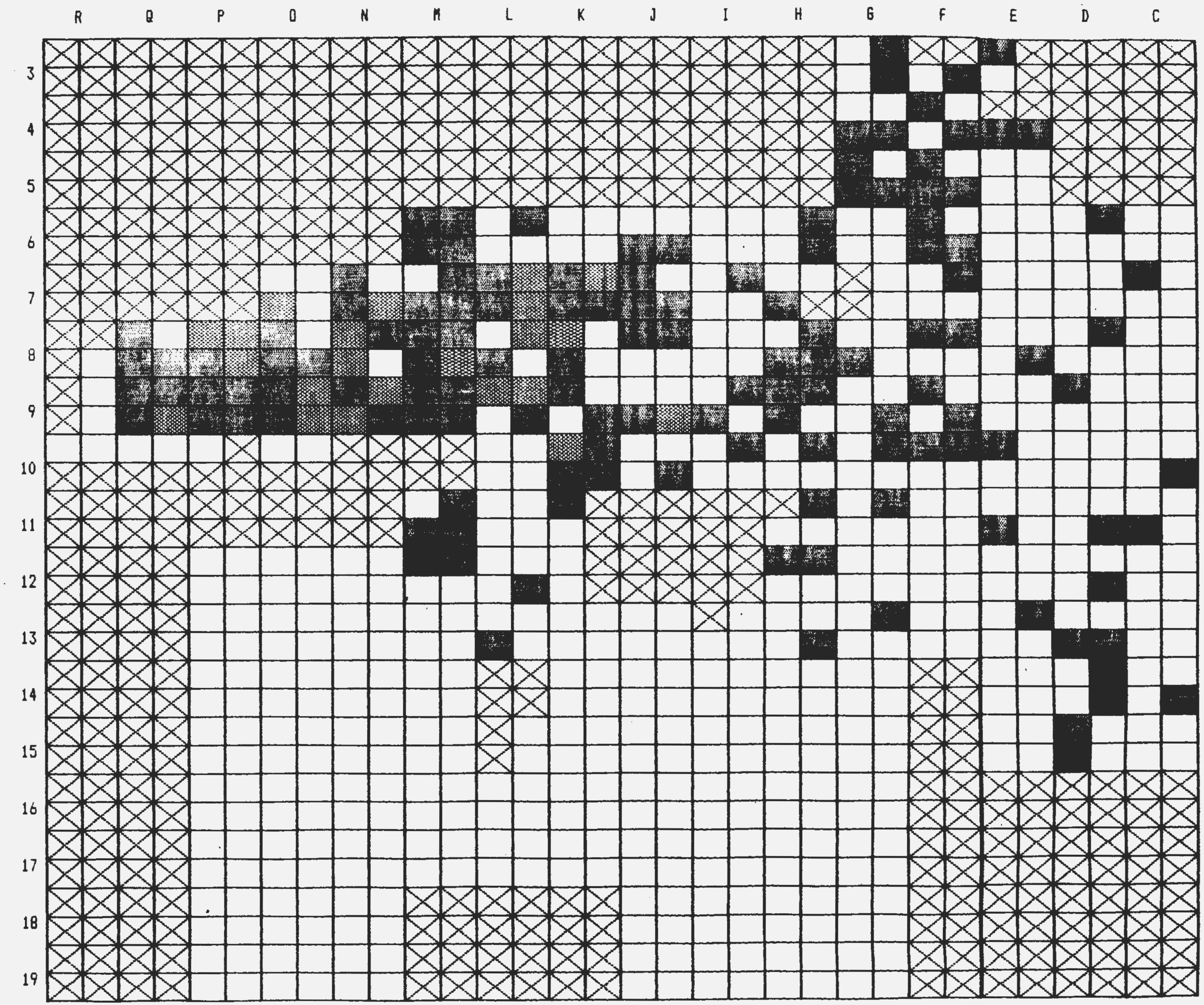
10 CHIPS : COMBINED RAW MATERIALS n = .6123



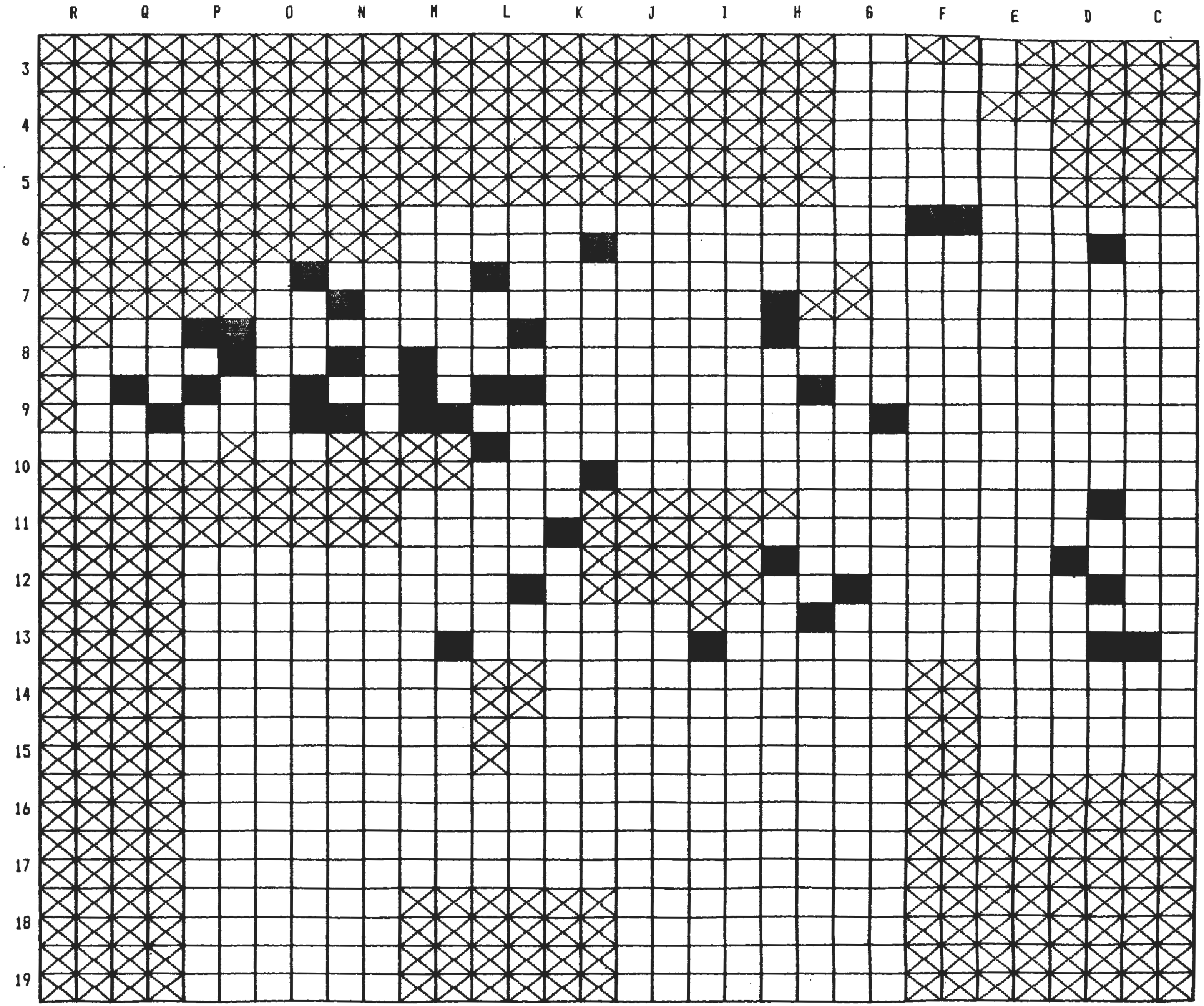
11 CHIPS : HORNFELS n = 2336



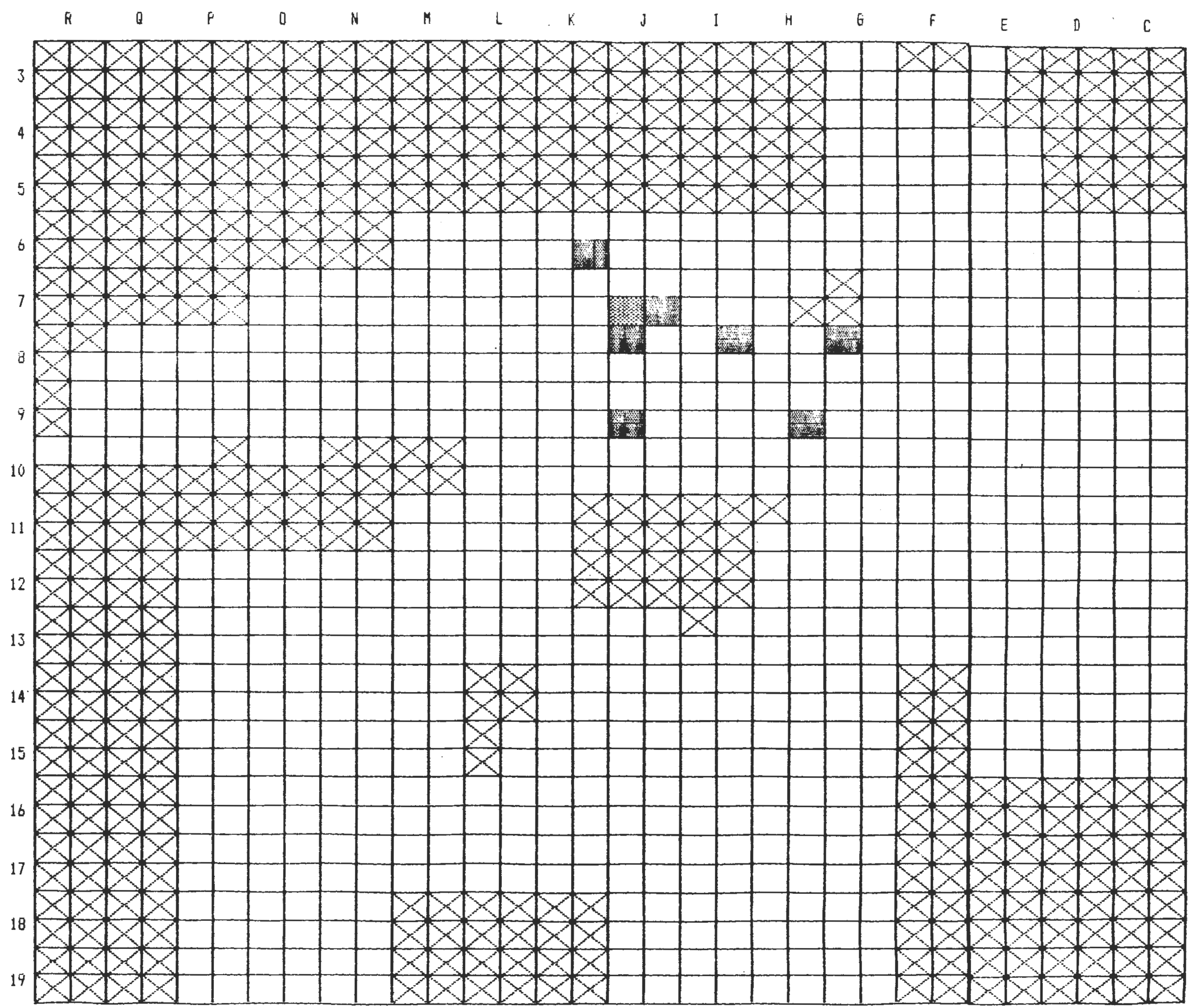
12 CHIPS : QUARTZ $n = 3304$



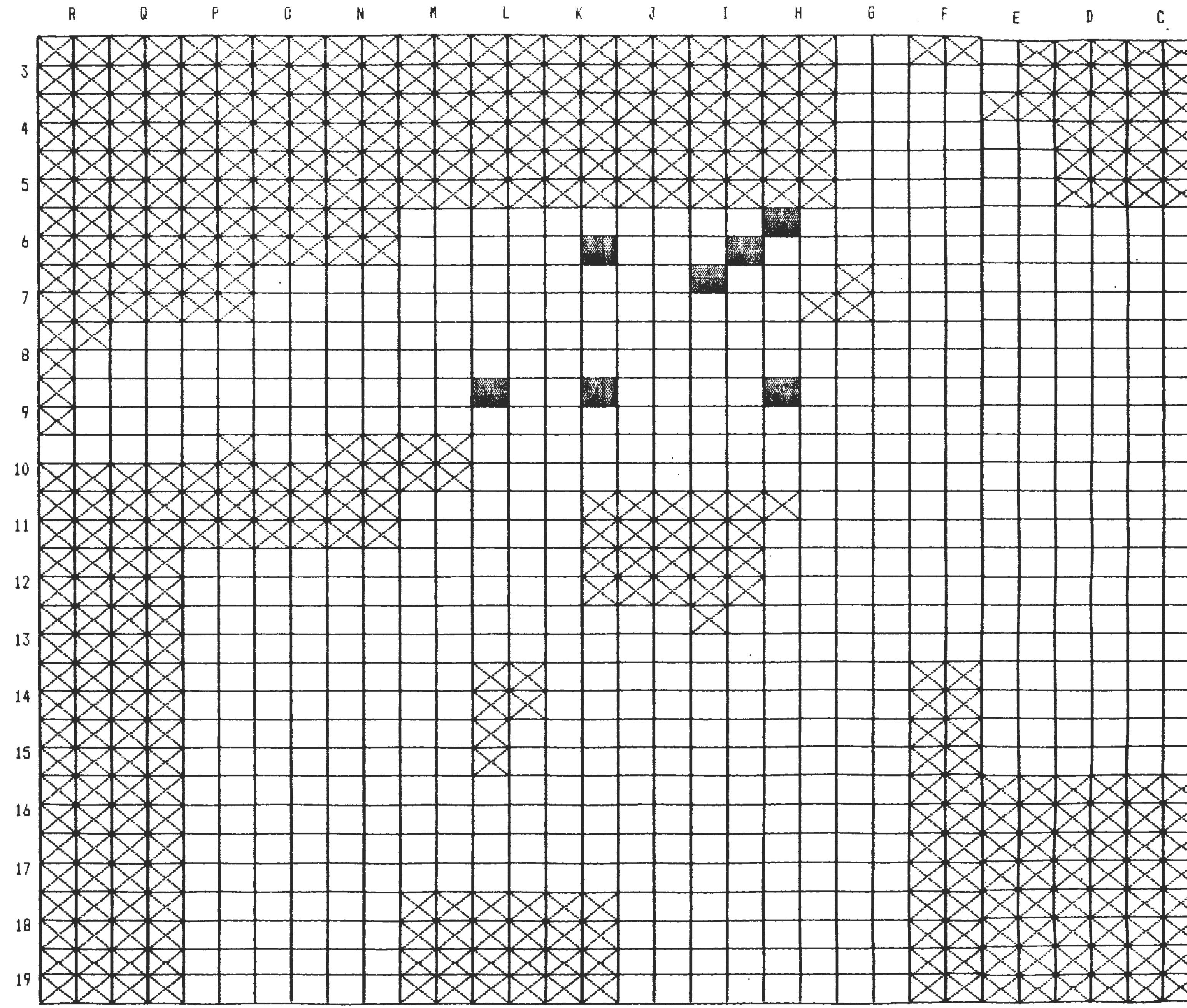
13 CHIPS : CCS n = 385



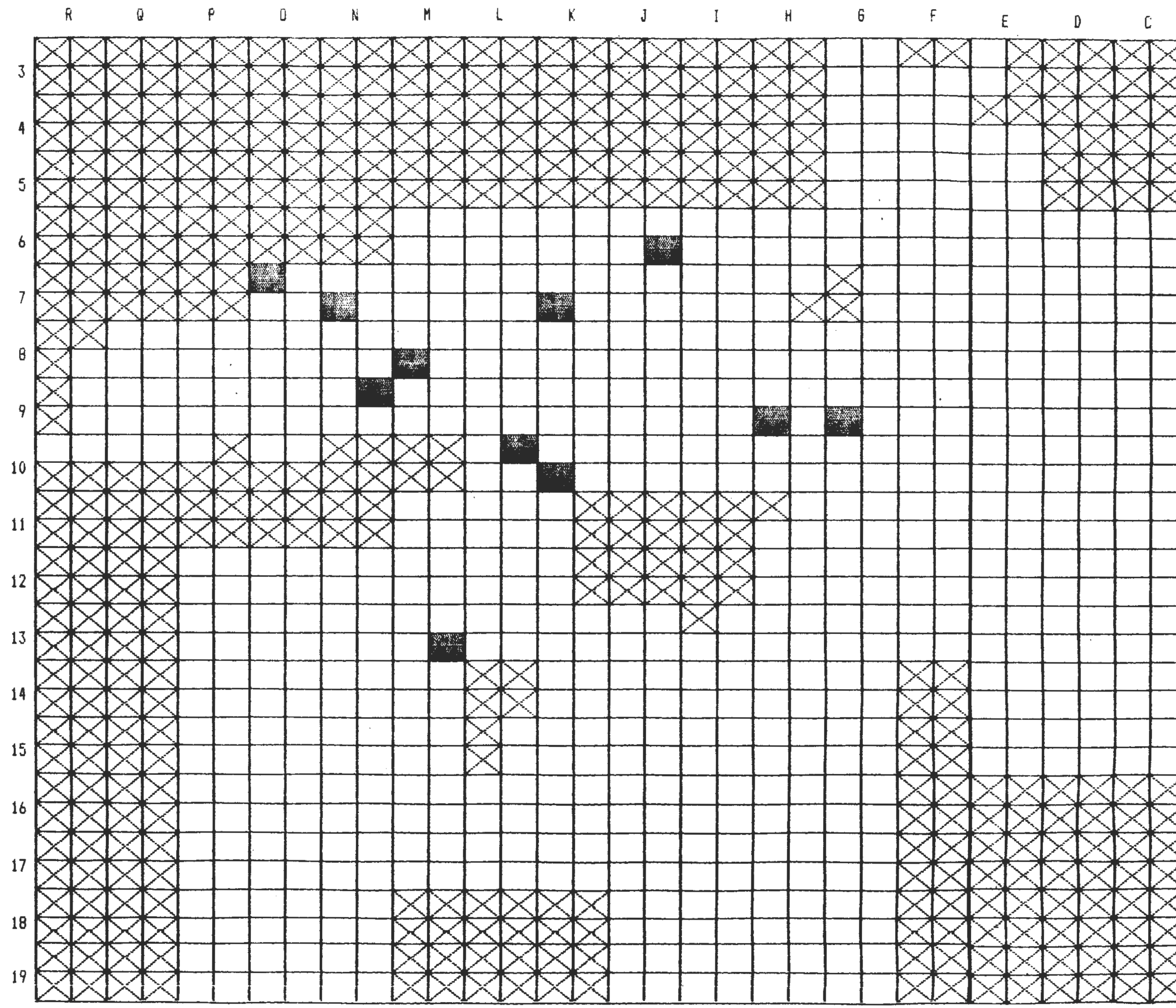
14 CHIPS : QUARTZITE $n = 54$



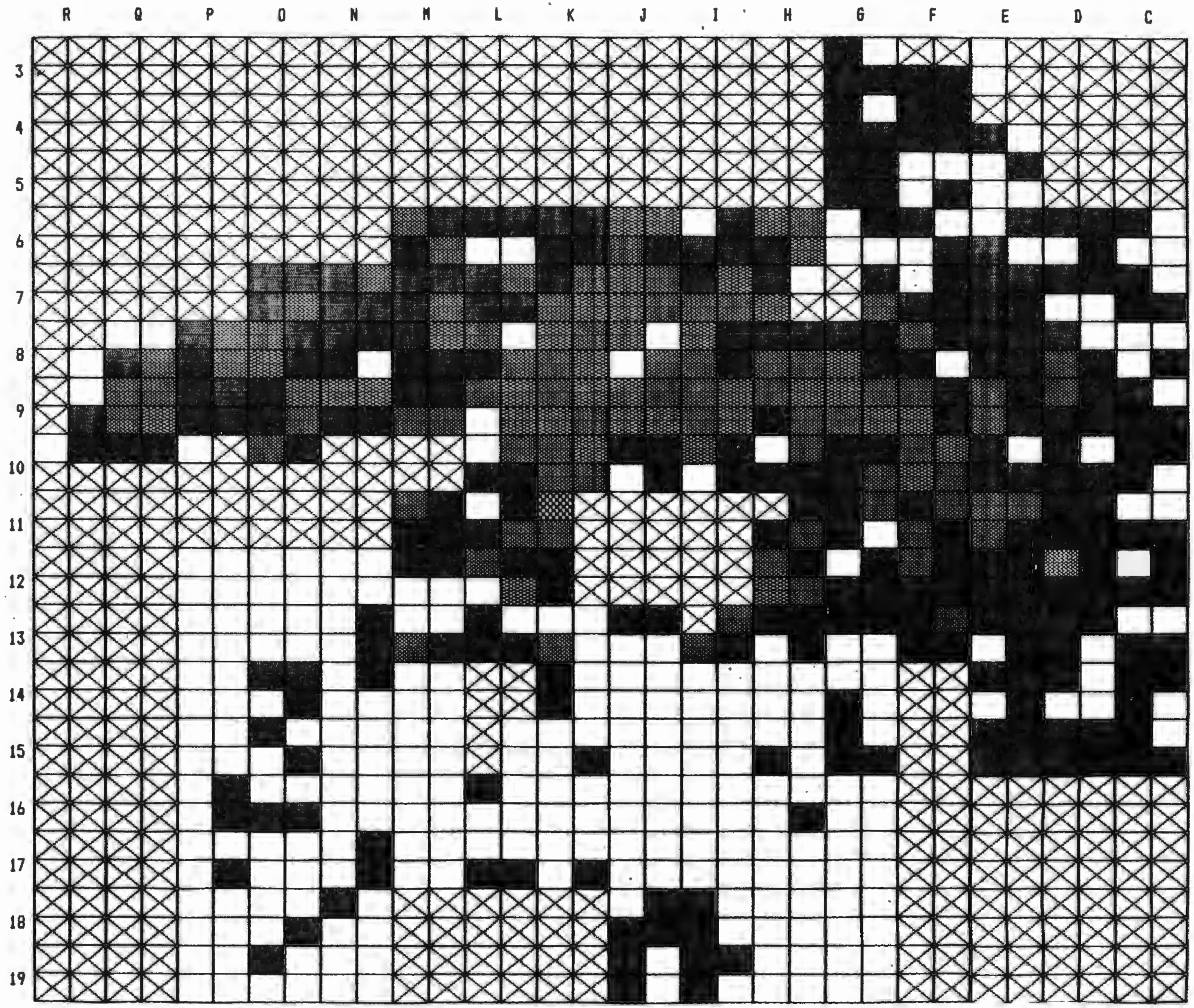
15 CHIPS : SHALE $n = 21$



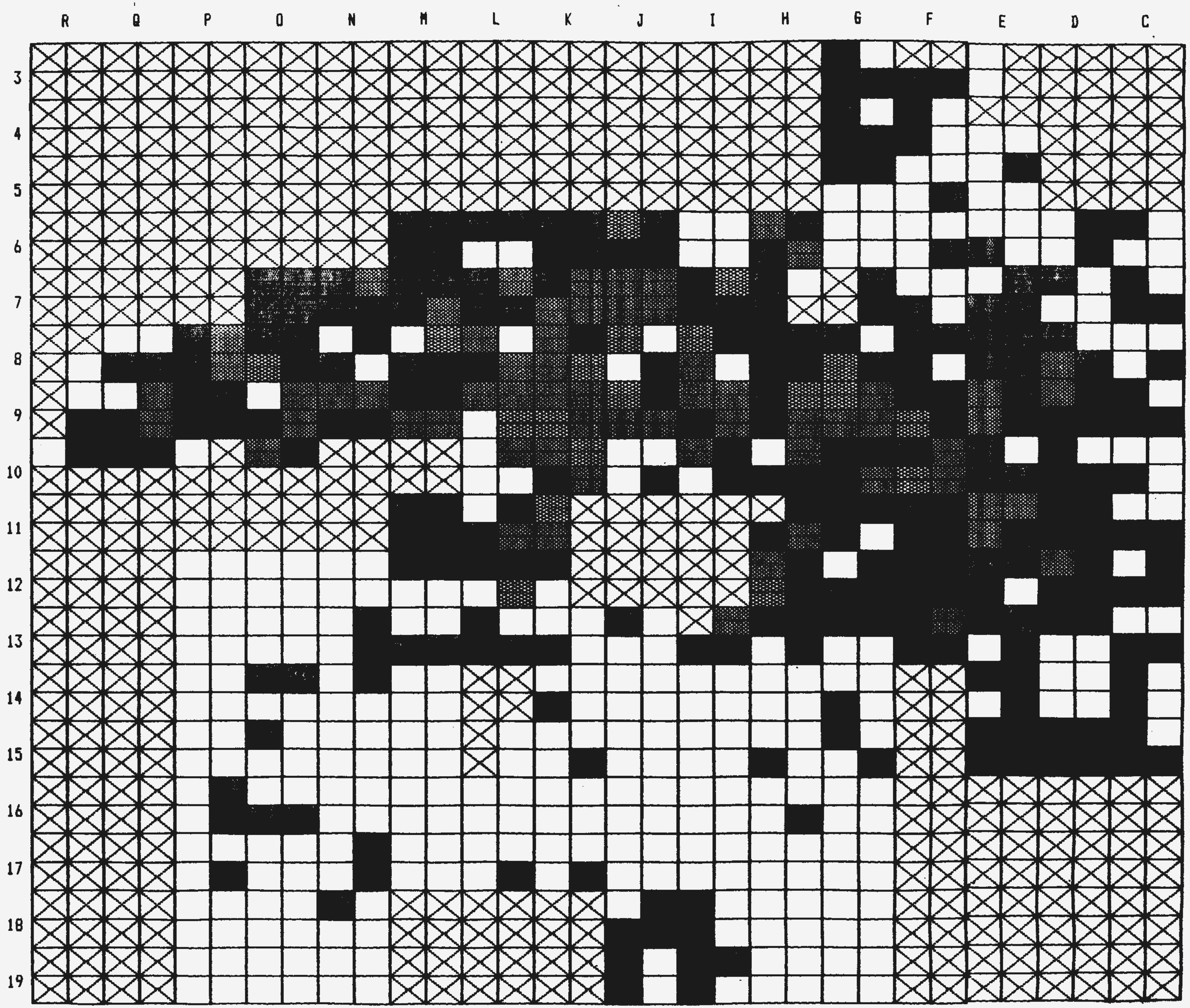
16 CHIPS : PHILLITE n = 11



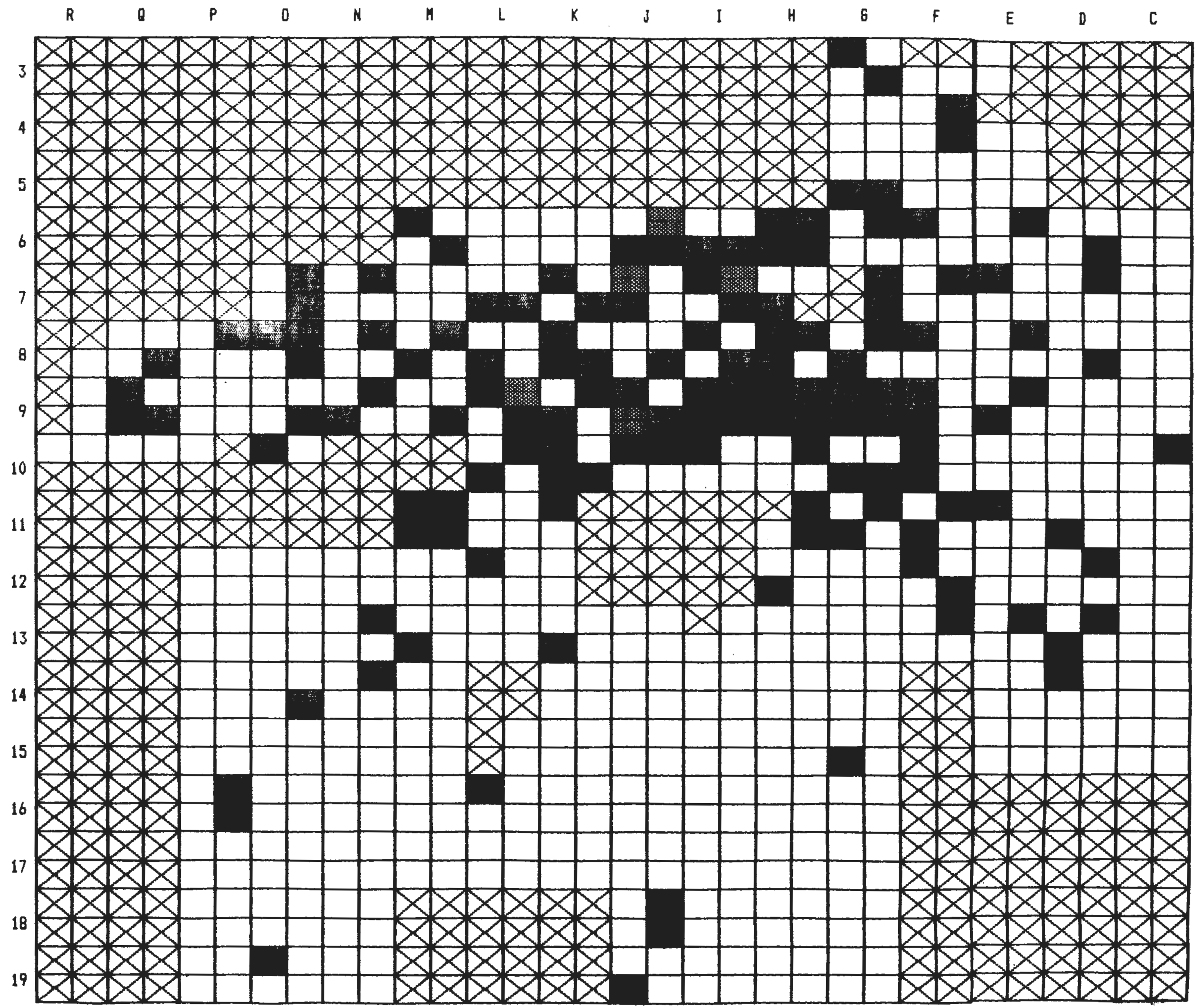
17 CHIPS : SILCRETE n = 12



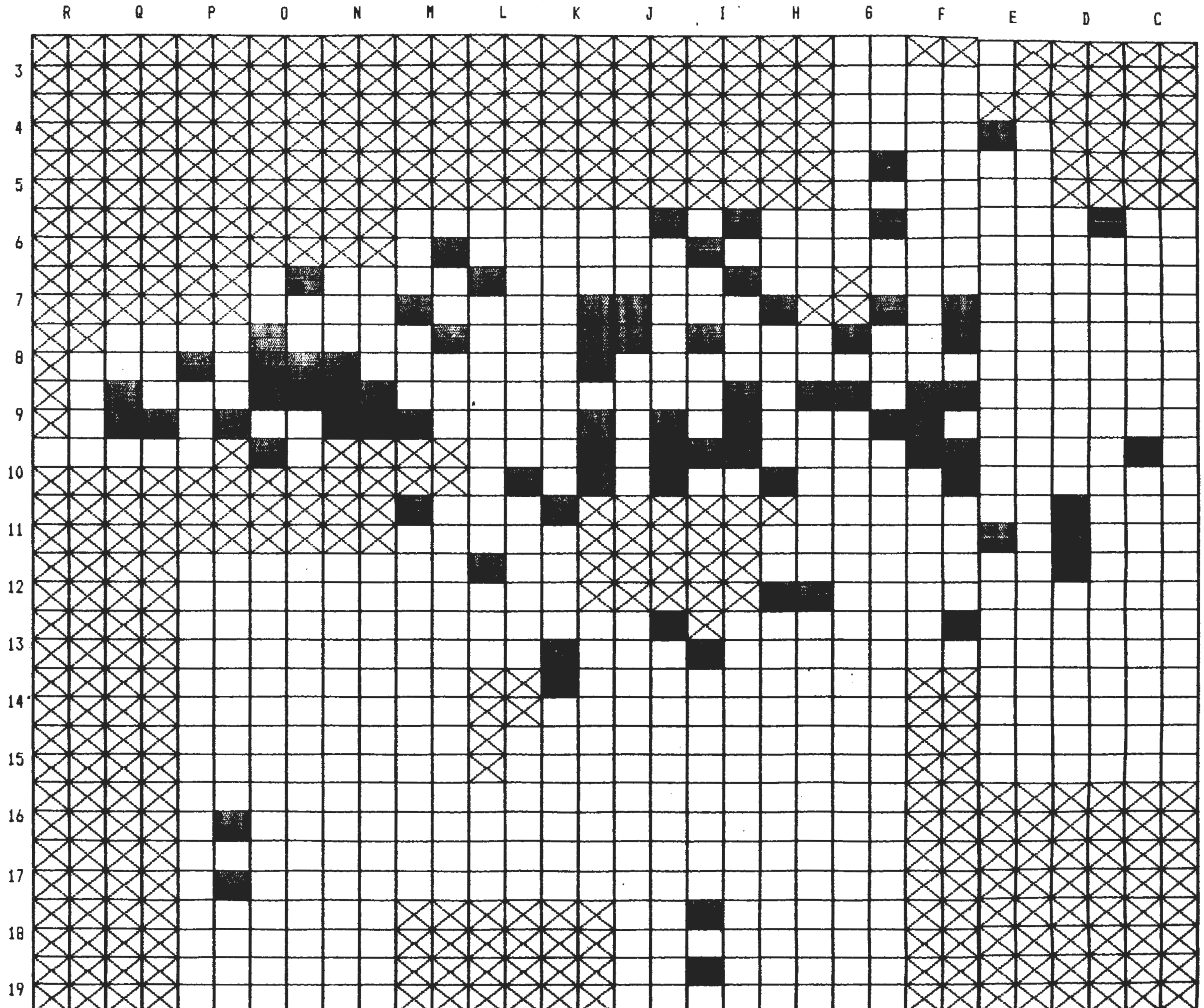
18 CHUNKS : COMBINED RAW MATERIALS n = 1613



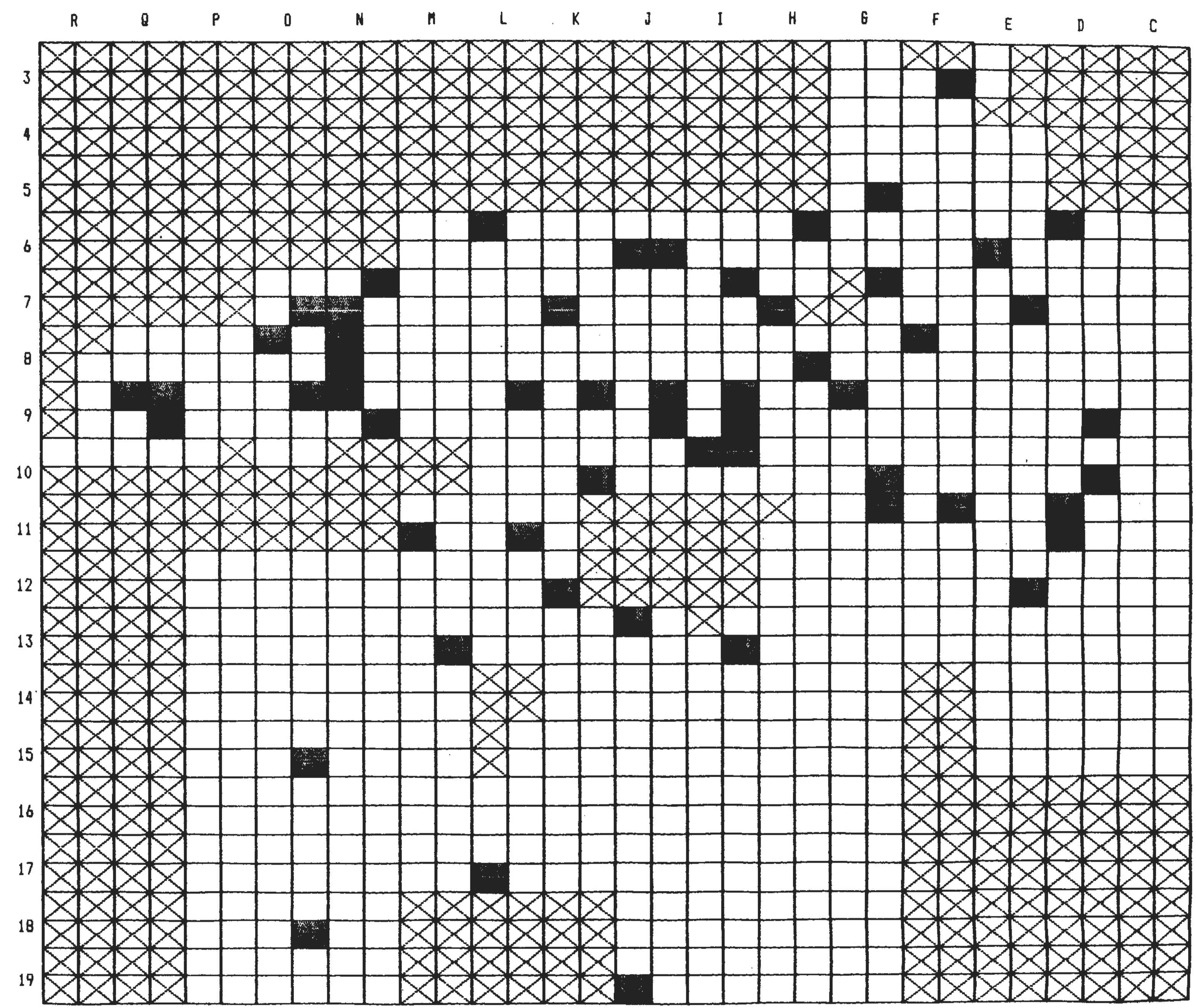
19 CHUNKS : QUARTZ n = 1160



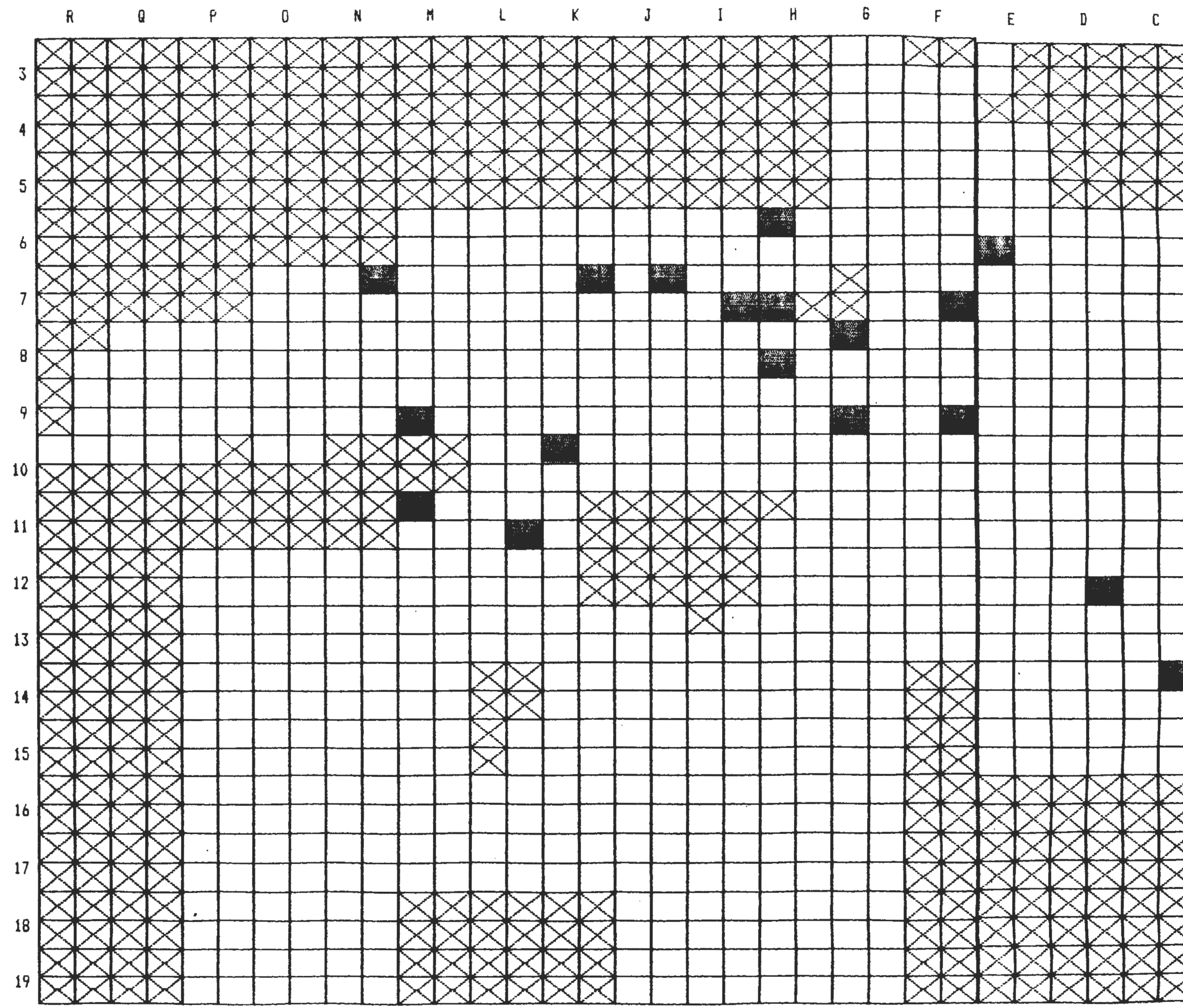
20 CHUNKS : HORNFELS n = 237



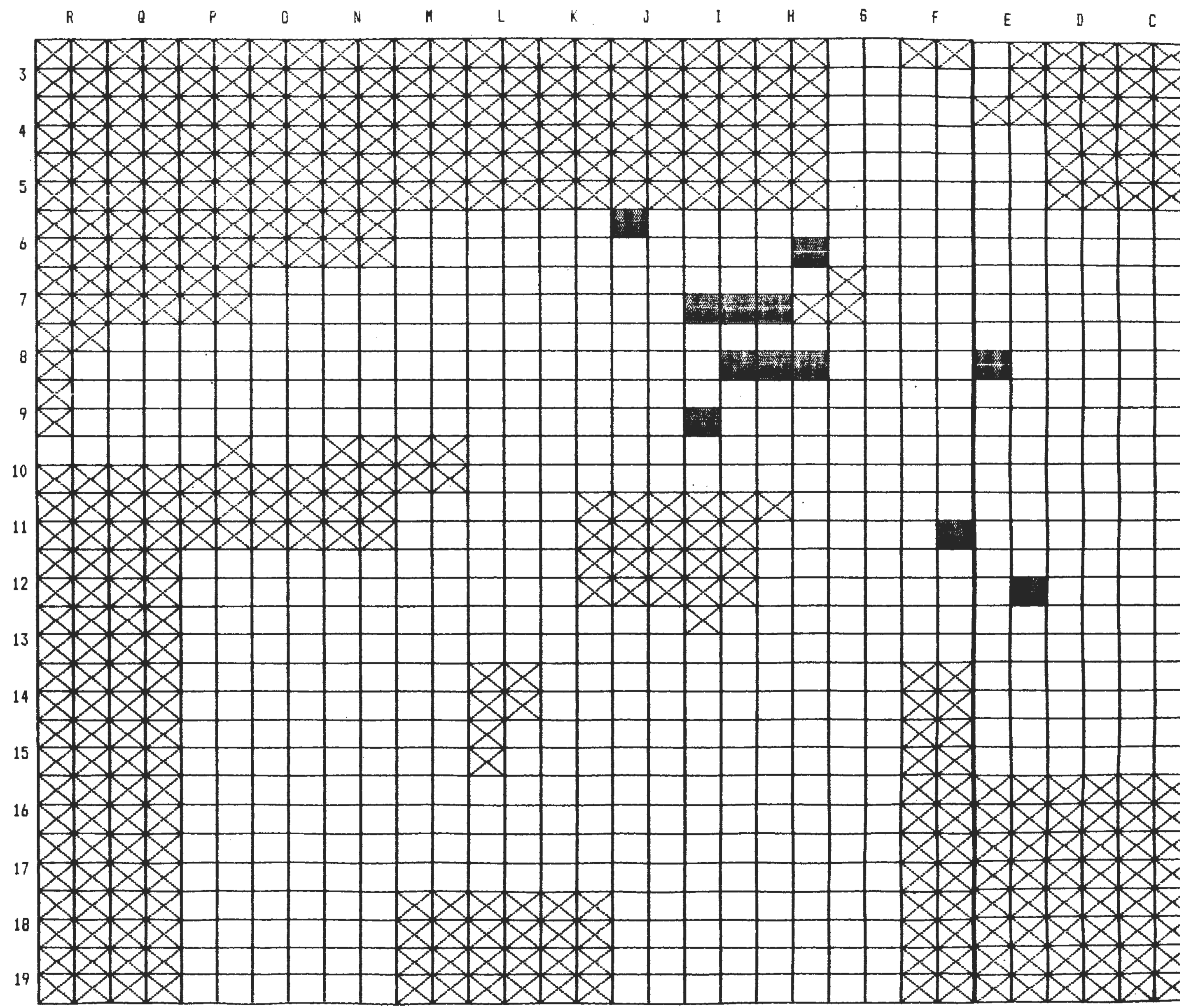
21 CHUNKS : CCS n = 105



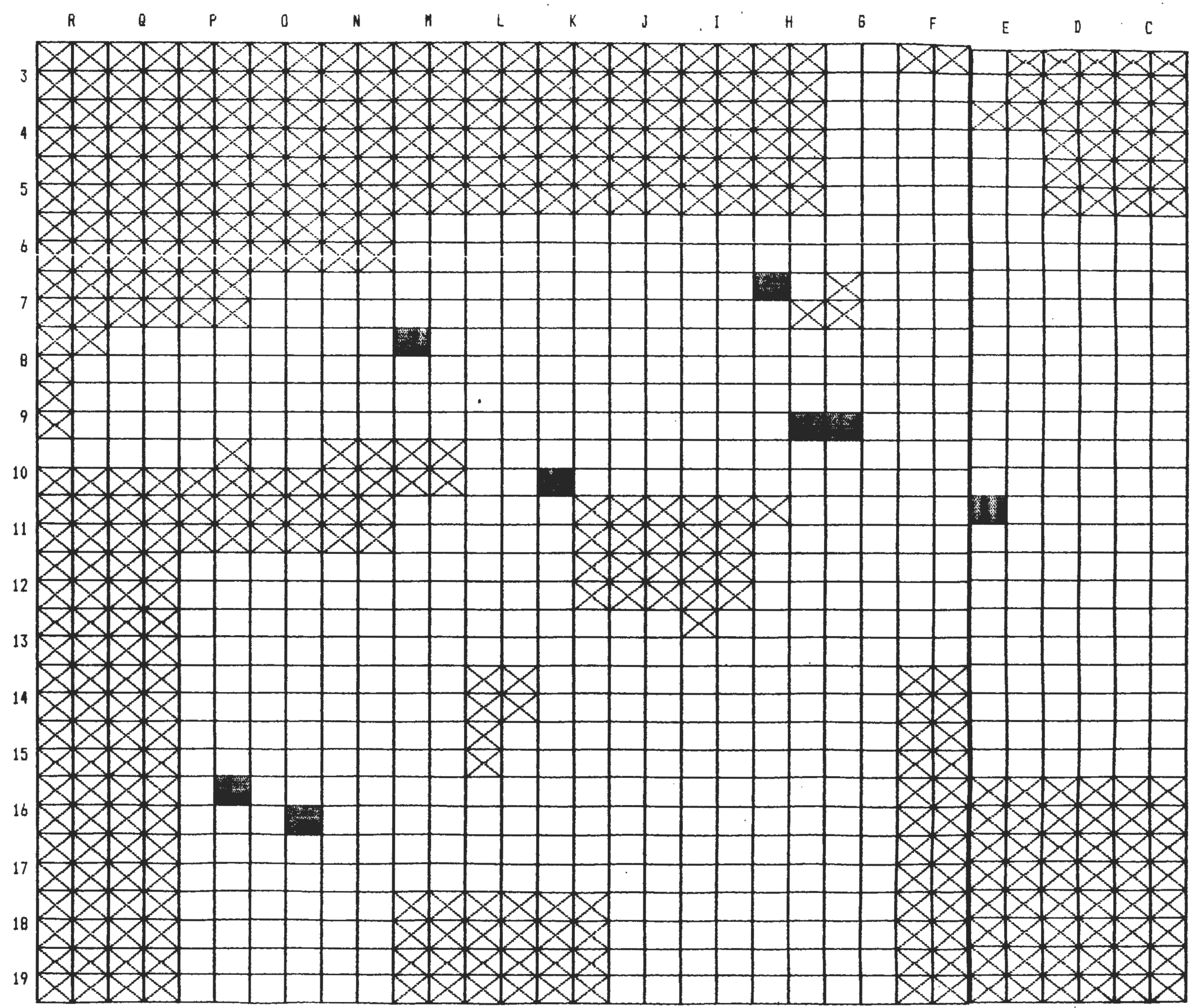
22 CHUNKS : QUARTZITE n = 67



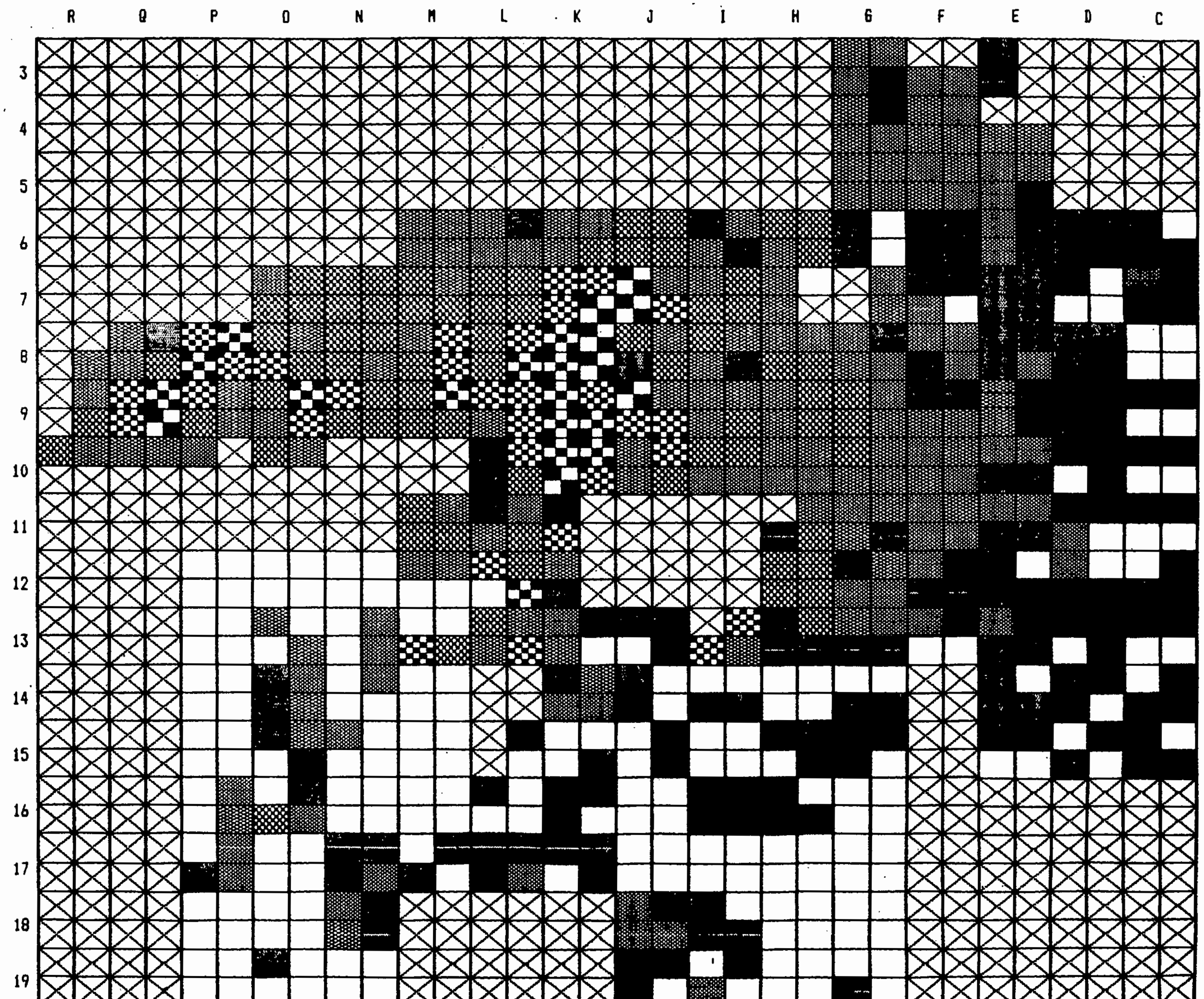
23 CHUNKS : PHILLITE $n = 21$



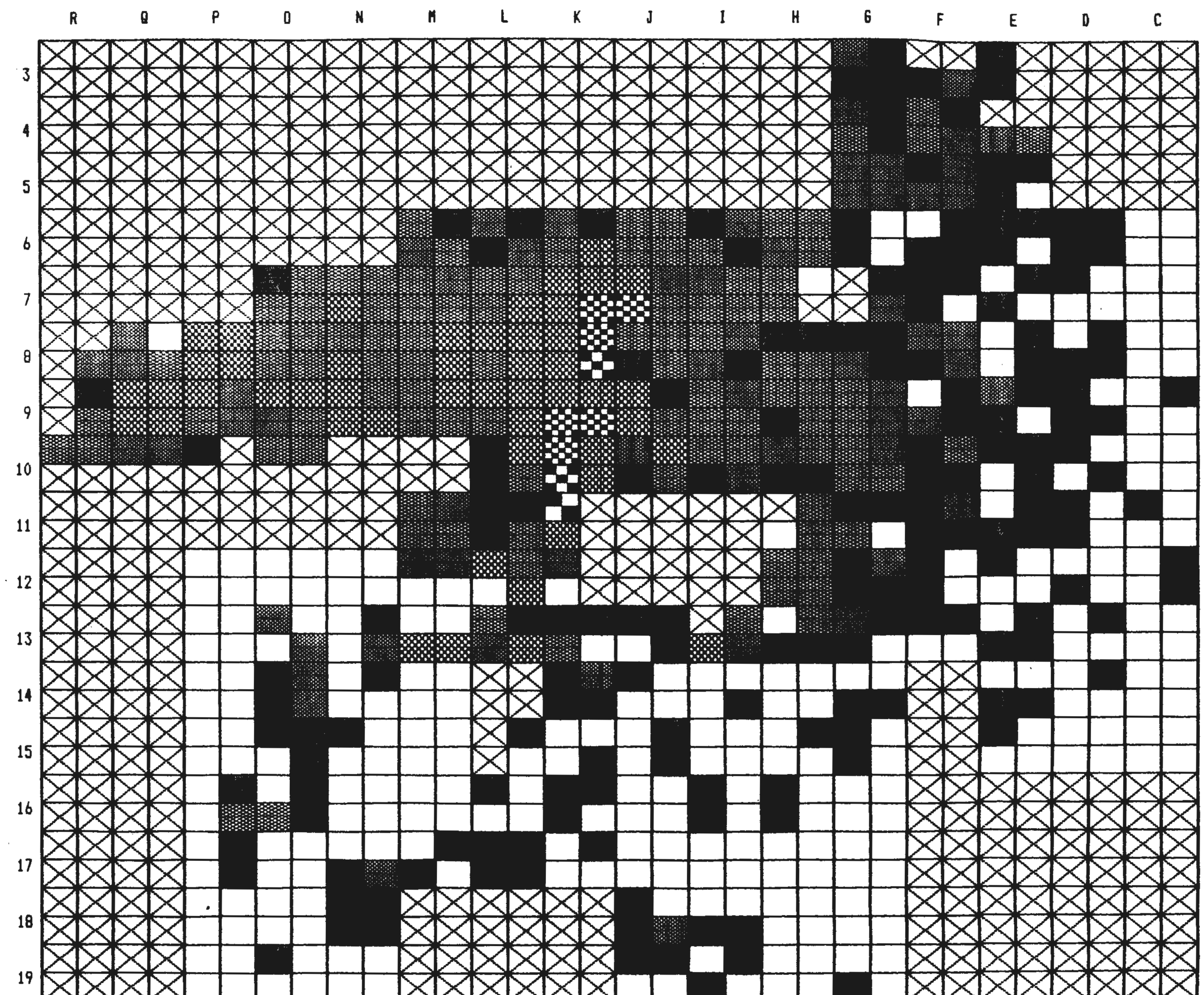
24 CHUNKS : SHALE n = 14



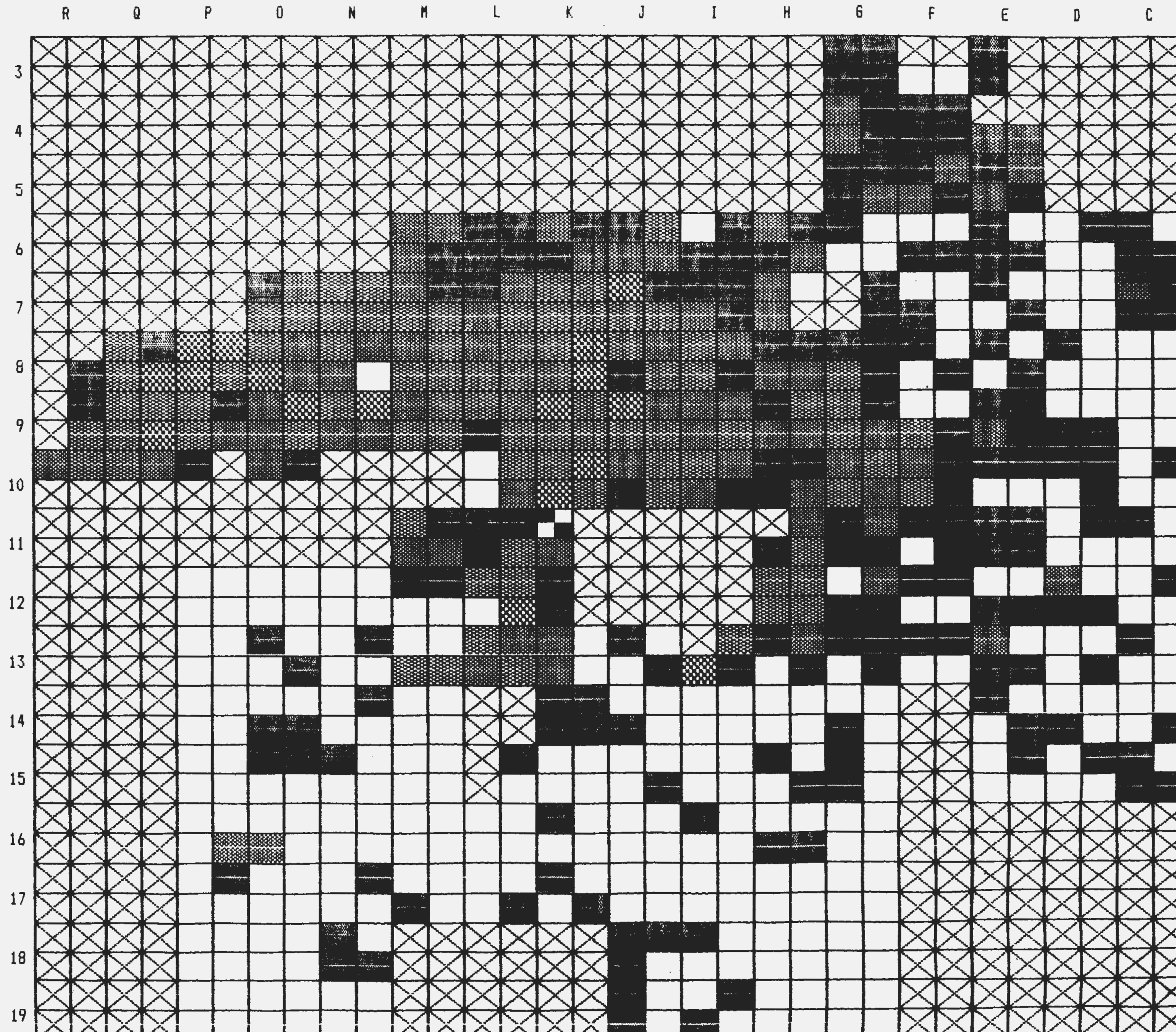
25 CHUNKS : SILCRETE $n = 8$



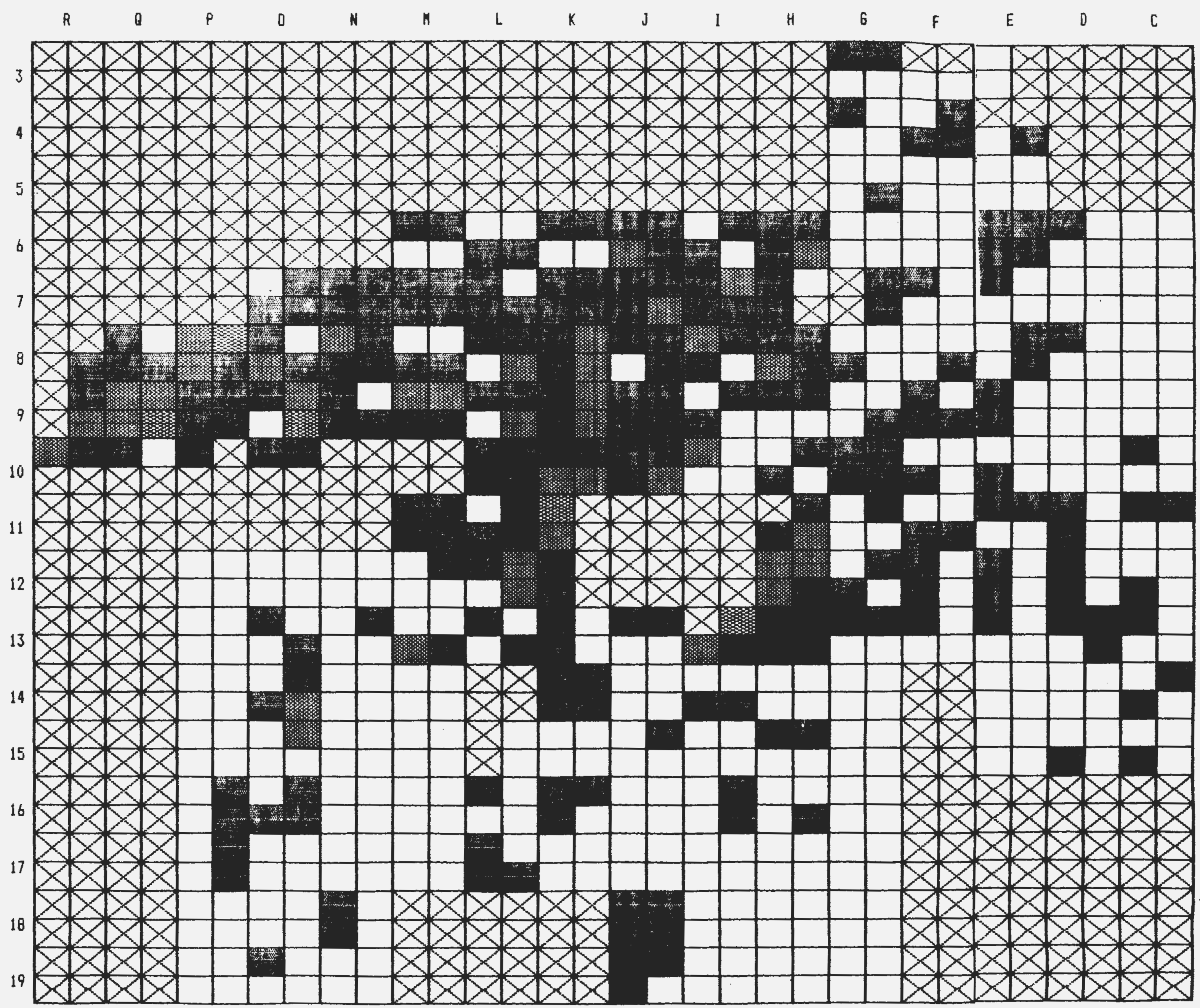
26 FLAKES : COMBINED RAW MATERIALS n = 9155



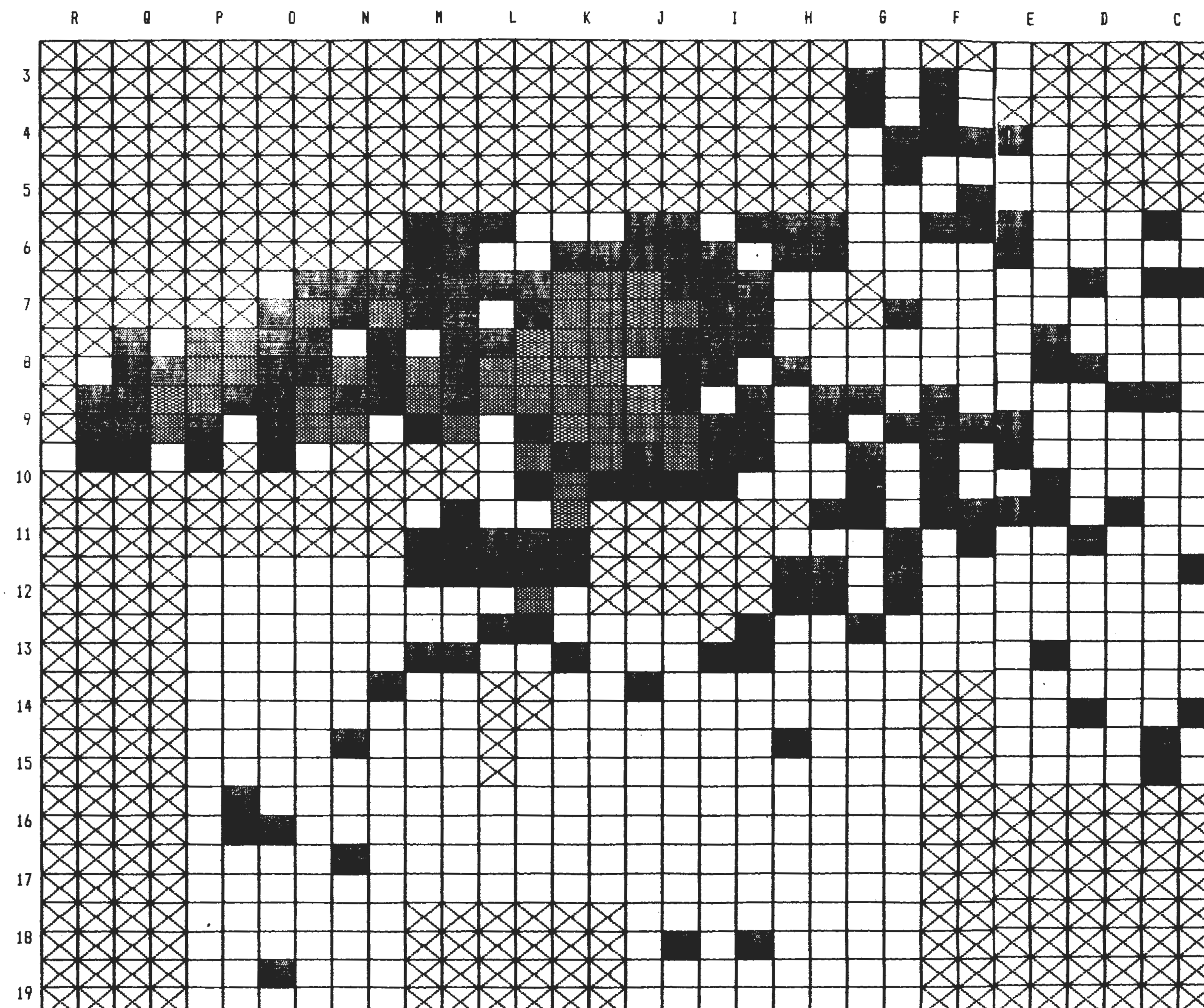
27 FLAKES : HORNFELS n = 4572



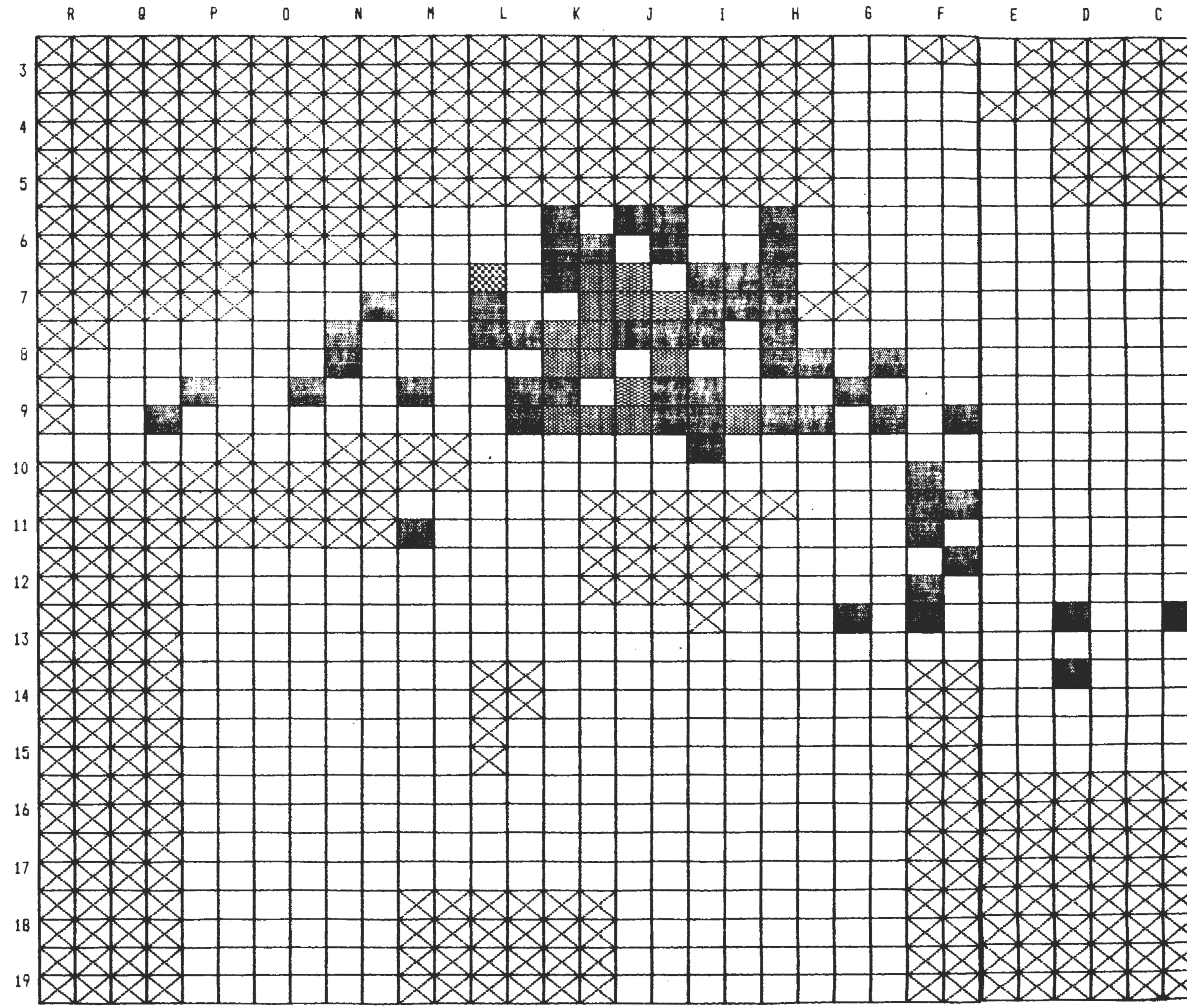
28 FLAKES : QUARTZ n = 2731



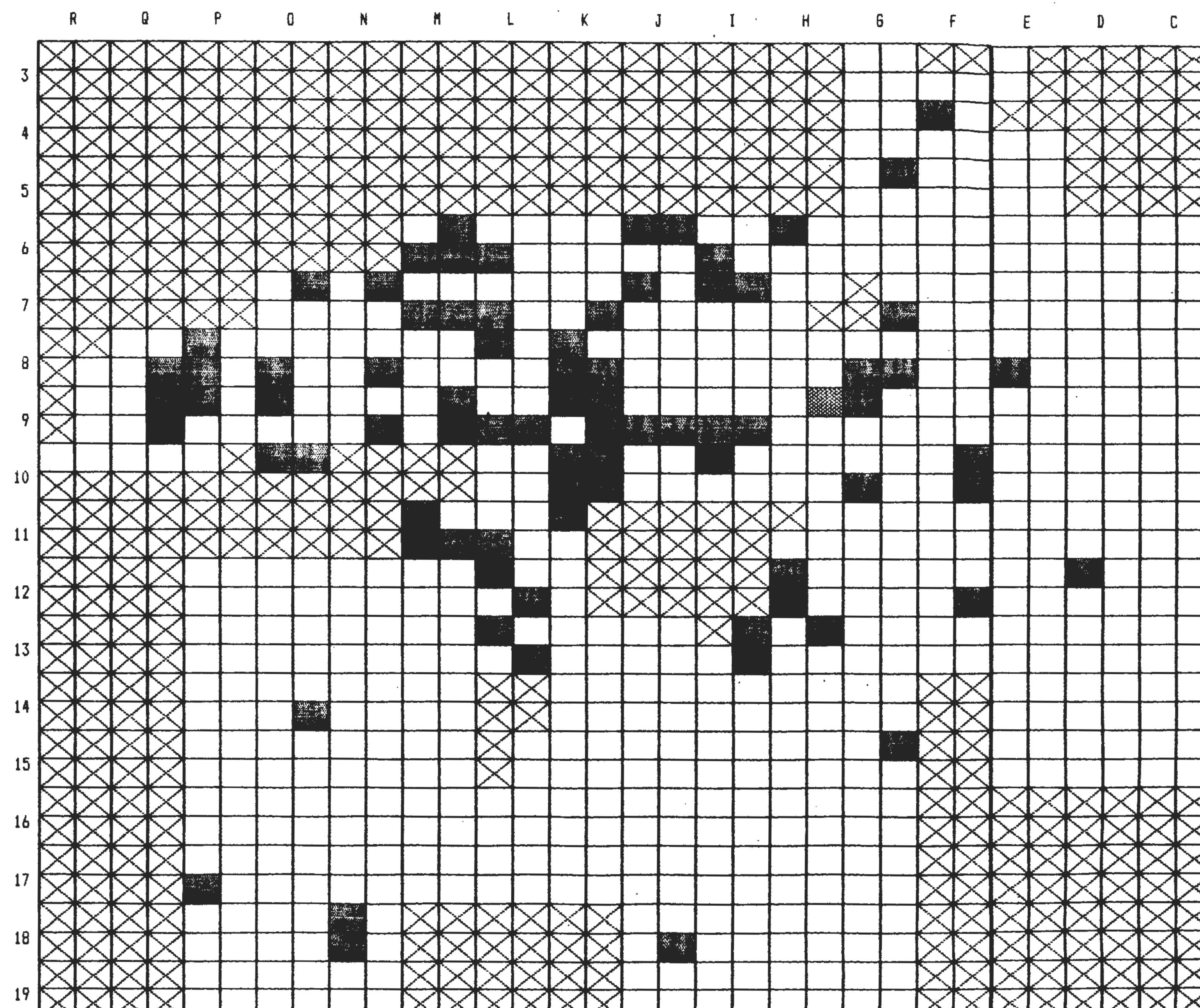
29 FLAKES : QUARTZITE n = 750



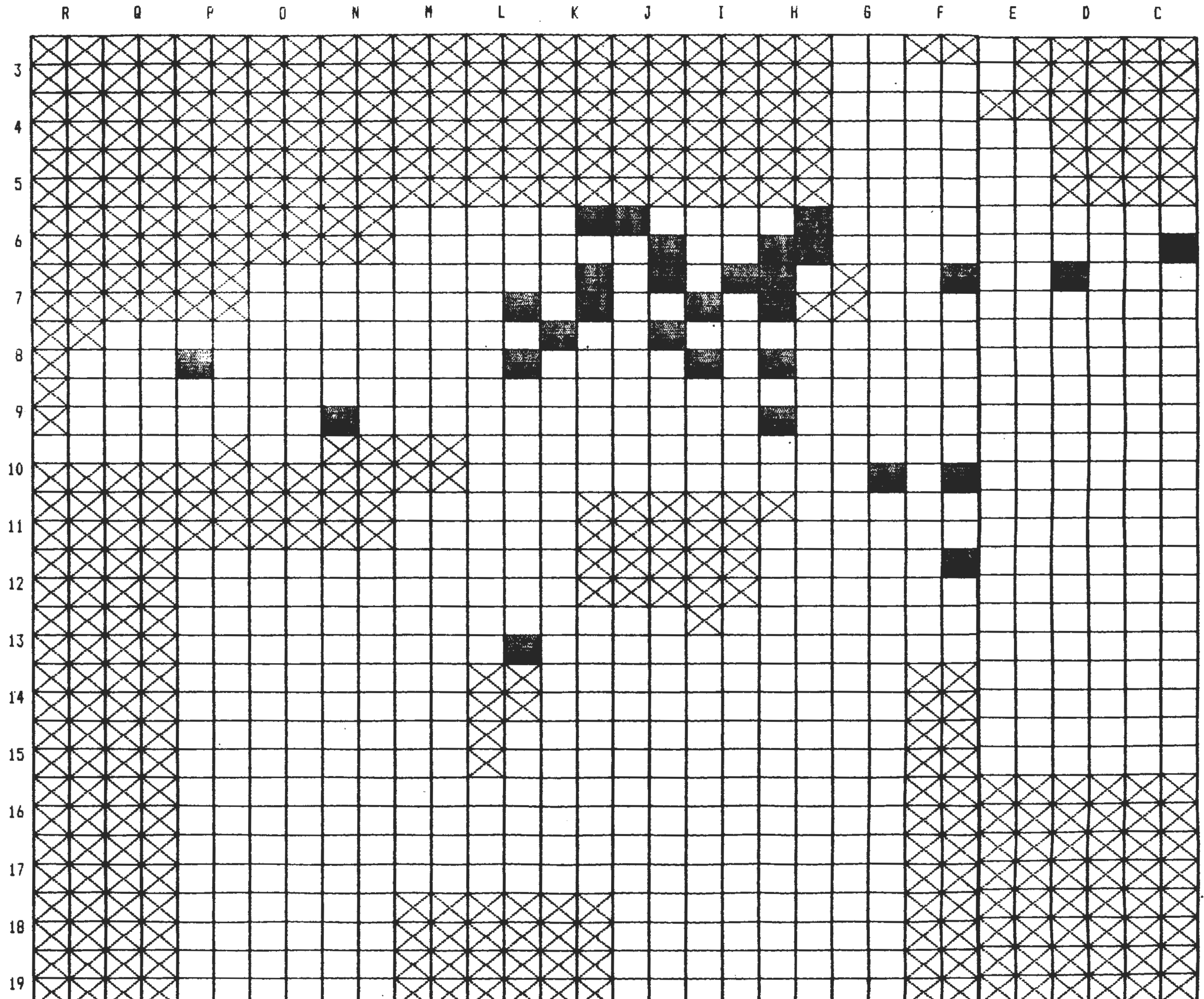
30 FLAKES : CCS n = 684



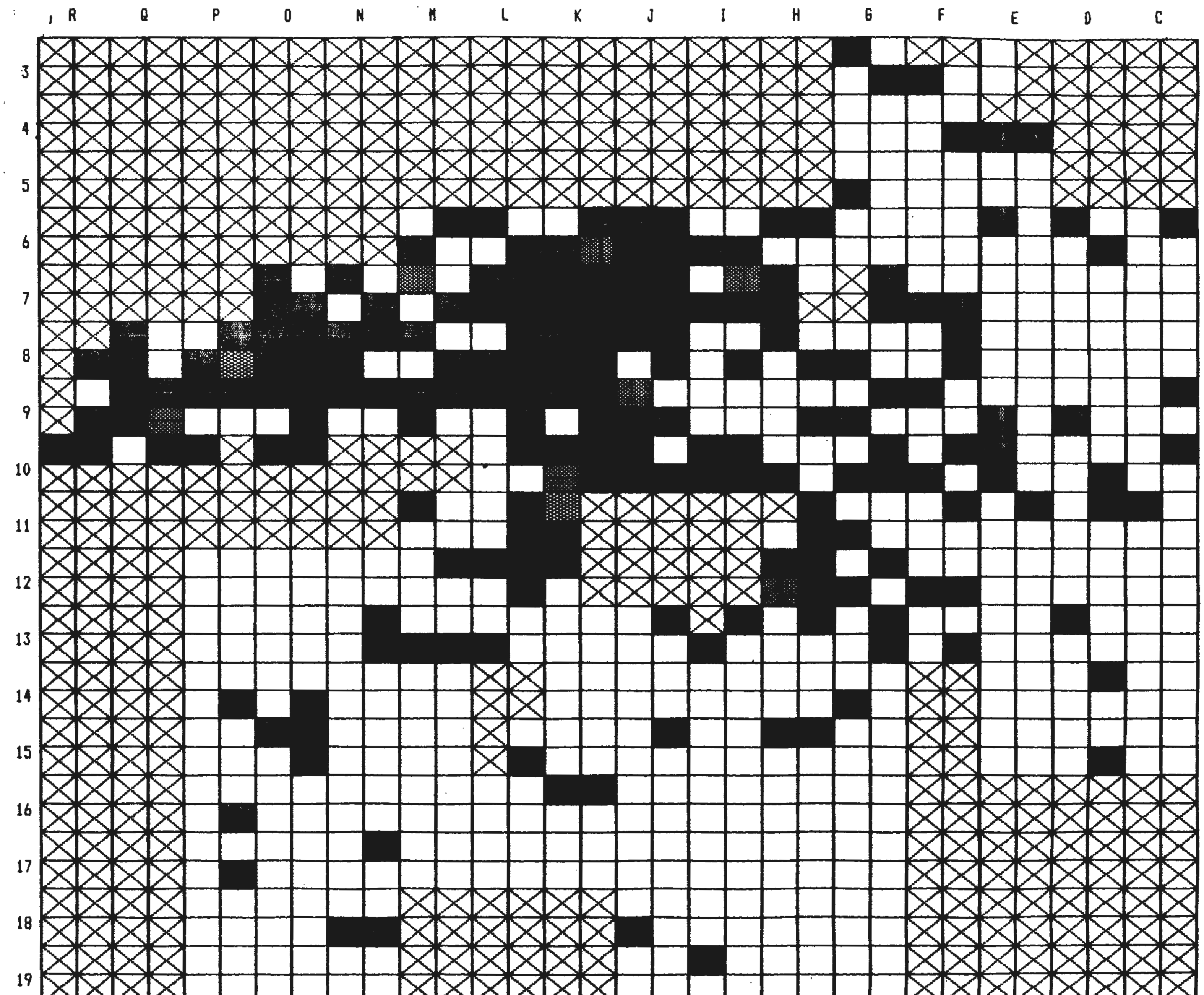
31 FLAKES : SHALE n = 260



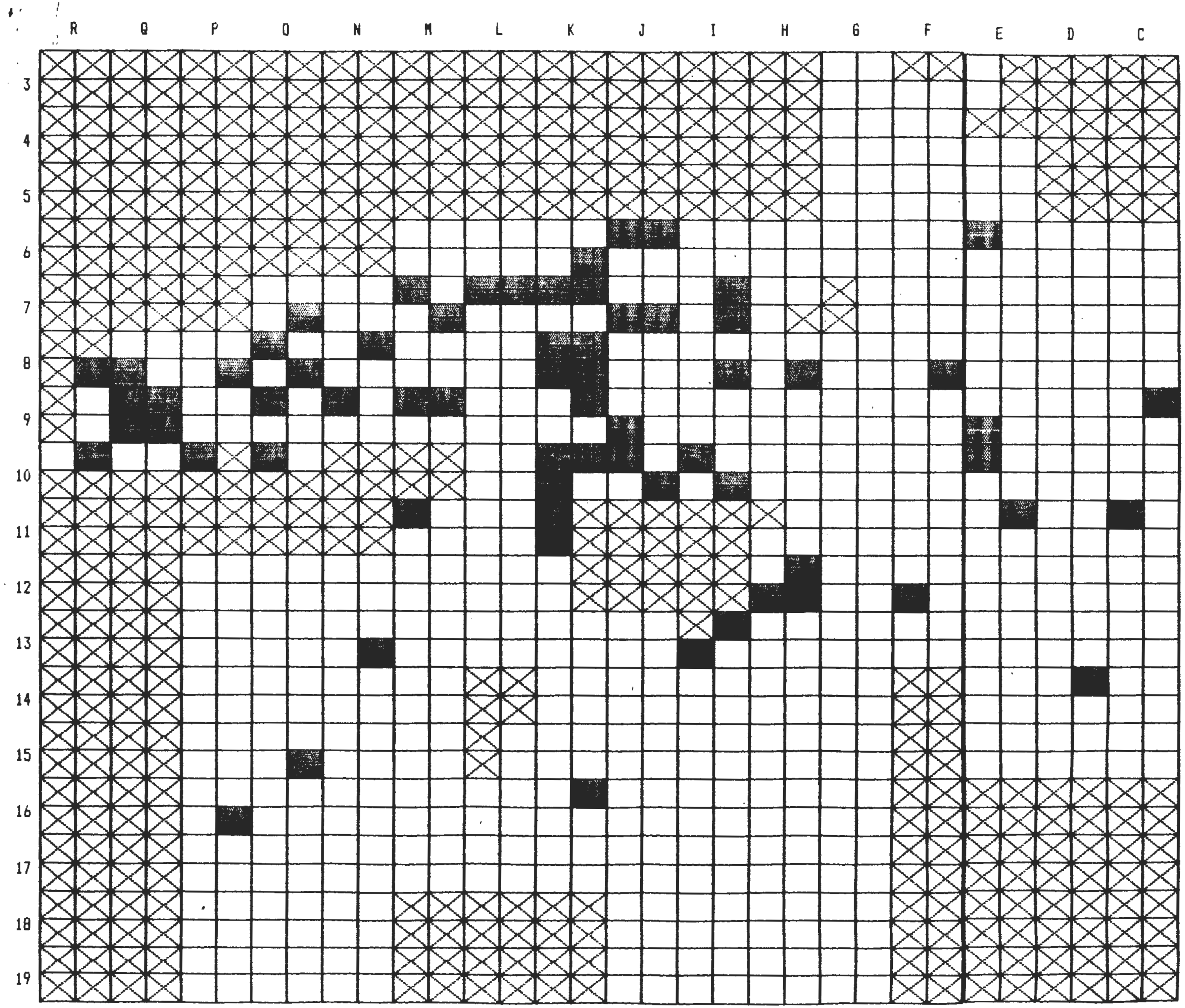
32 FLAKES : SILCRETE n = 124



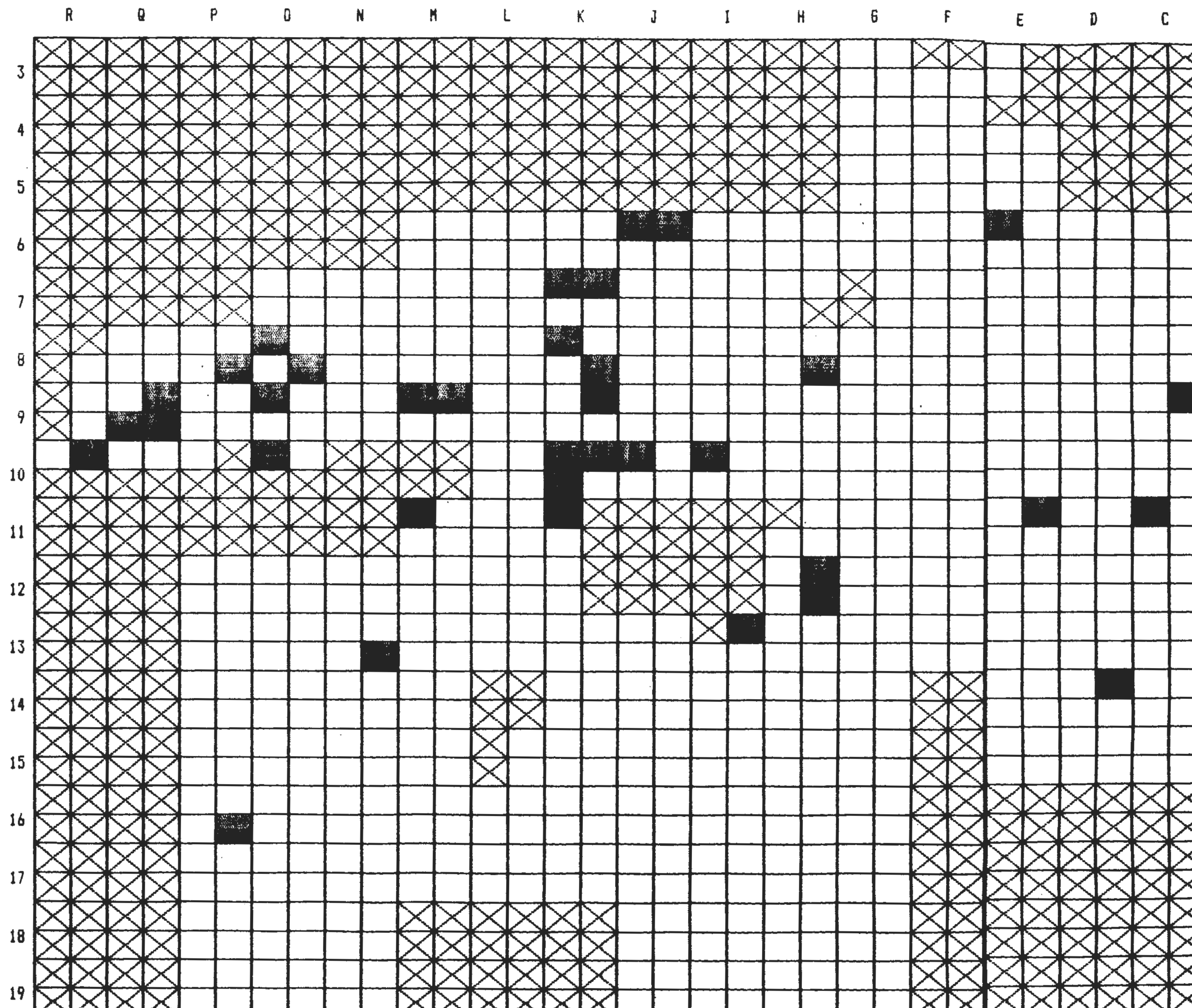
33 FLAKES : PHILLITE n = 33



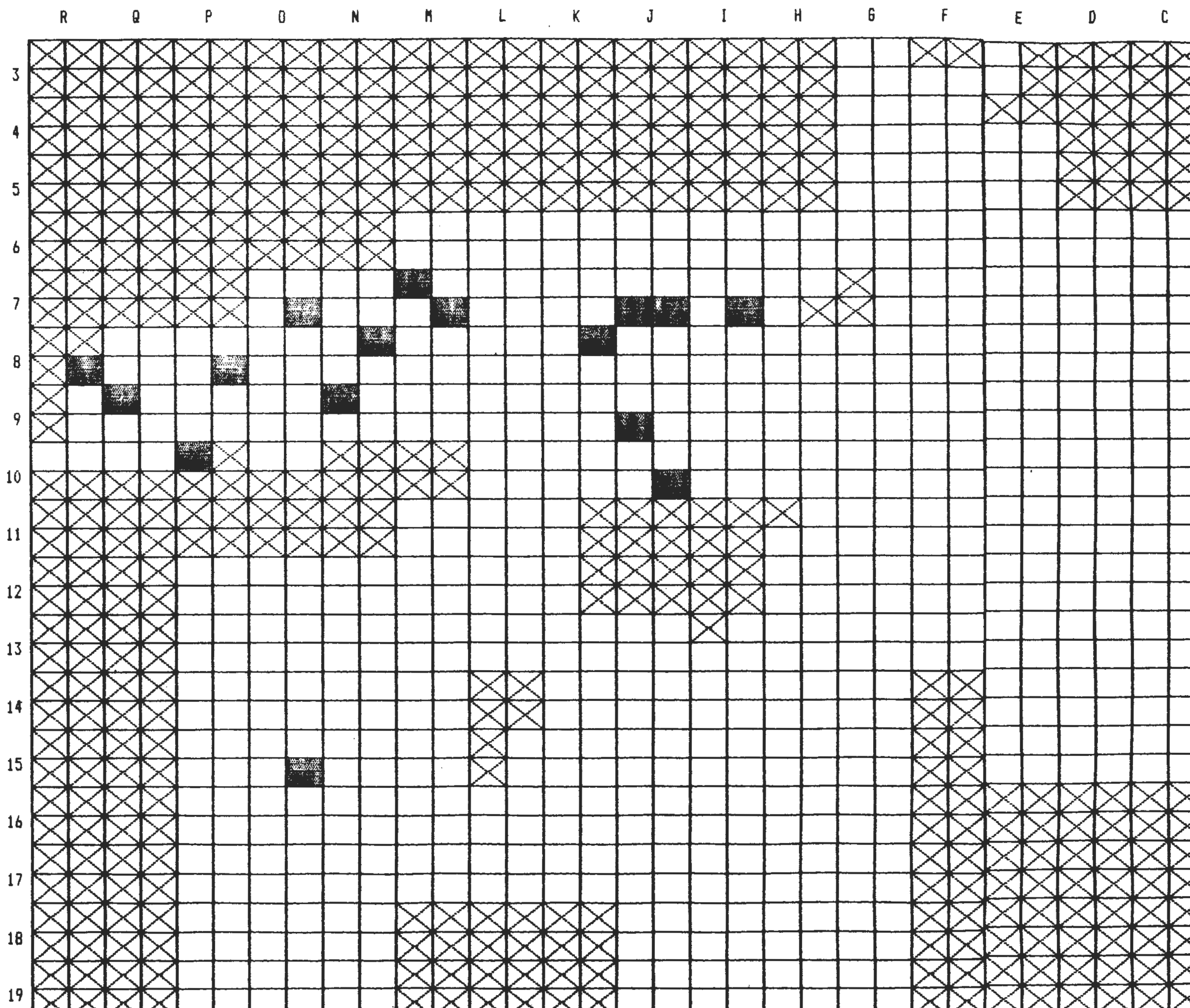
34 ALL CORES : COMBINED RAW MATERIALS n = 397



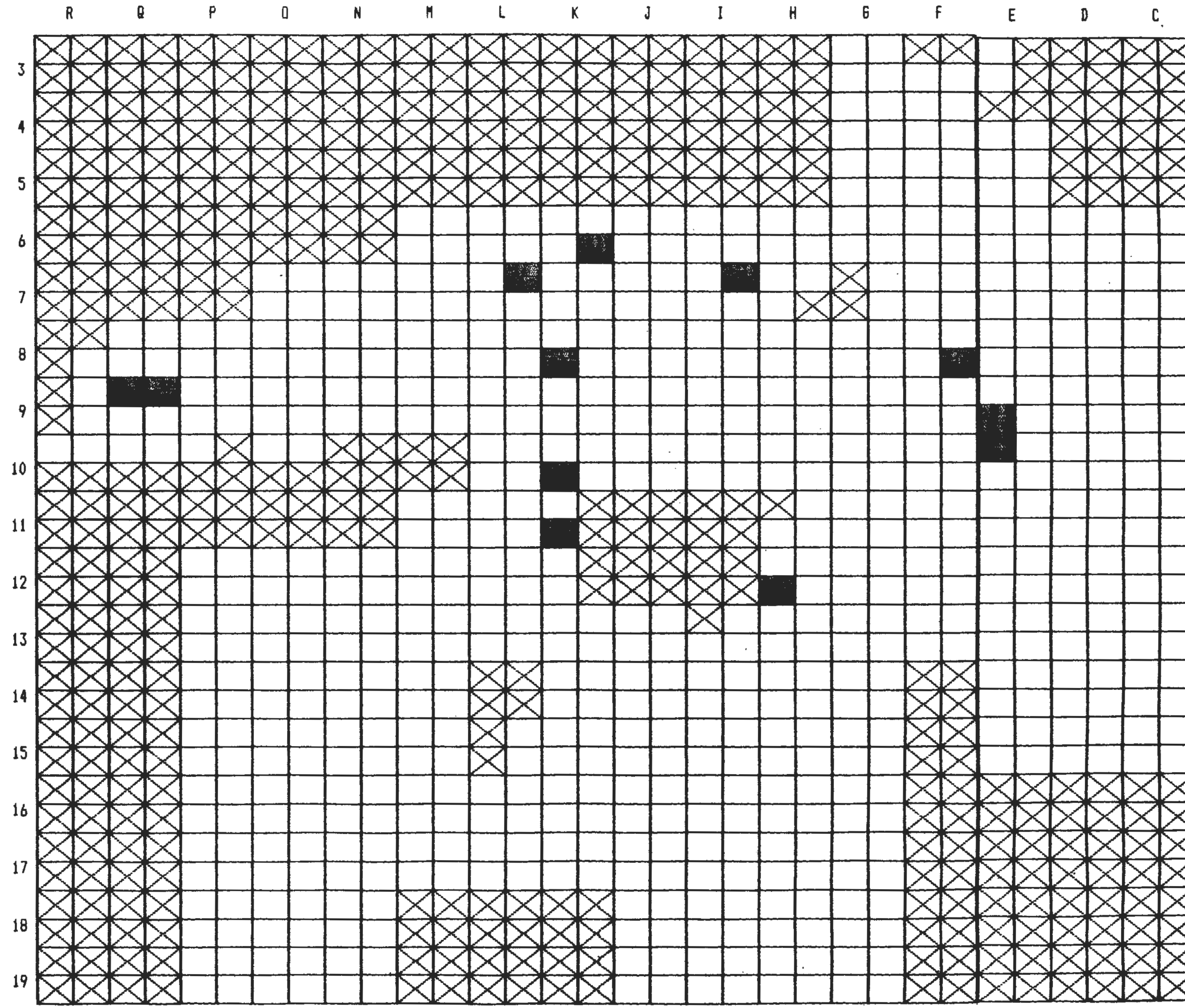
35 CORE IRREGULAR : COMBINED RAW MATERIALS n = 78



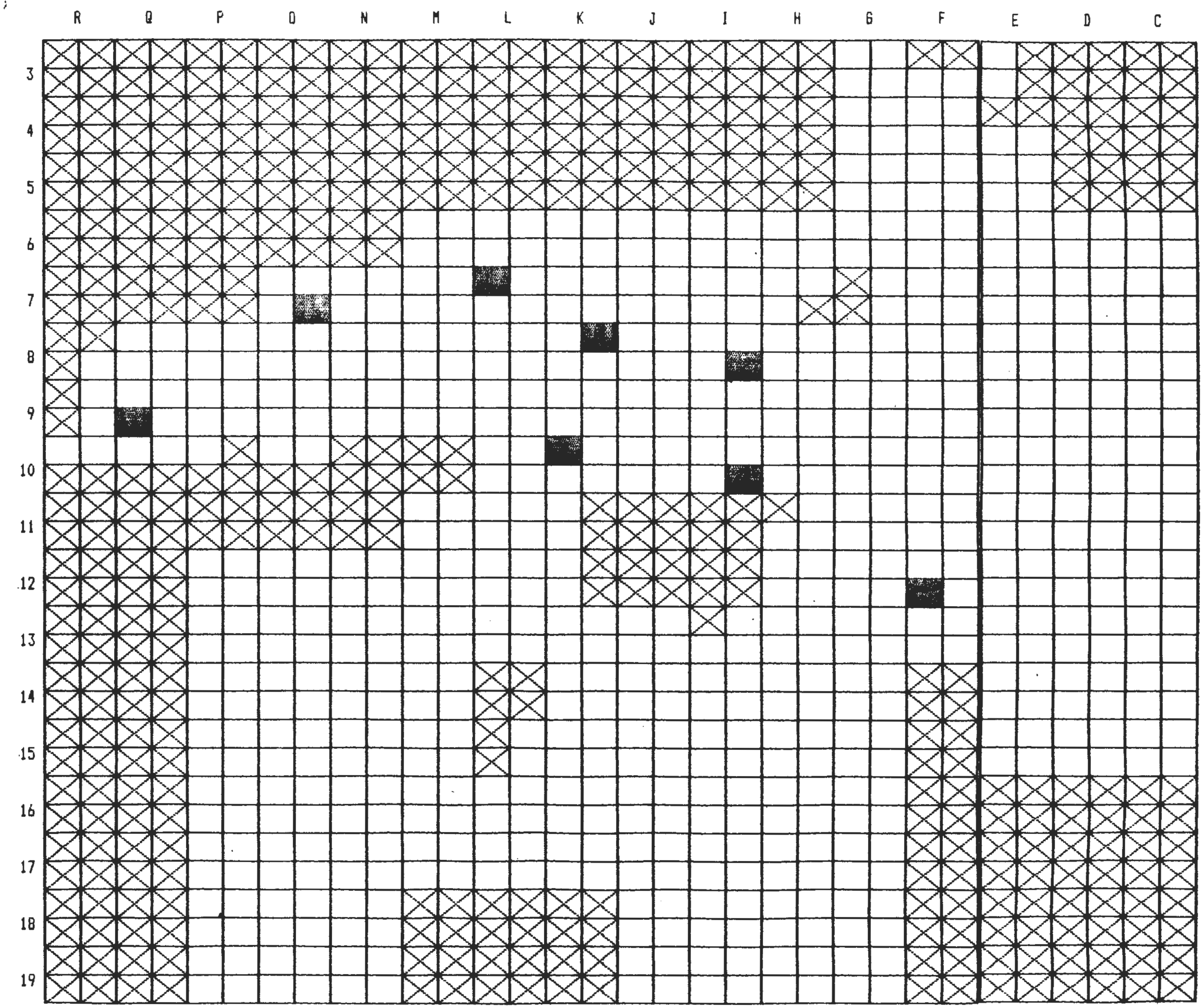
36 CORE IRREGULAR : QUARTZ n = 37



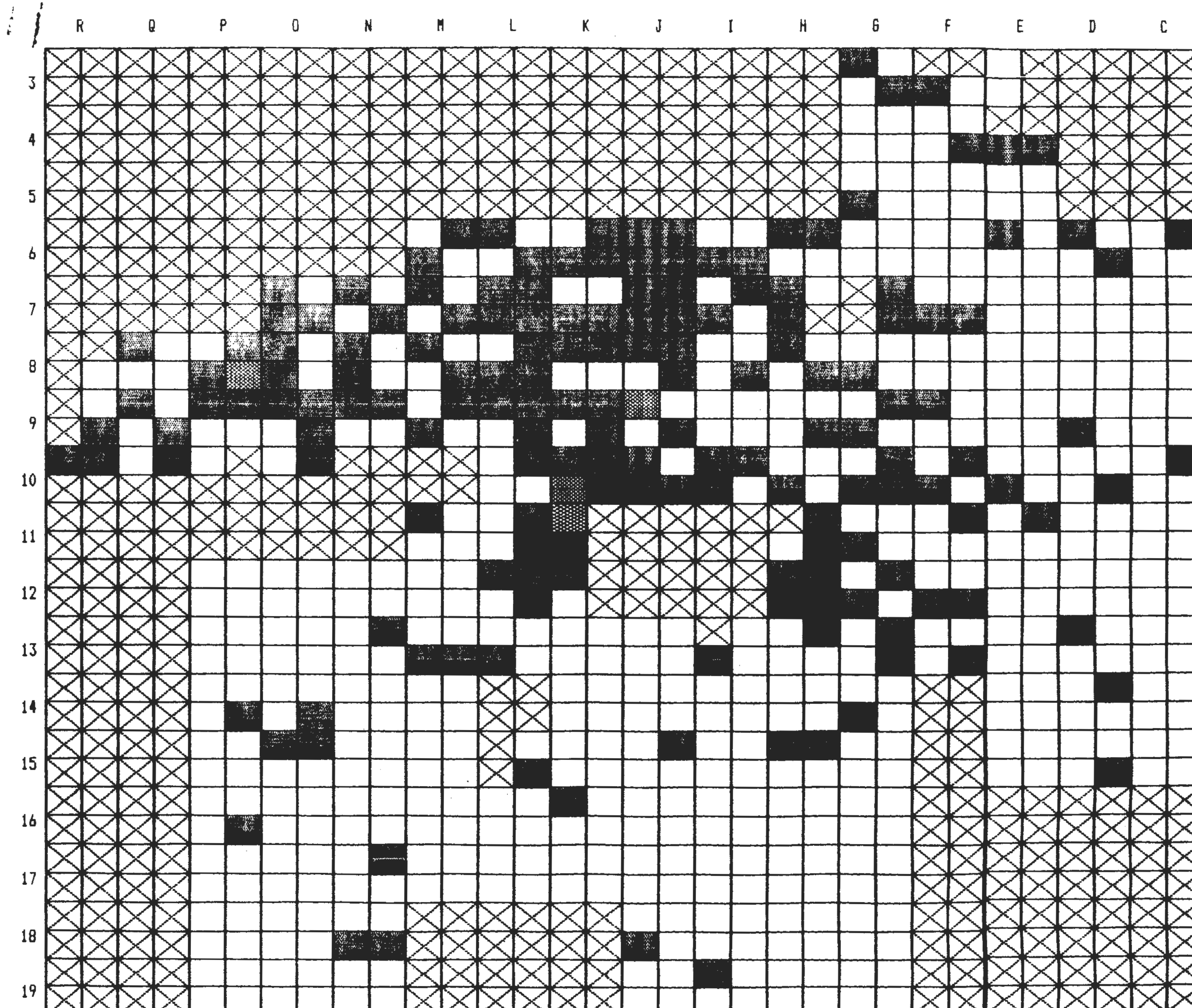
37 CORE IRREGULAR : HORNFELS n = 18



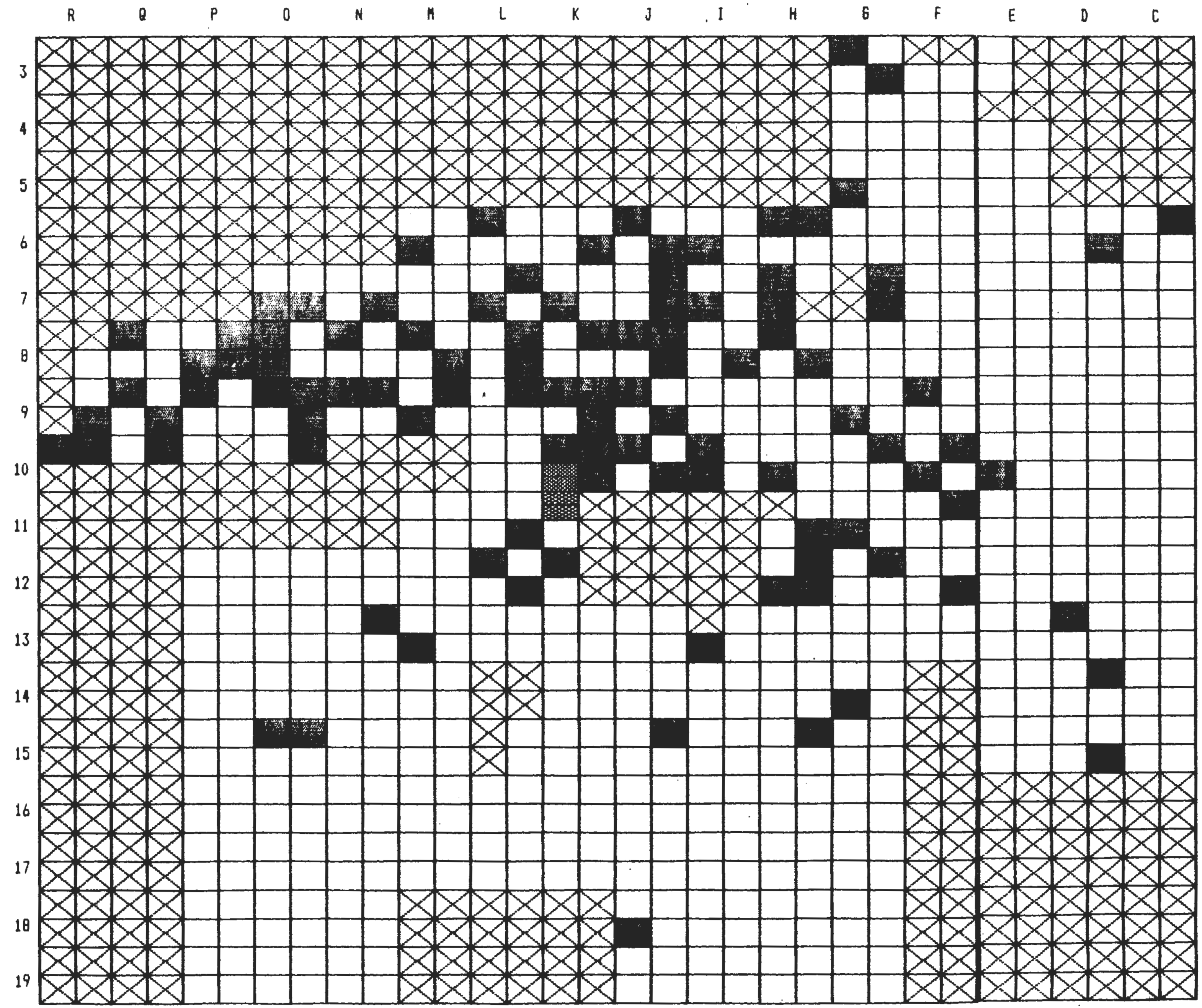
38 CORE IRREGULAR : CCS n = 12



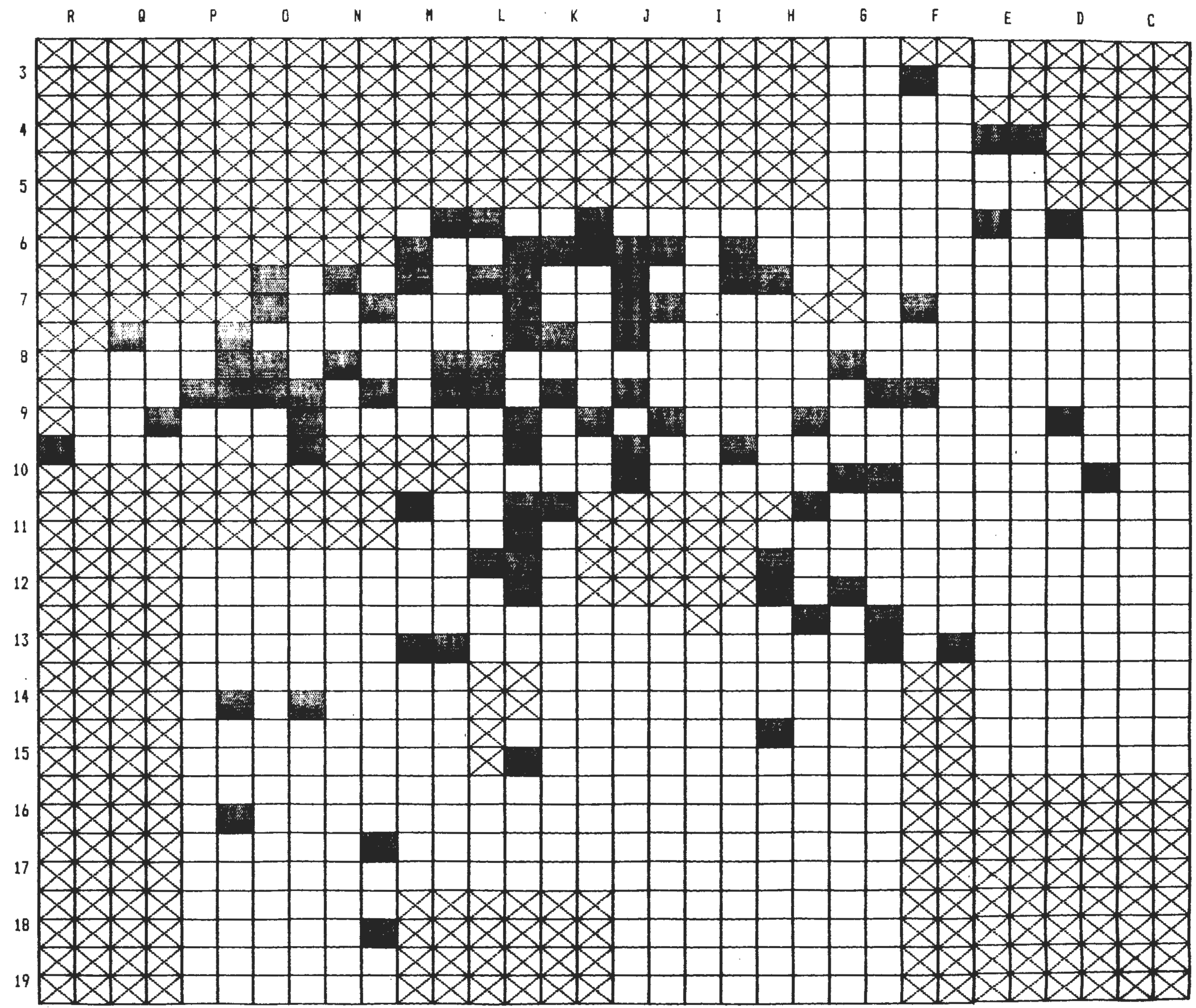
39 CORE IRREGULAR : QUARTZITE n = 8



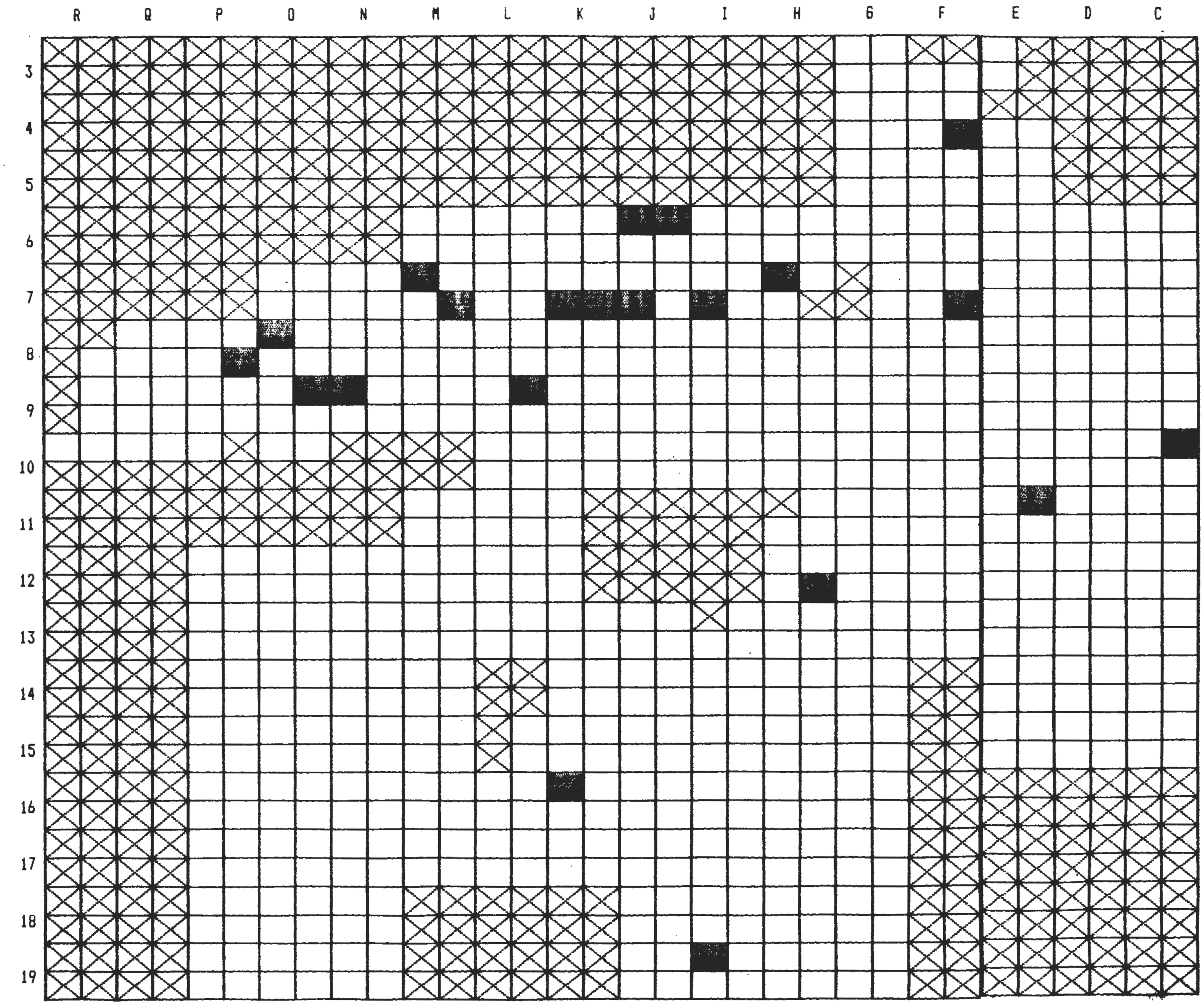
40 CORE BIPOLAR : COMBINED RAW MATERIALS n = 300



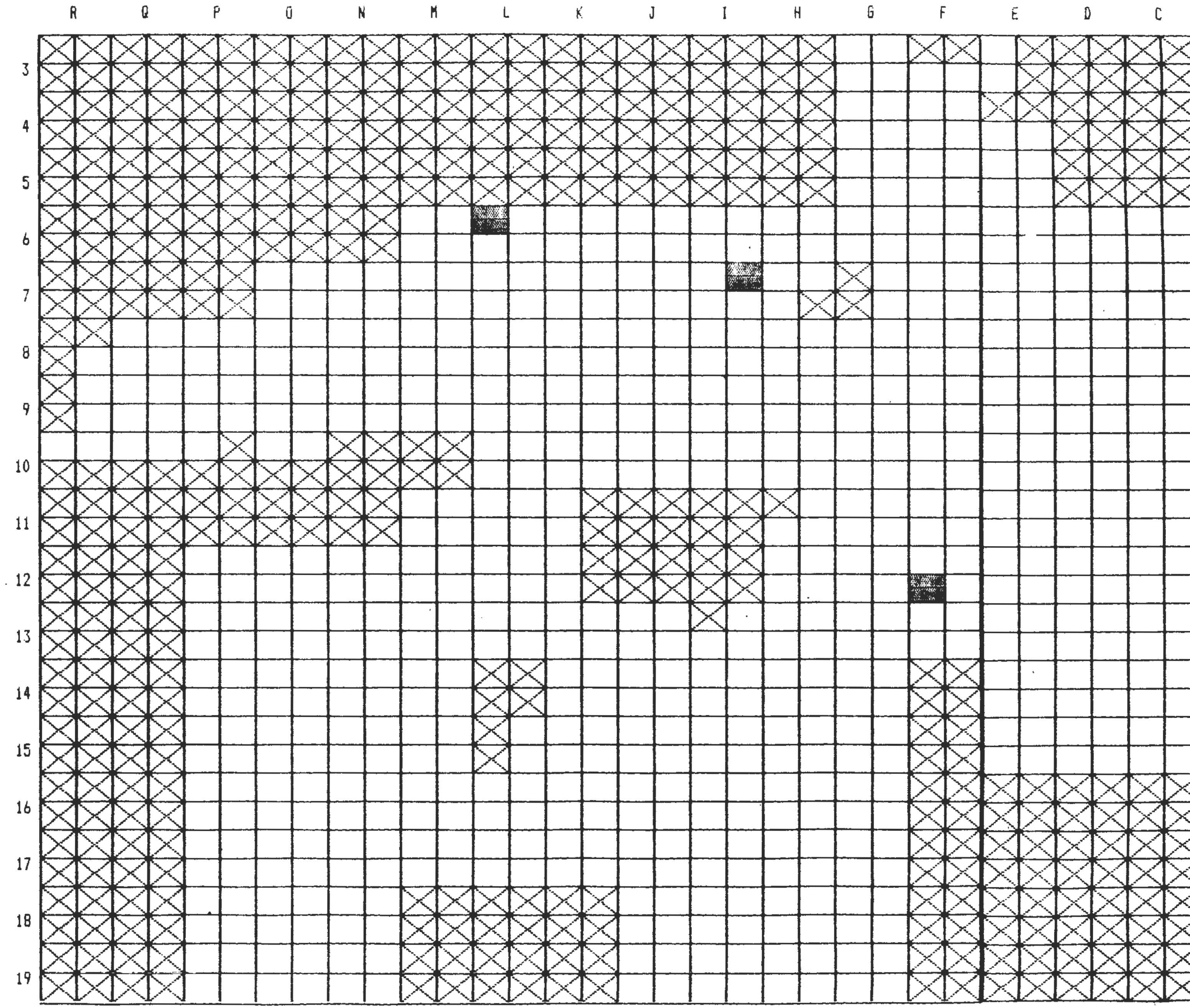
41 CORE BIPOLAR : QUARTZ n = 150



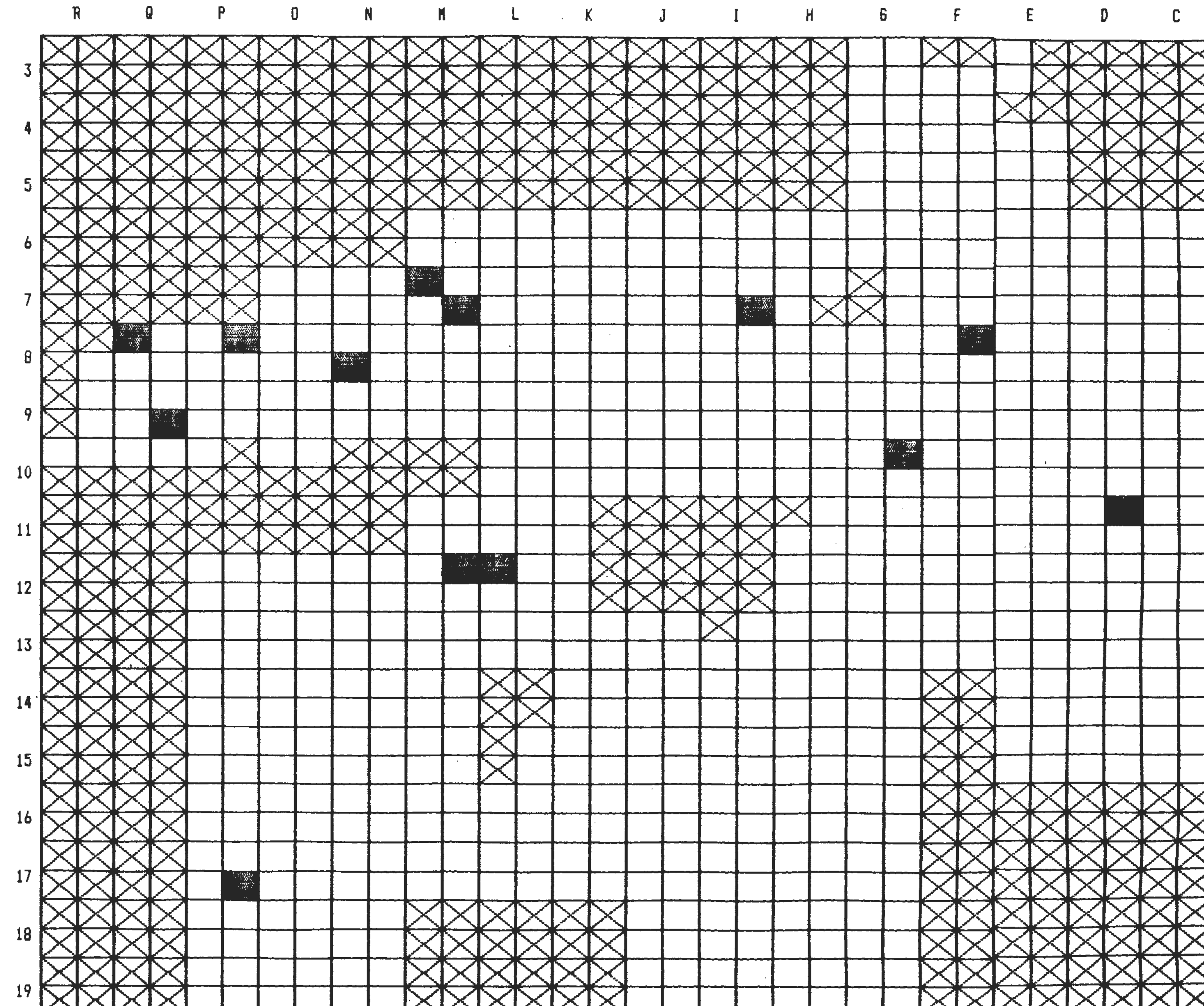
42 CORE BIPOLAR : HORNFELS $n = 119$



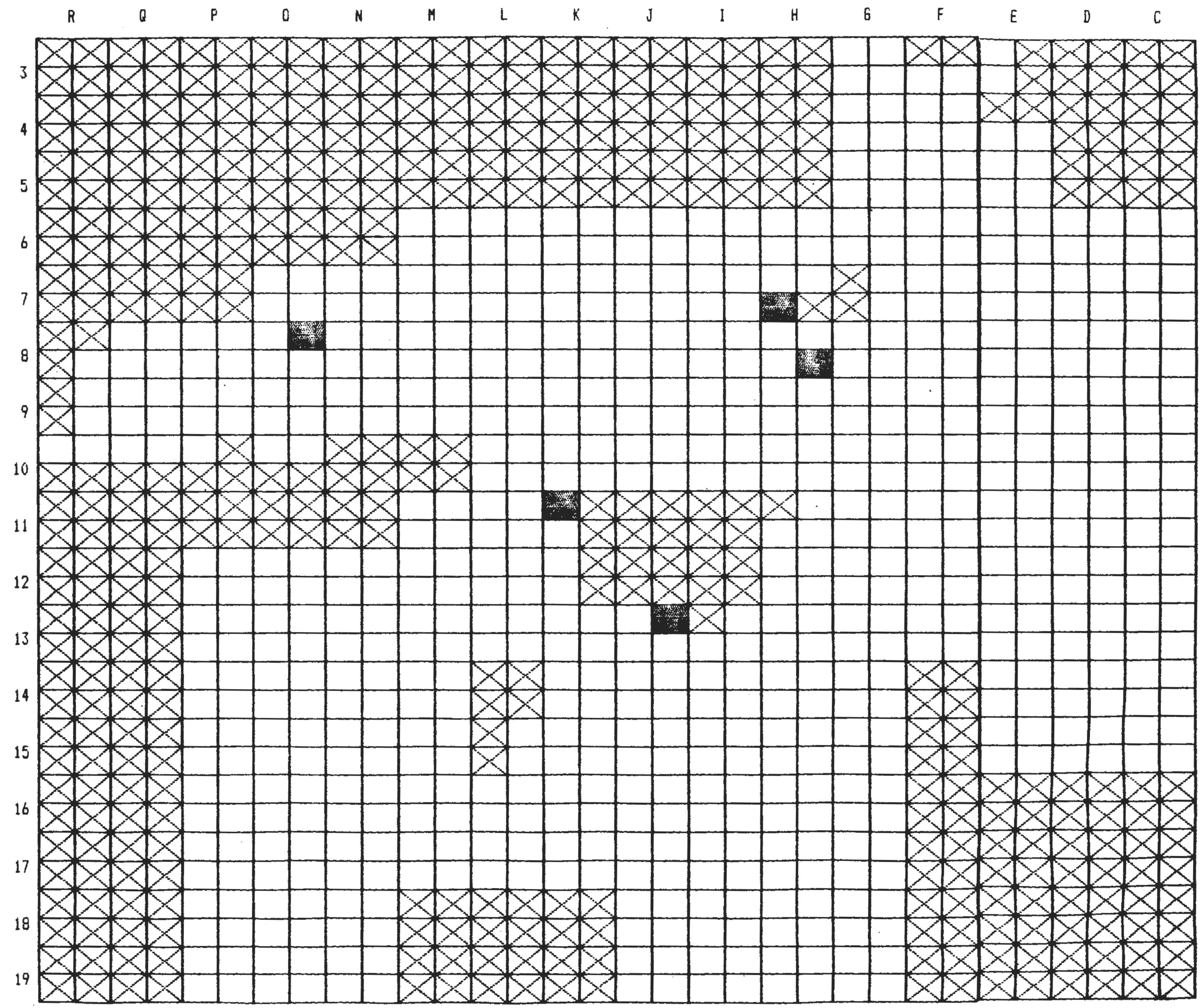
43 CORE BIPOLAR : CCS n = 23



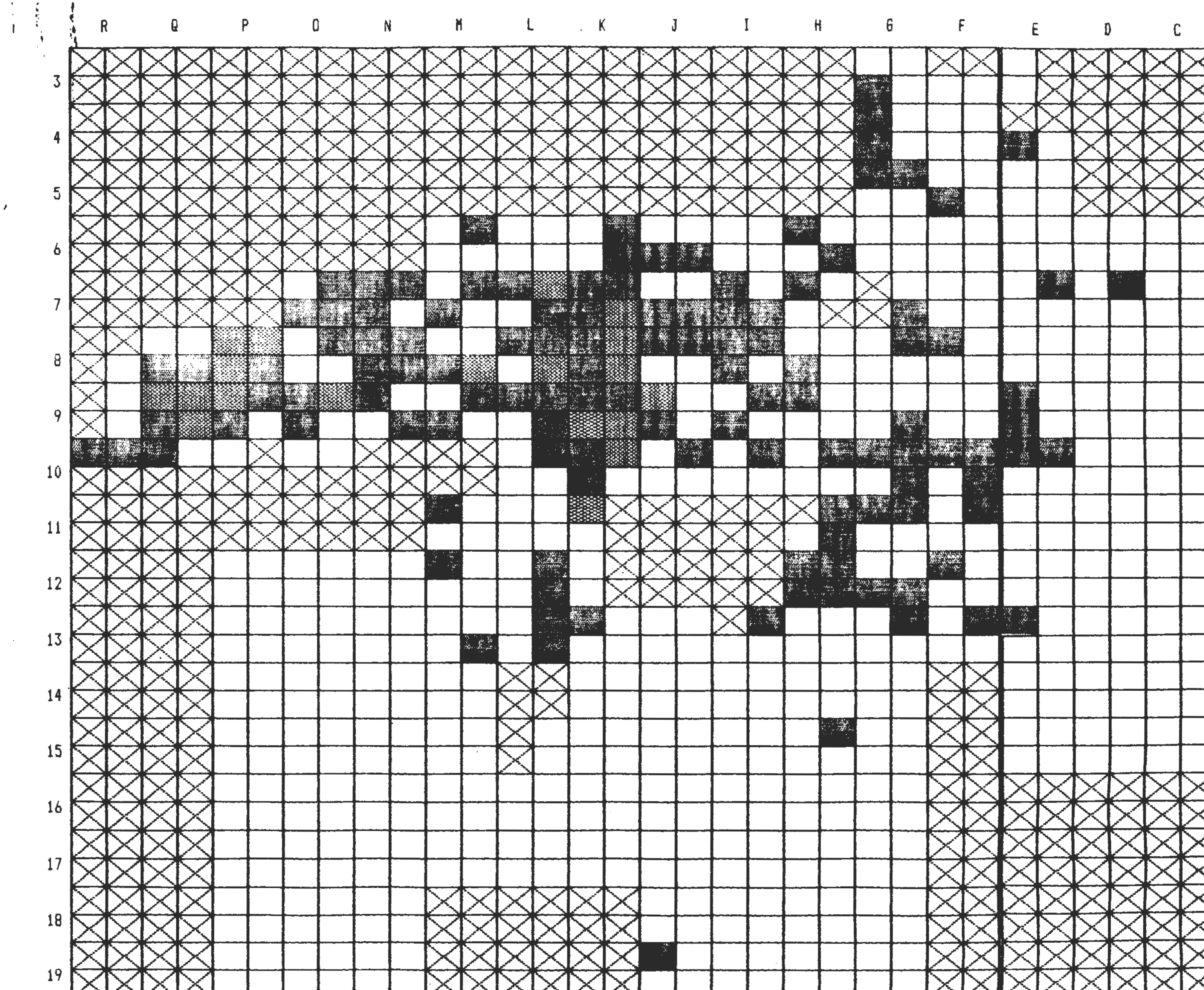
44 CORE BIPOLAR : SHALE $n = 3$



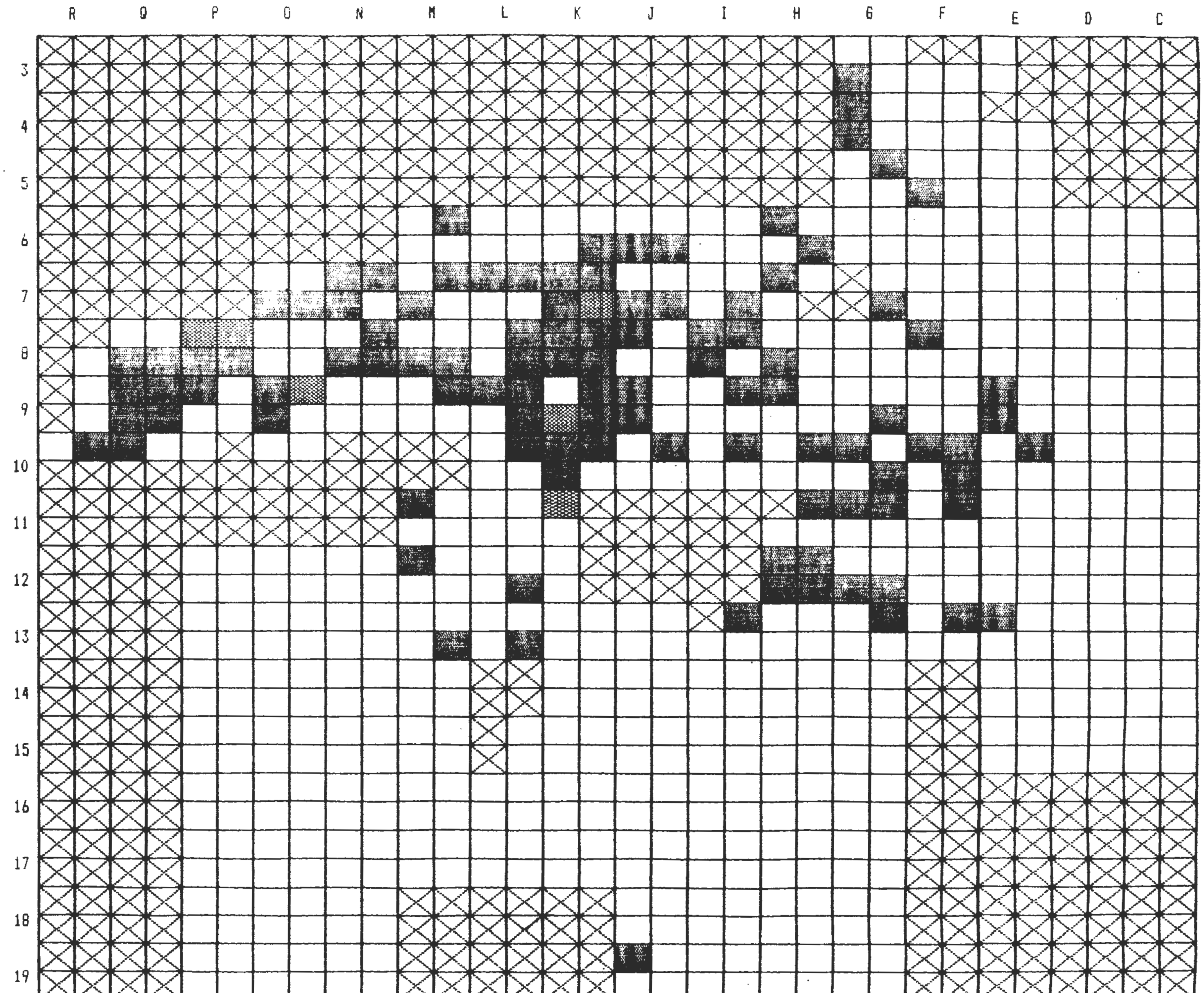
45 CORE BLADELET : COMBINED RAW MATERIALS n = 13



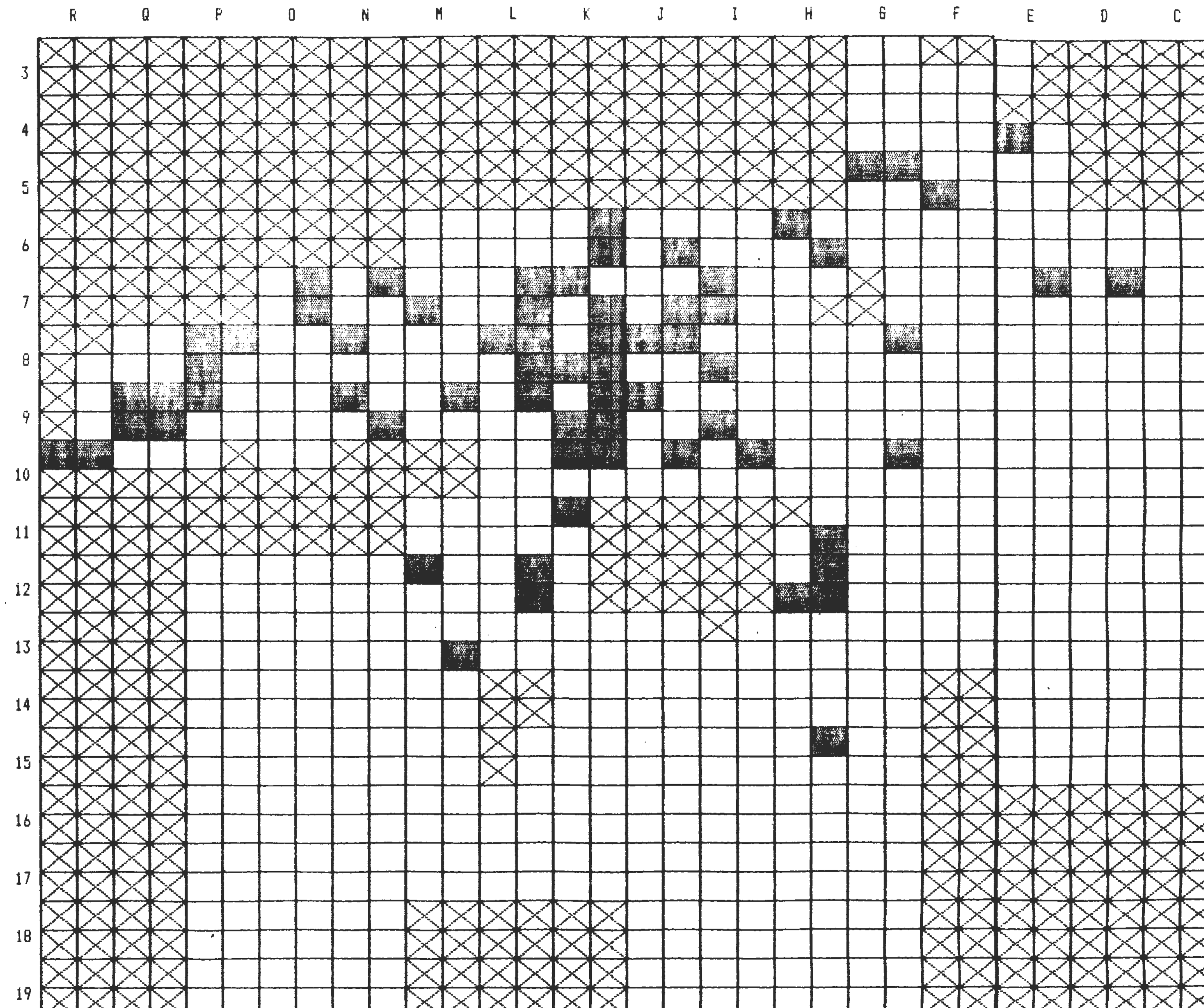
46 CORE SINGLE PLATFORM : COMBINED RAW MATERIALS n = 5



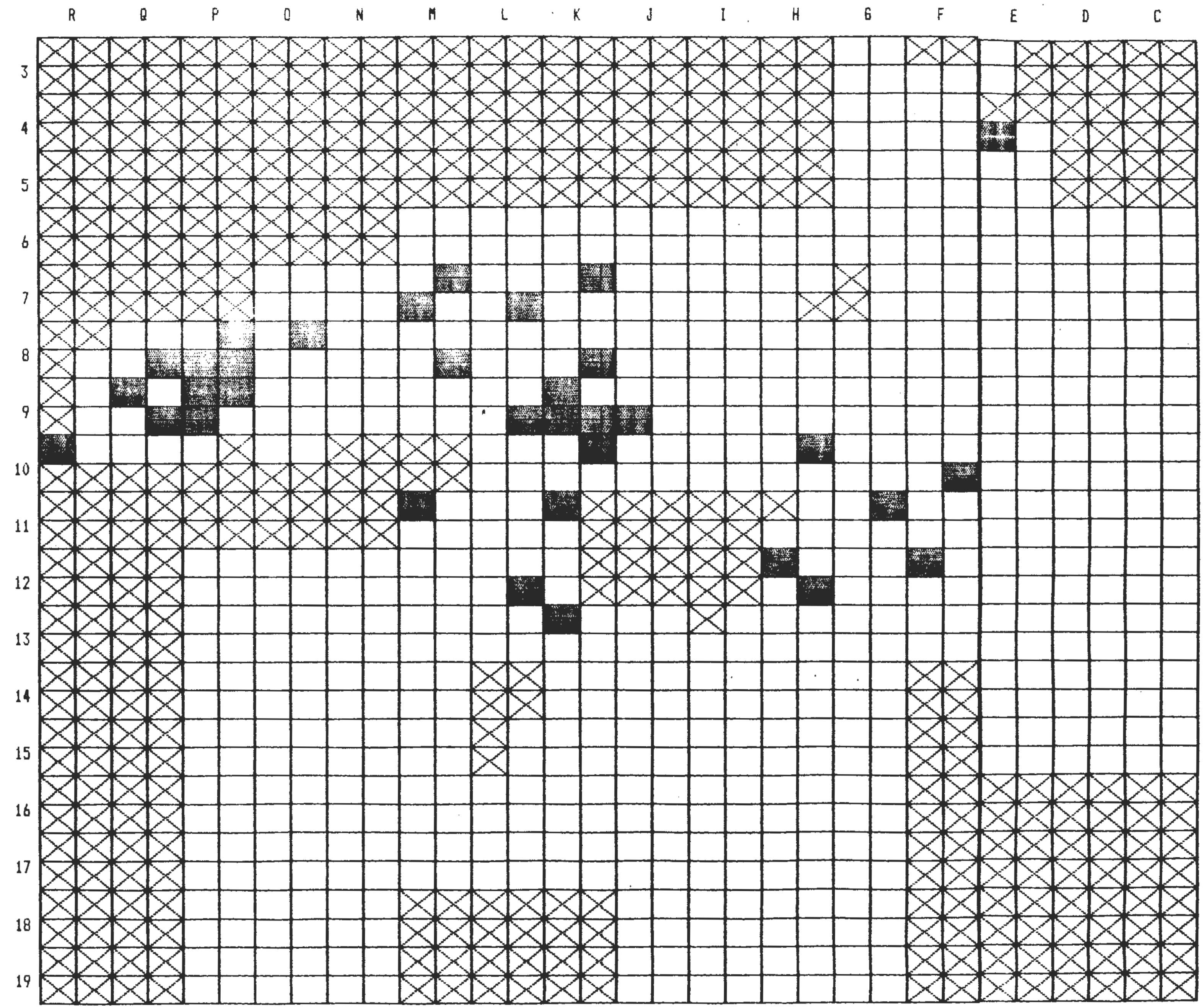
47 BLADELETS : COMBINED RAW MATERIALS n = 339



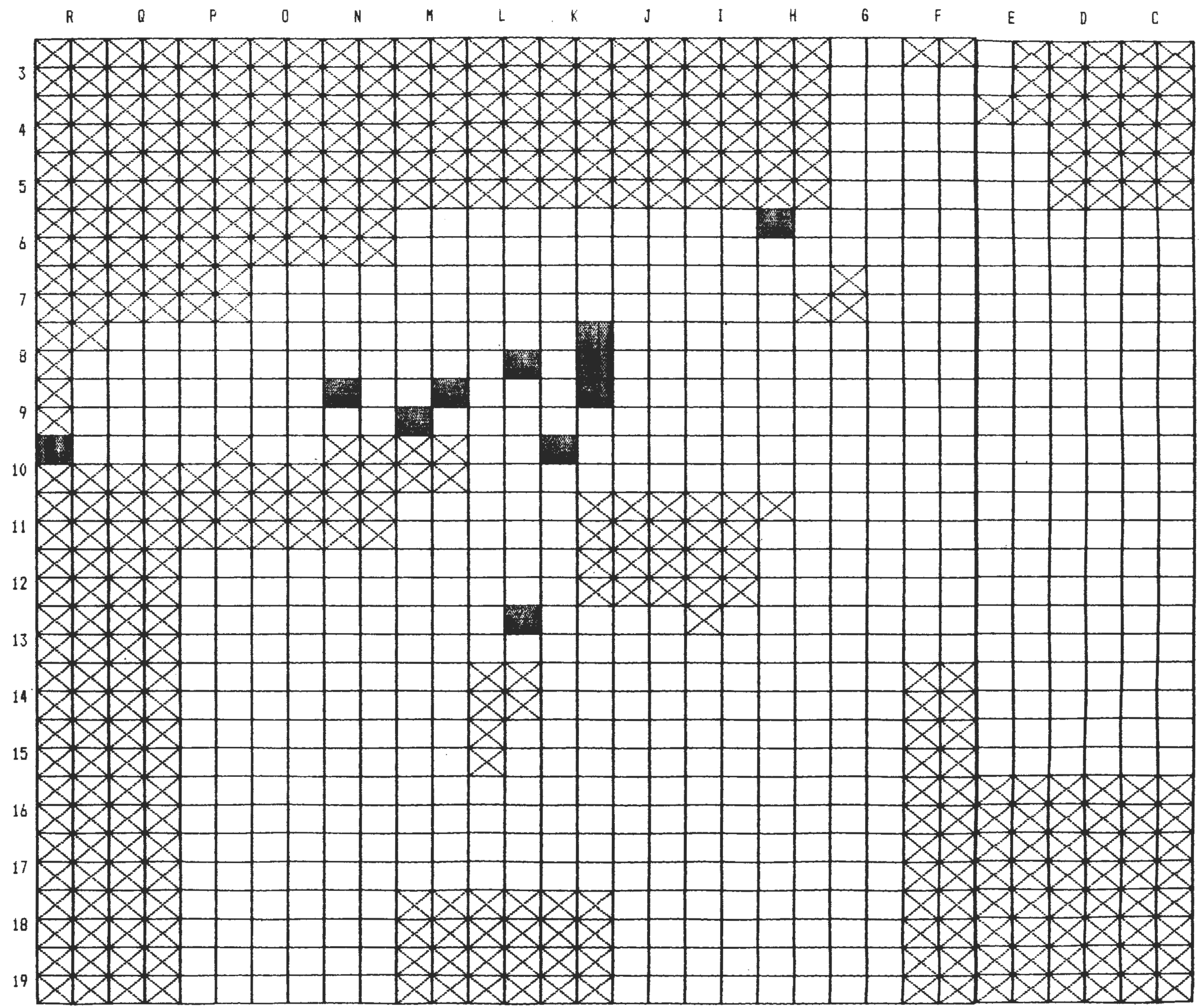
48 BLADELETS : QUARTZ $n = 200$



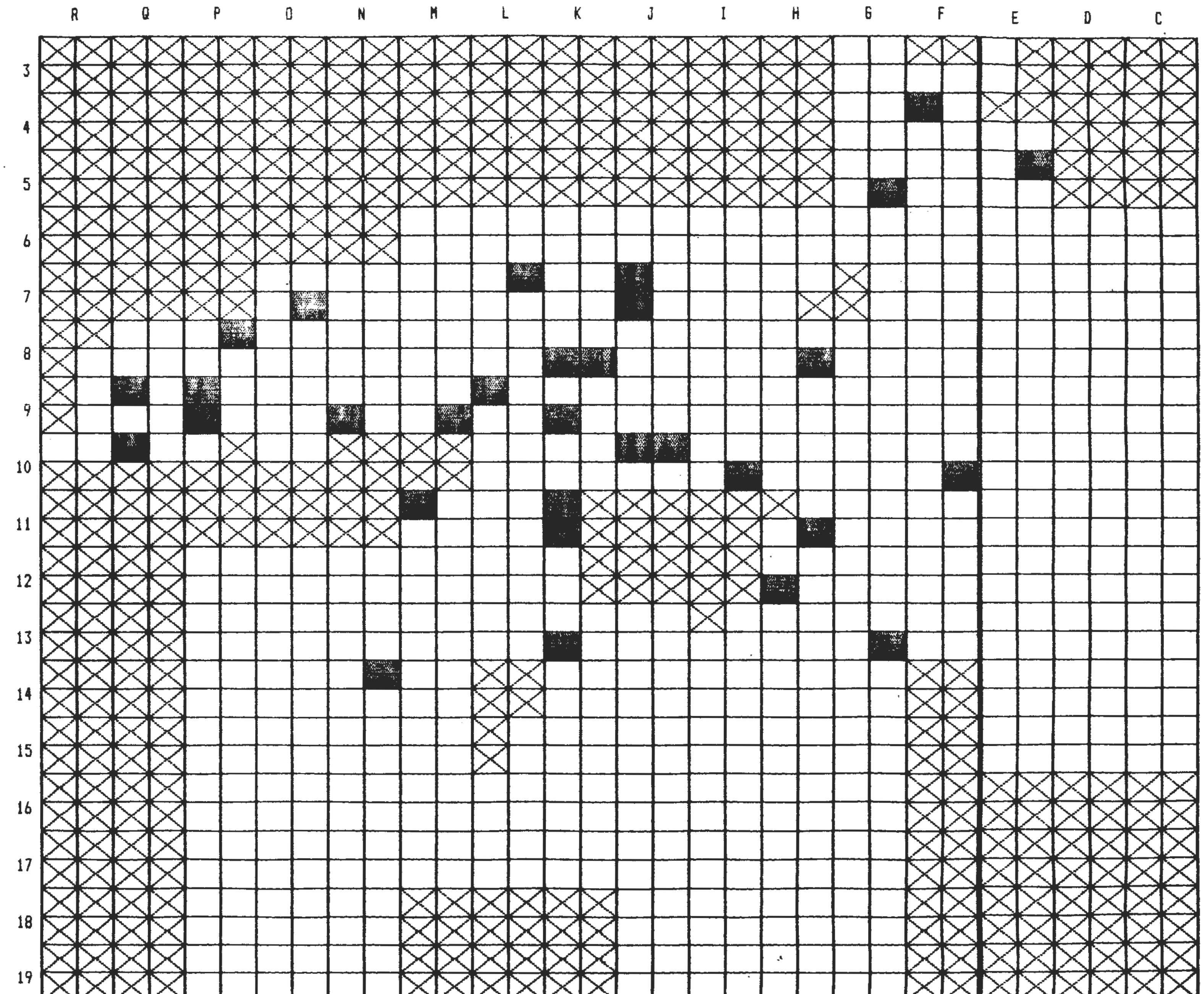
49 BLADELETS : HORNFELS n = 79



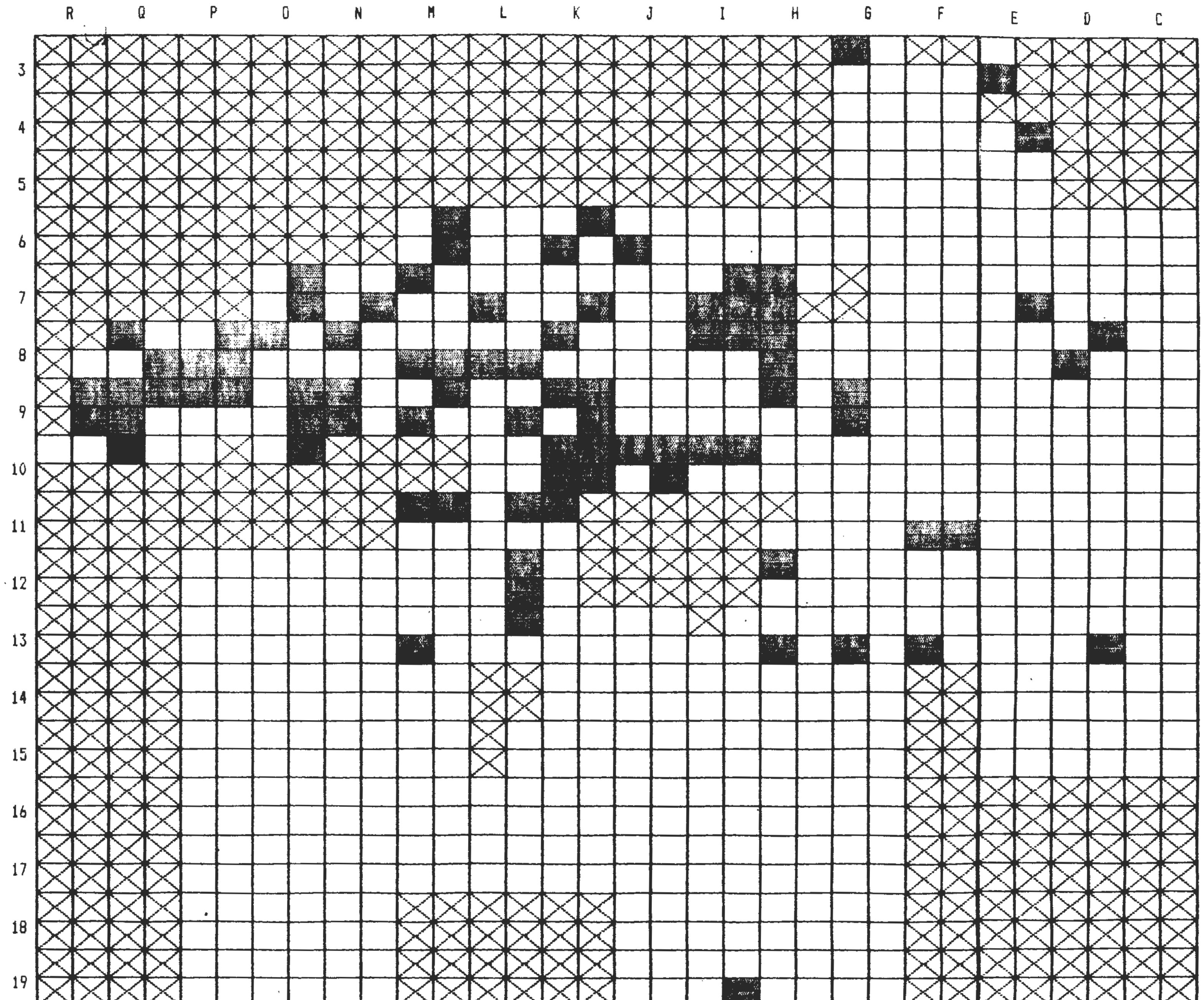
50 BLADELETS : CCS n = 44



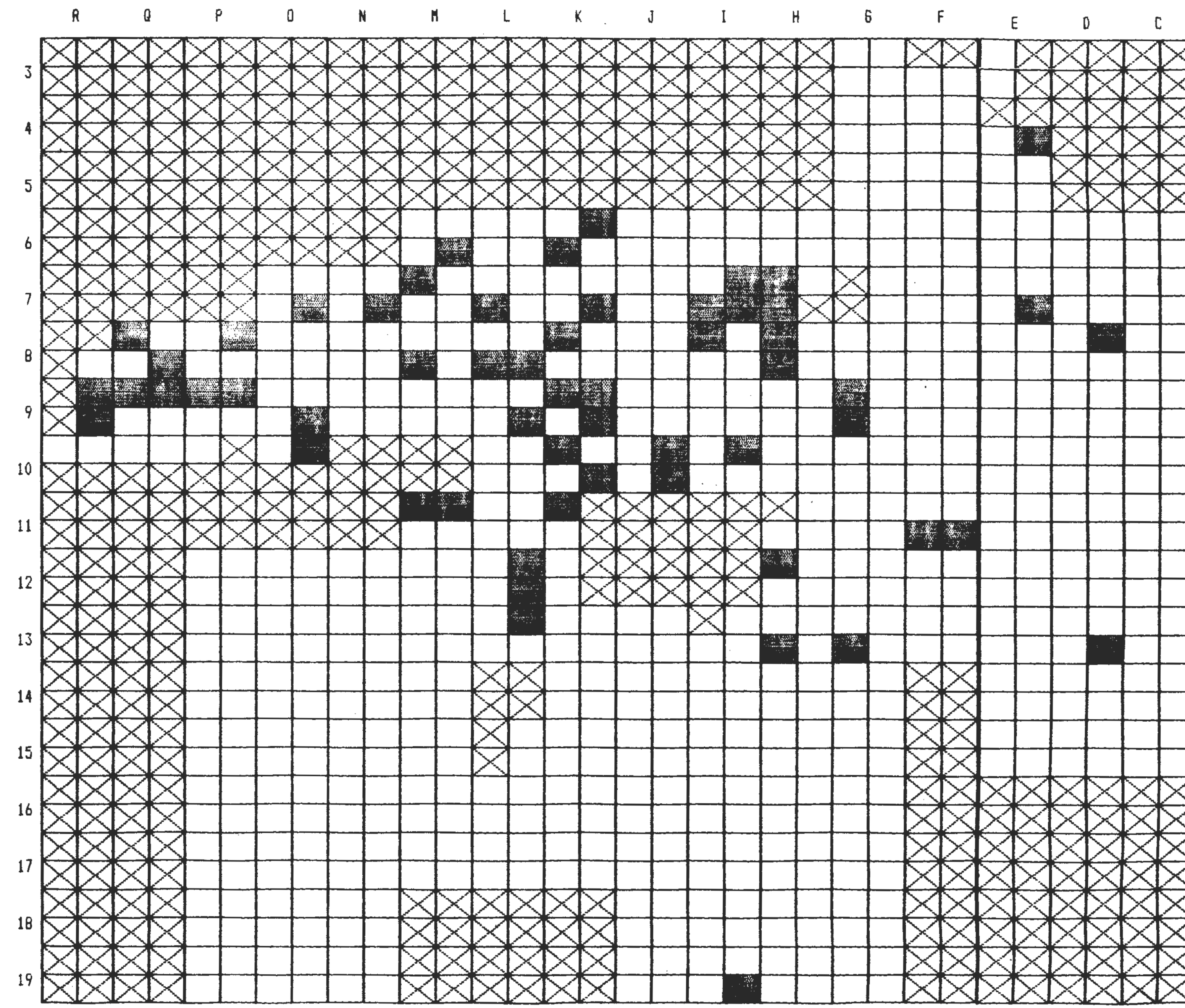
51 BLADELETS : SILCRETE n = 11



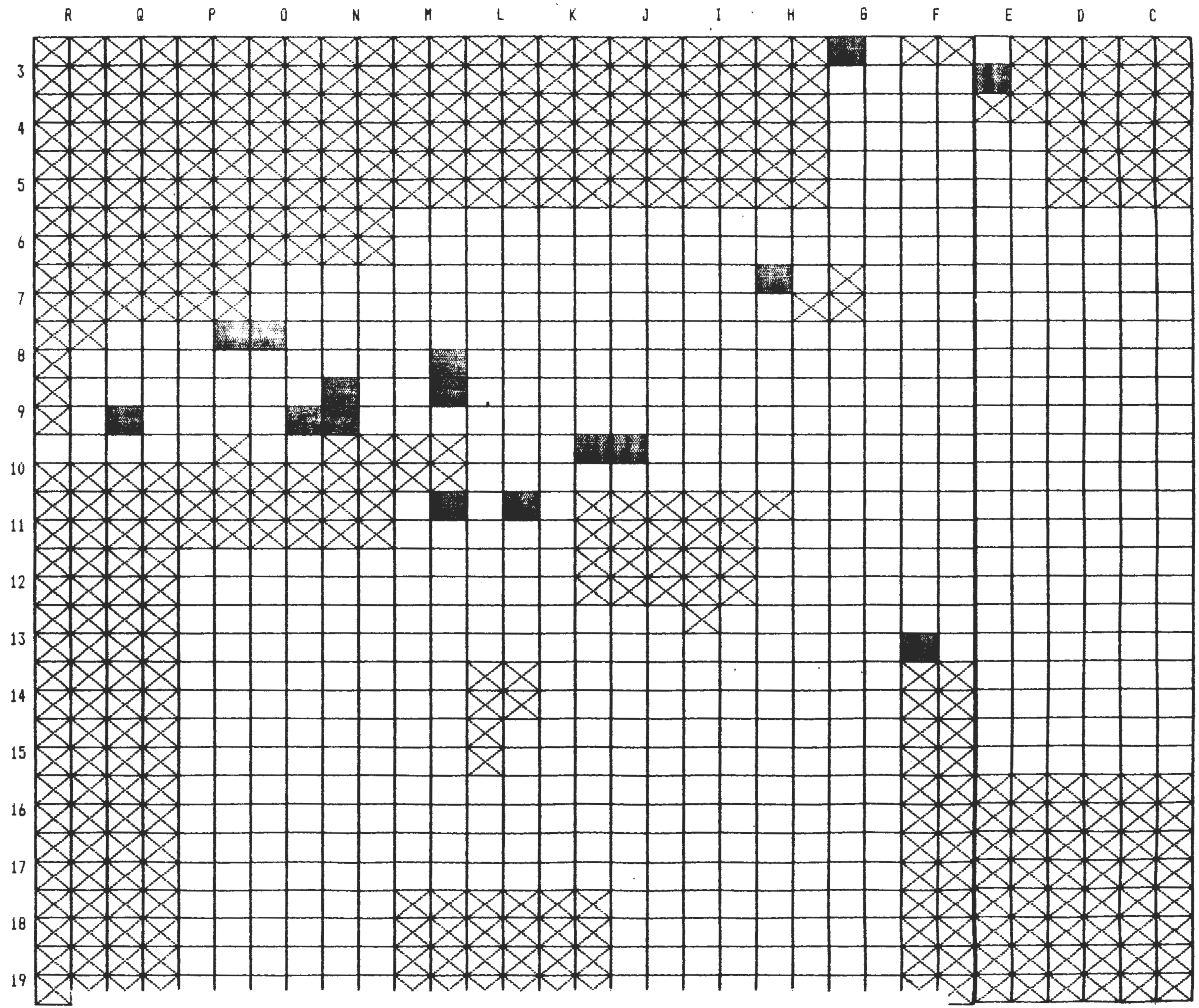
52 BLADES : COMBINED RAW MATERIALS n = 33



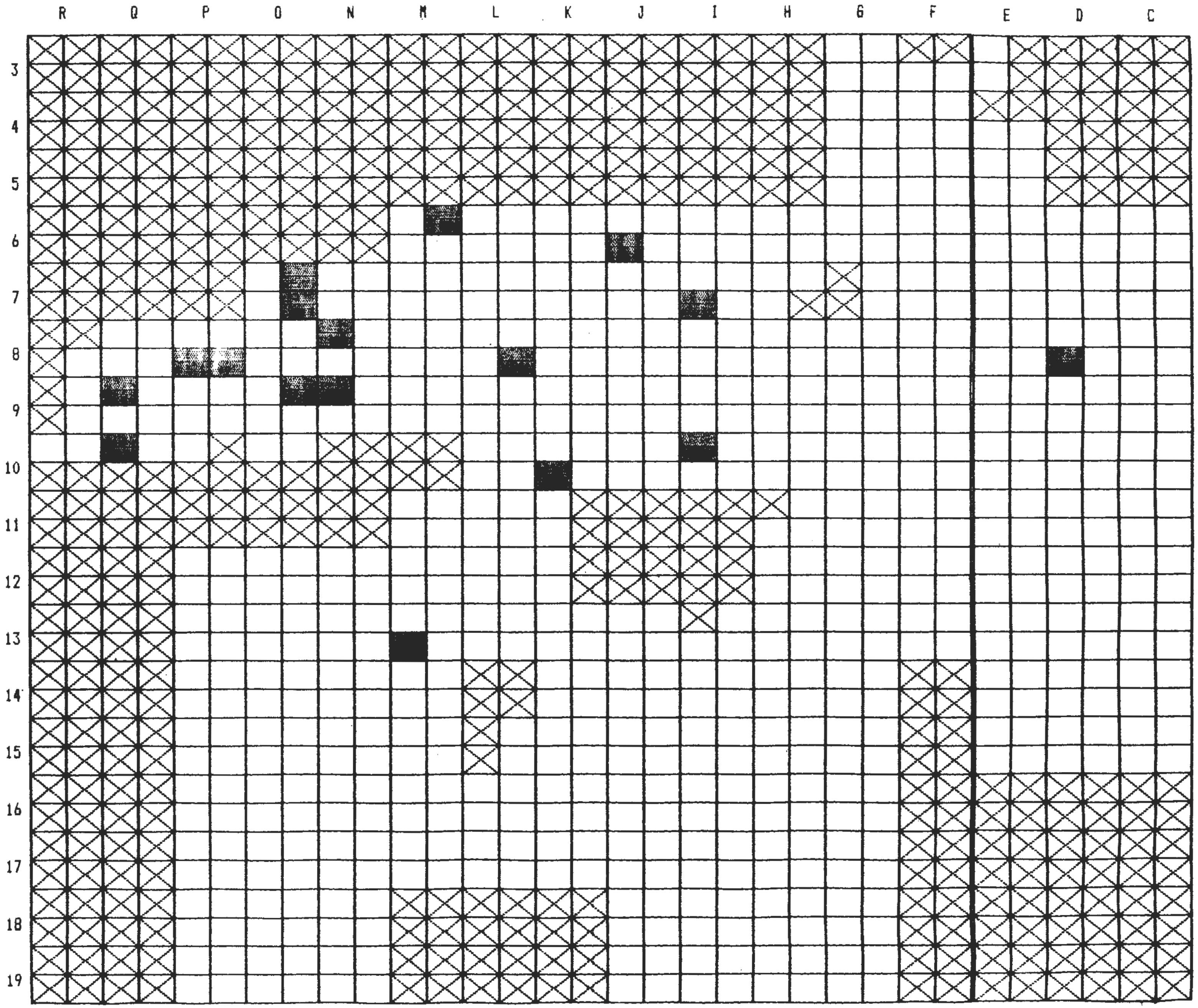
53 UTILIZED FLAKES : COMBINED RAW MATERIALS $n = 108$



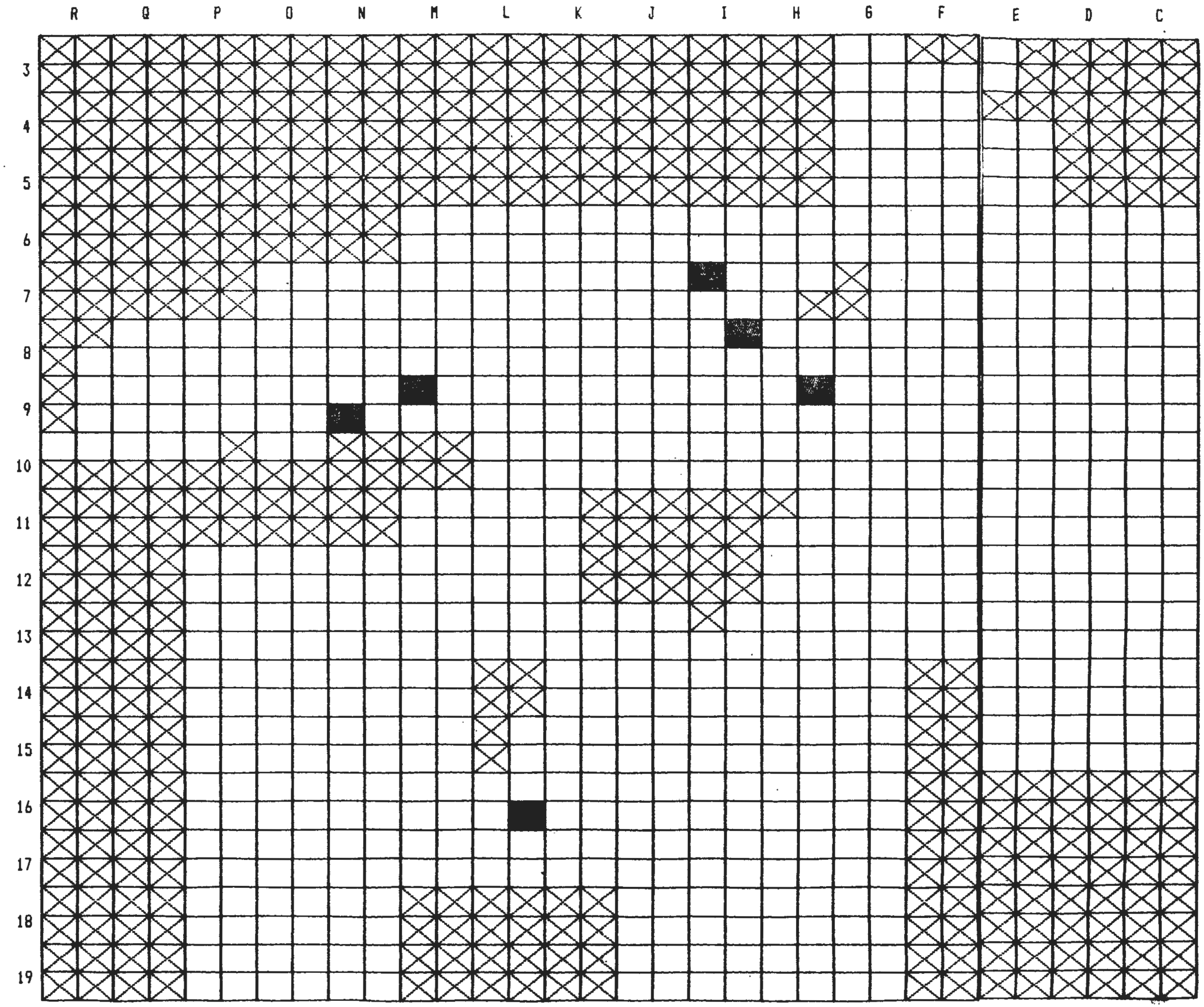
54 UTILIZED FLAKES : HORNFELS n = 66



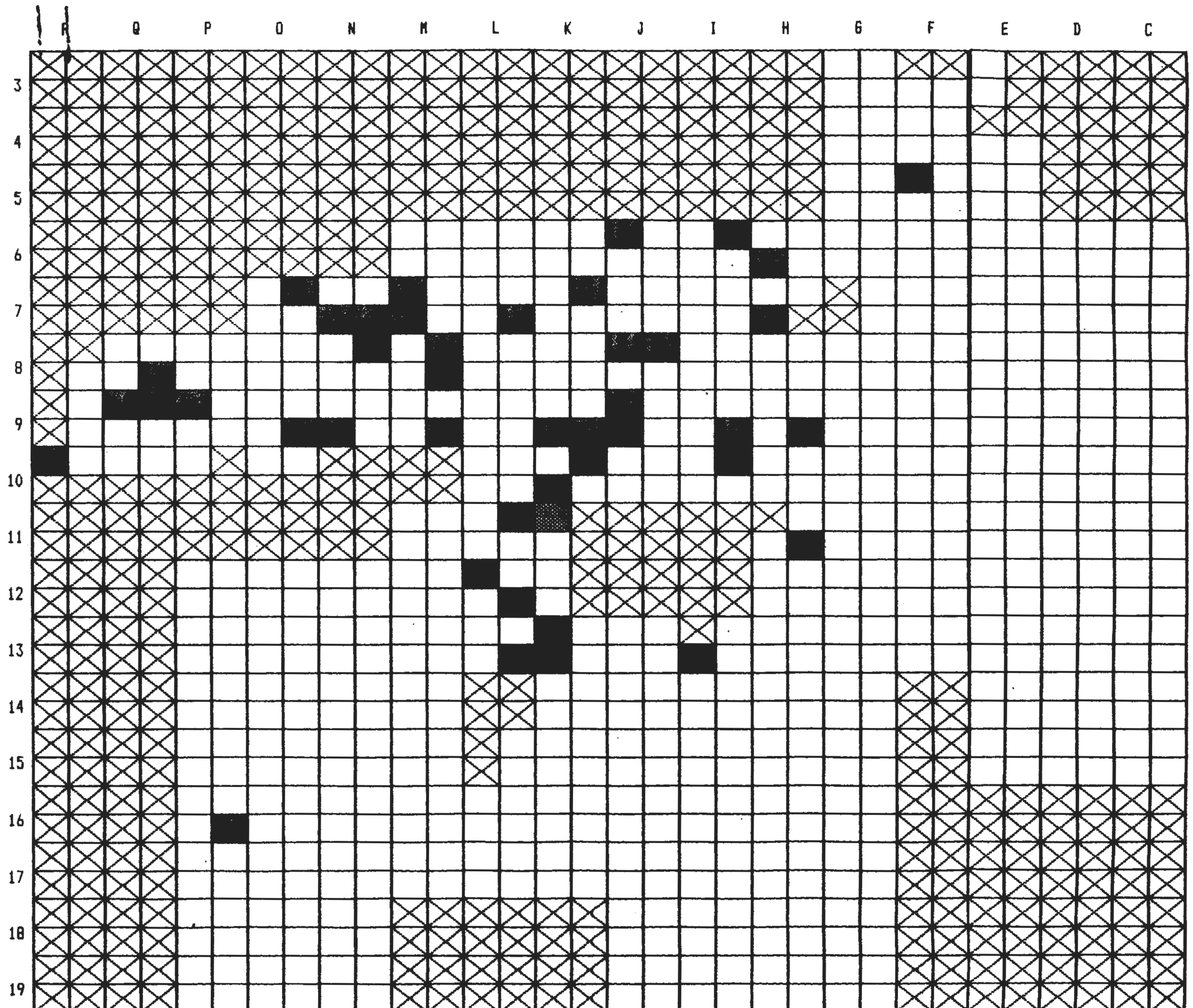
55 UTILIZED FLAKES : QUARTZ n = 17



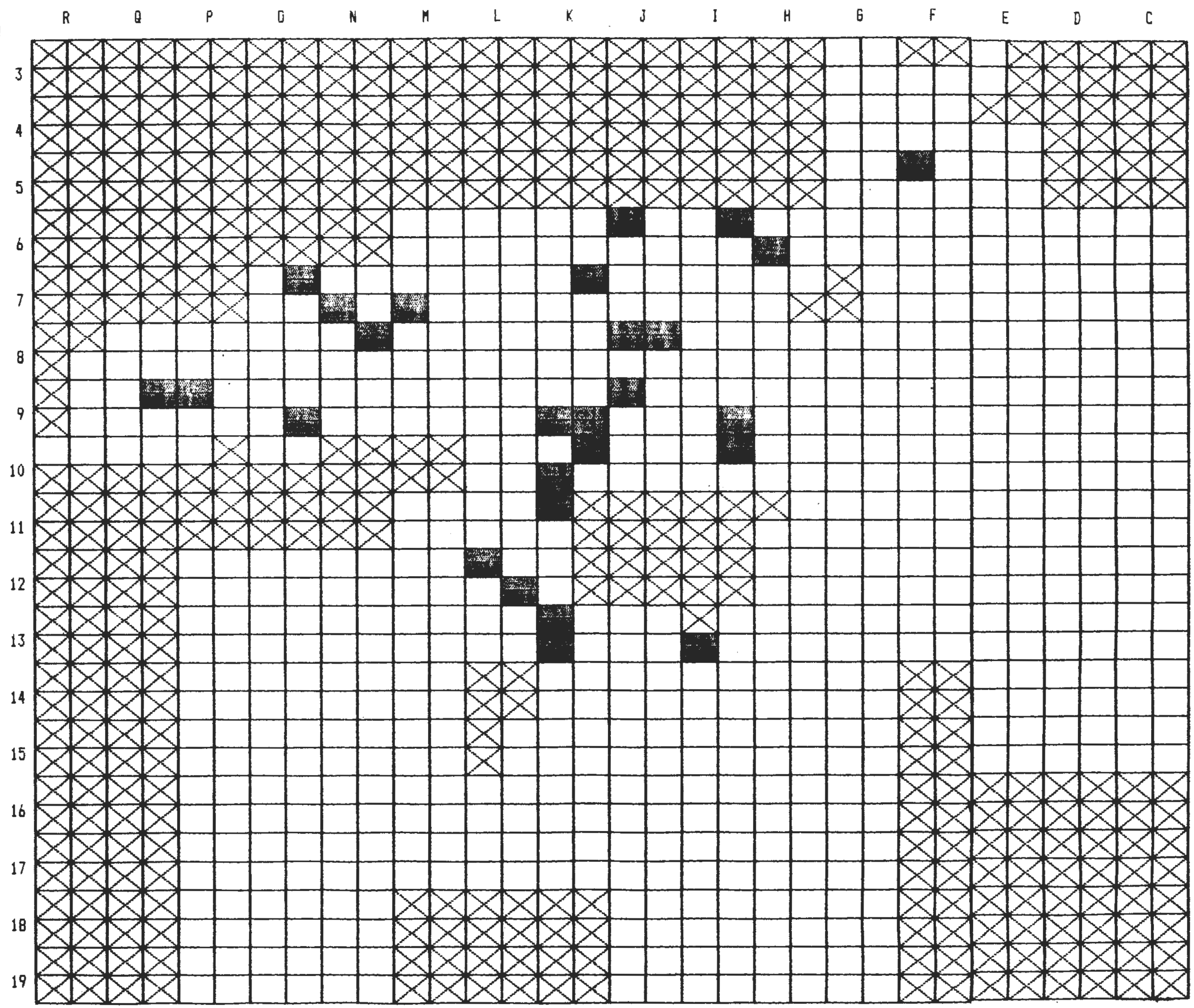
56 UTILIZED FLAKES : CCS n = 18



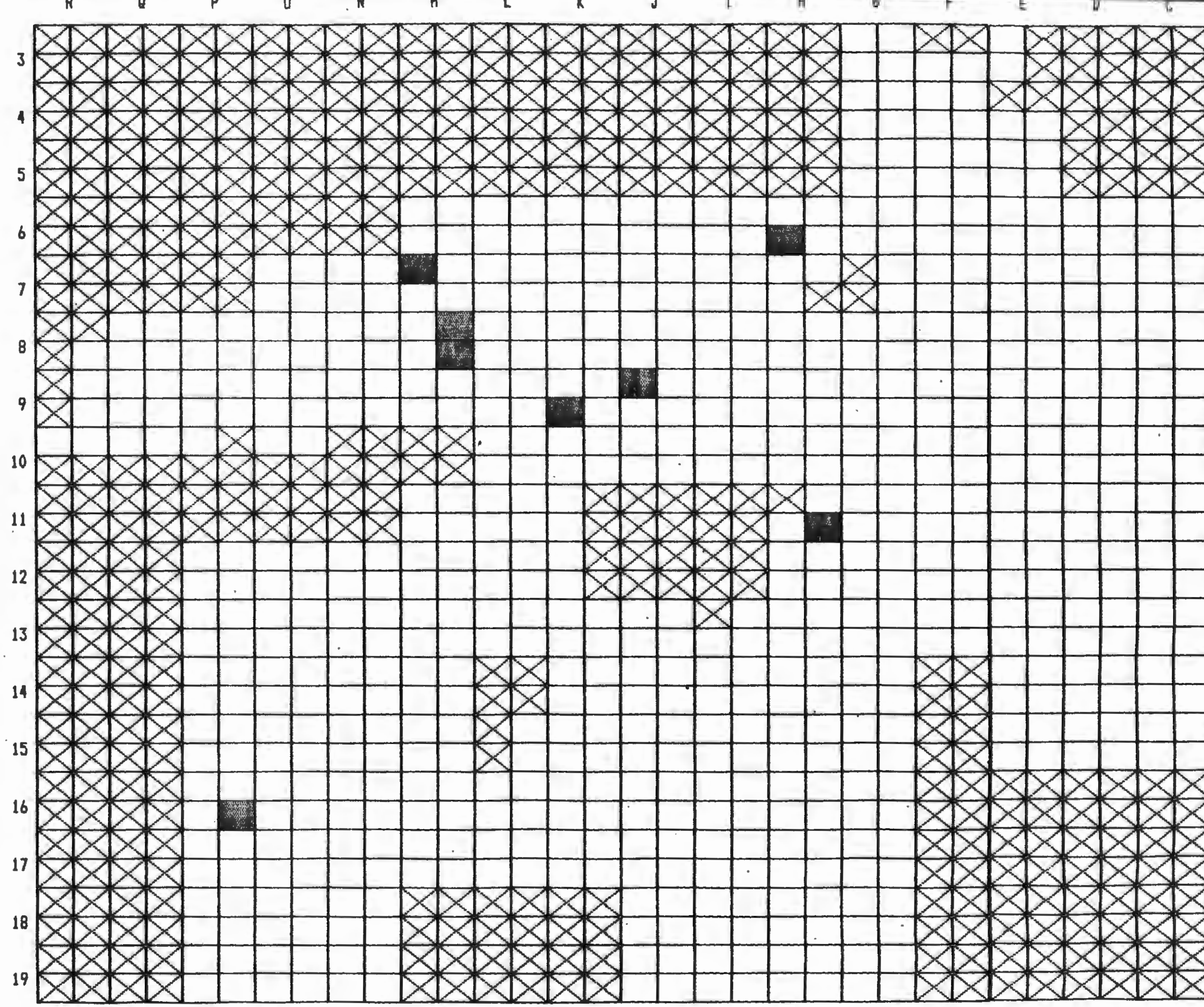
57 UTILIZED CHUNKS : COMBINED RAW MATERIALS $n = 8$



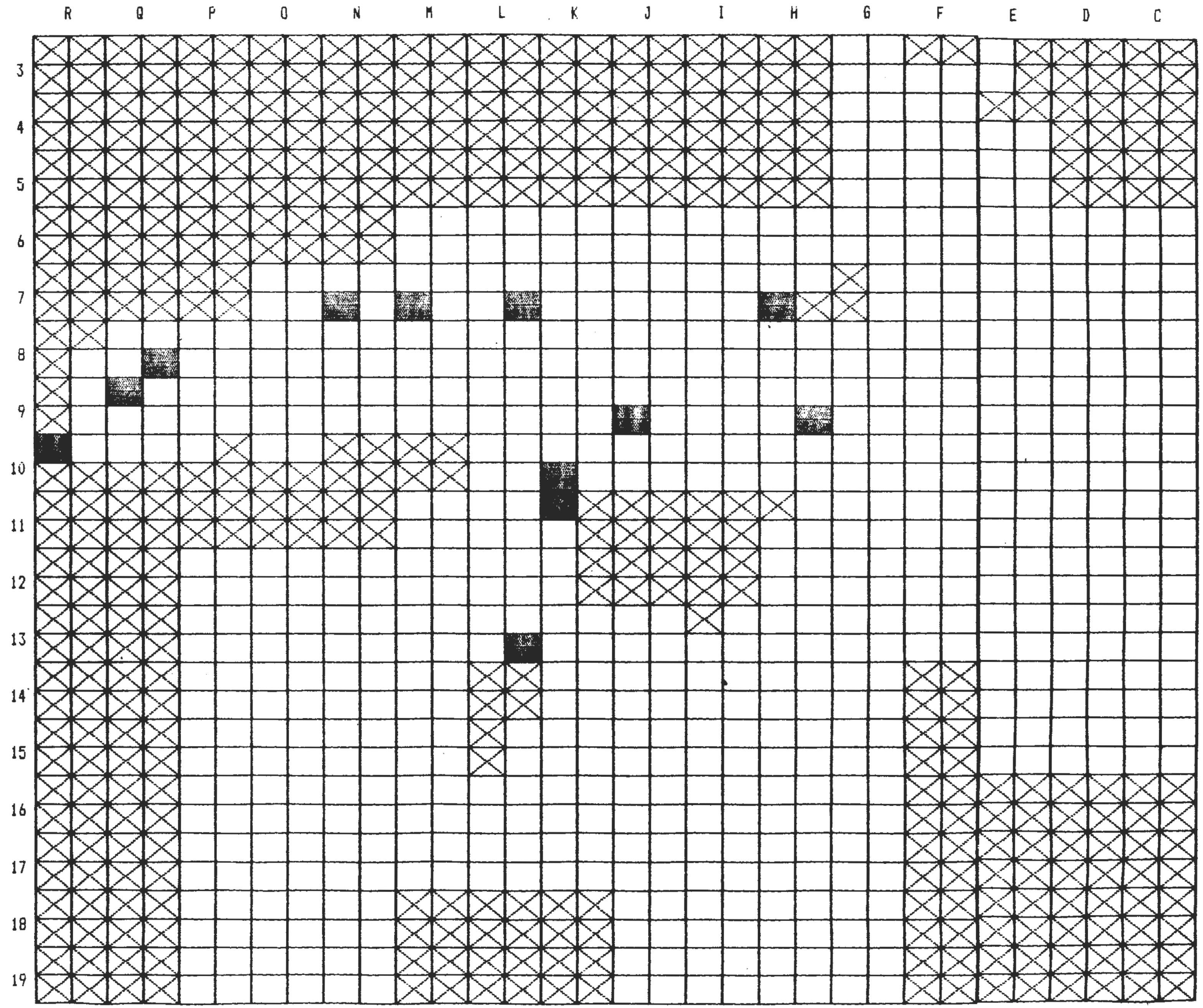
58 MRP : COMBINED RAW MATERIALS n = 61



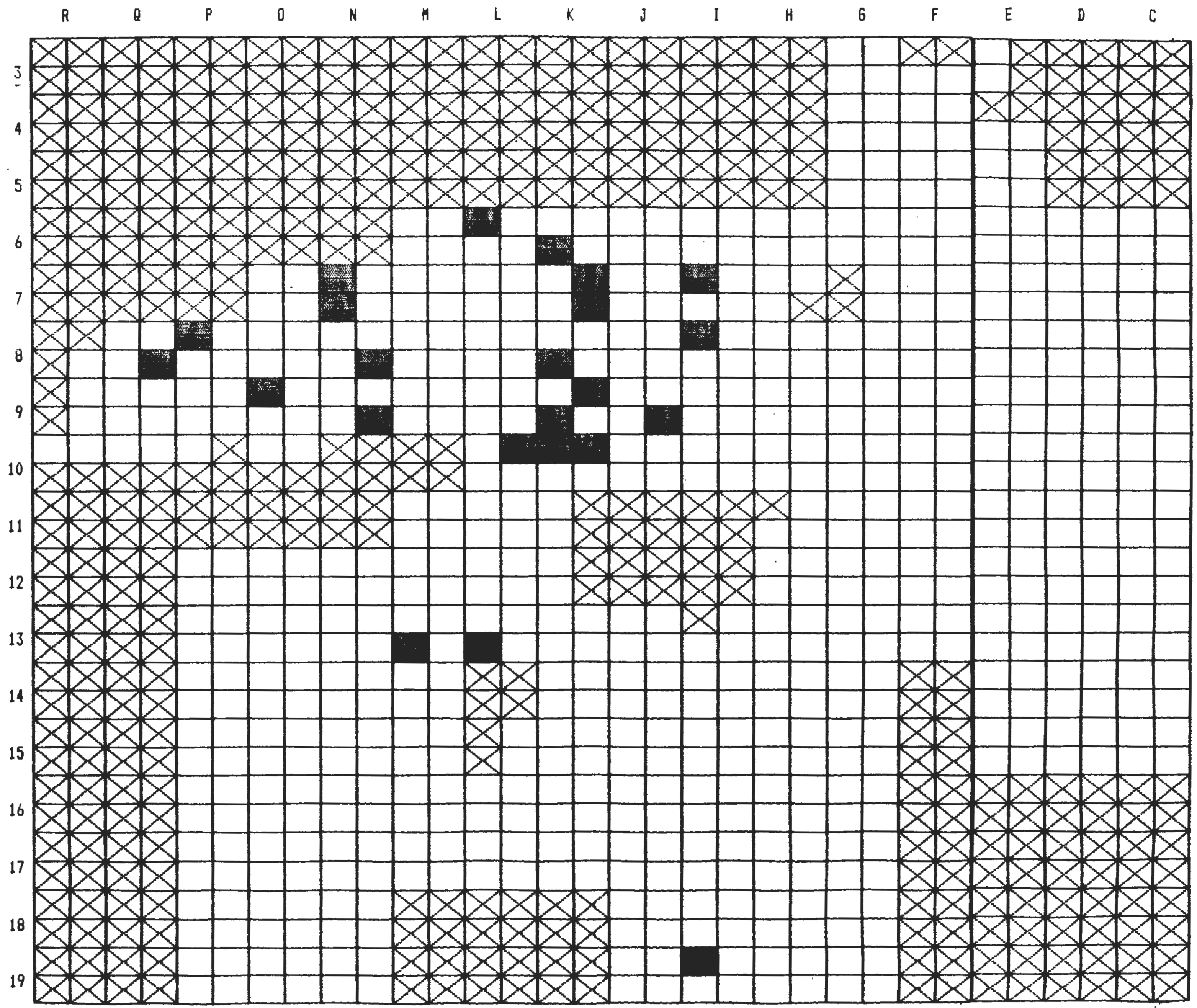
59 MRP : HORNFELS n = 34



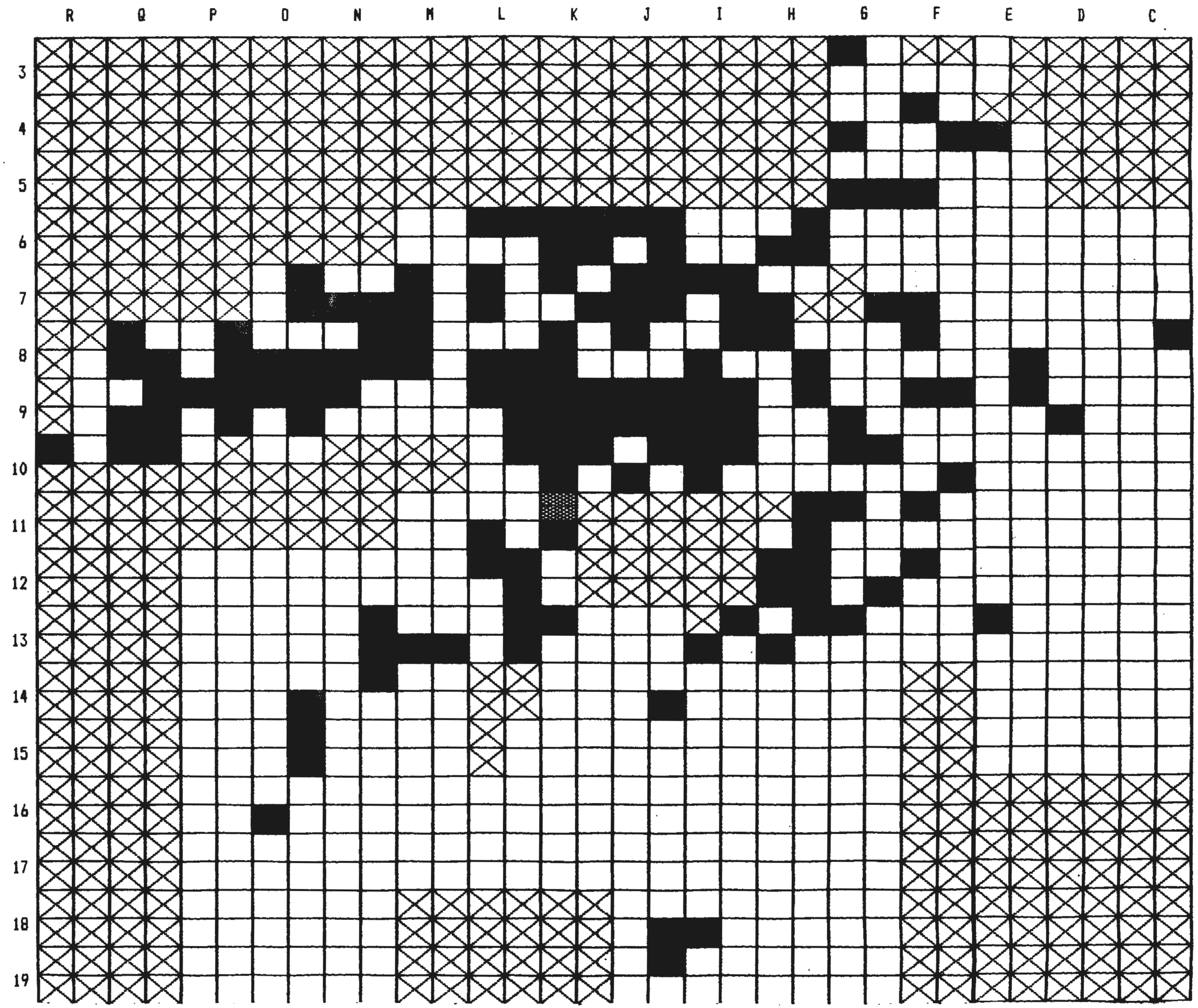
60 MRP : QUARTZ n = 10



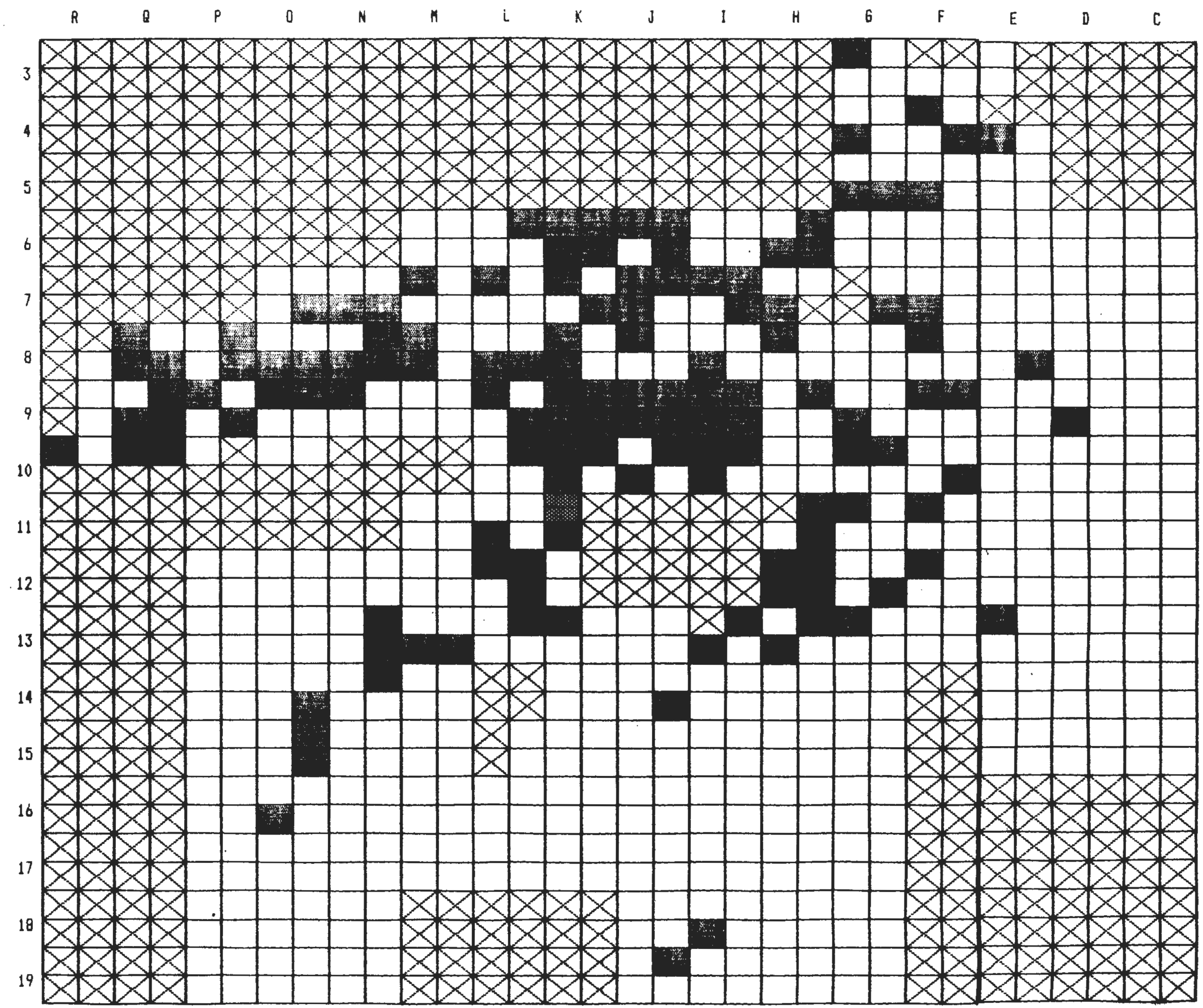
61 MRP : CCS n = 13



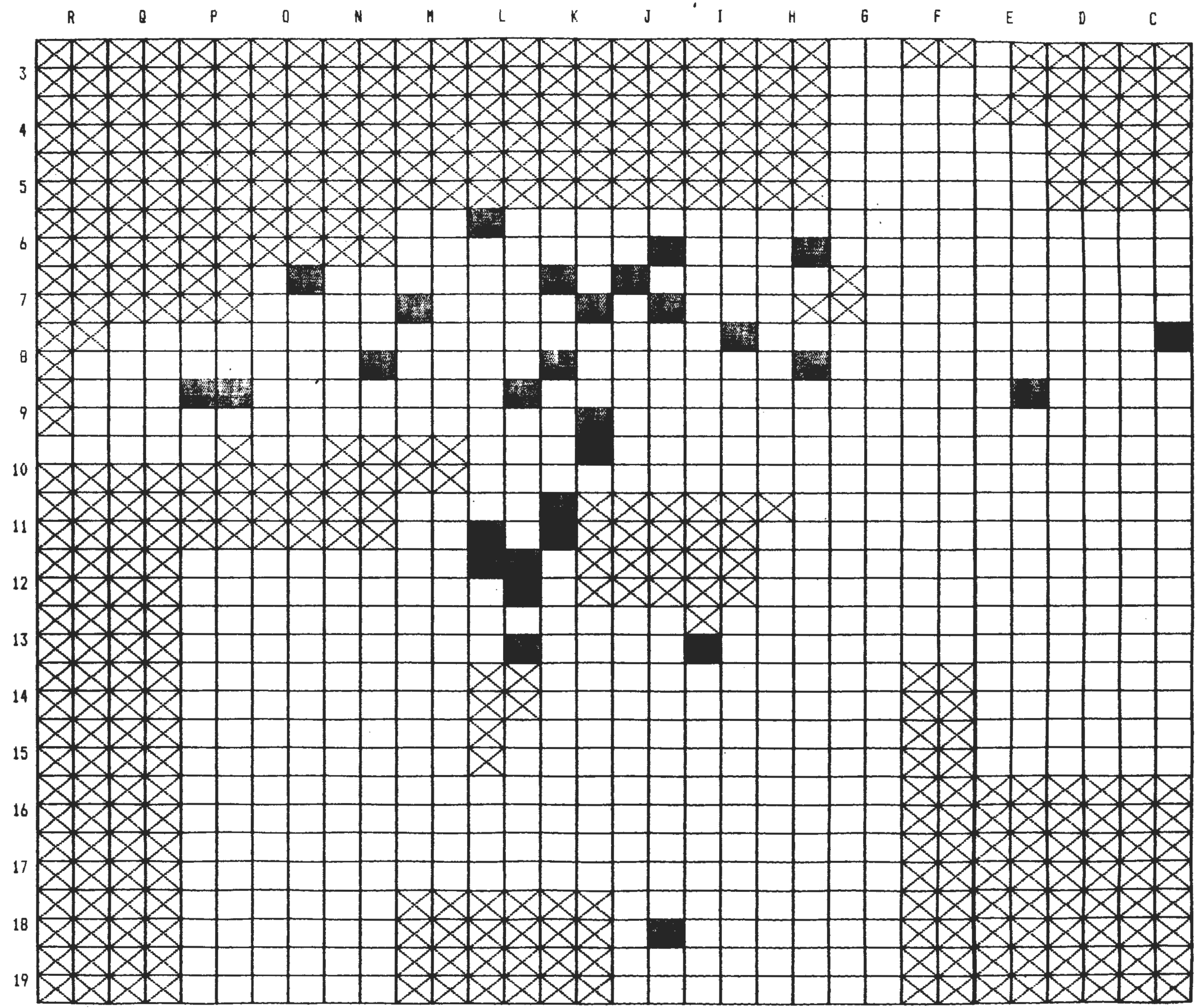
62 ALL BACKED PIECES : COMBINED RAW MATERIALS n = 24



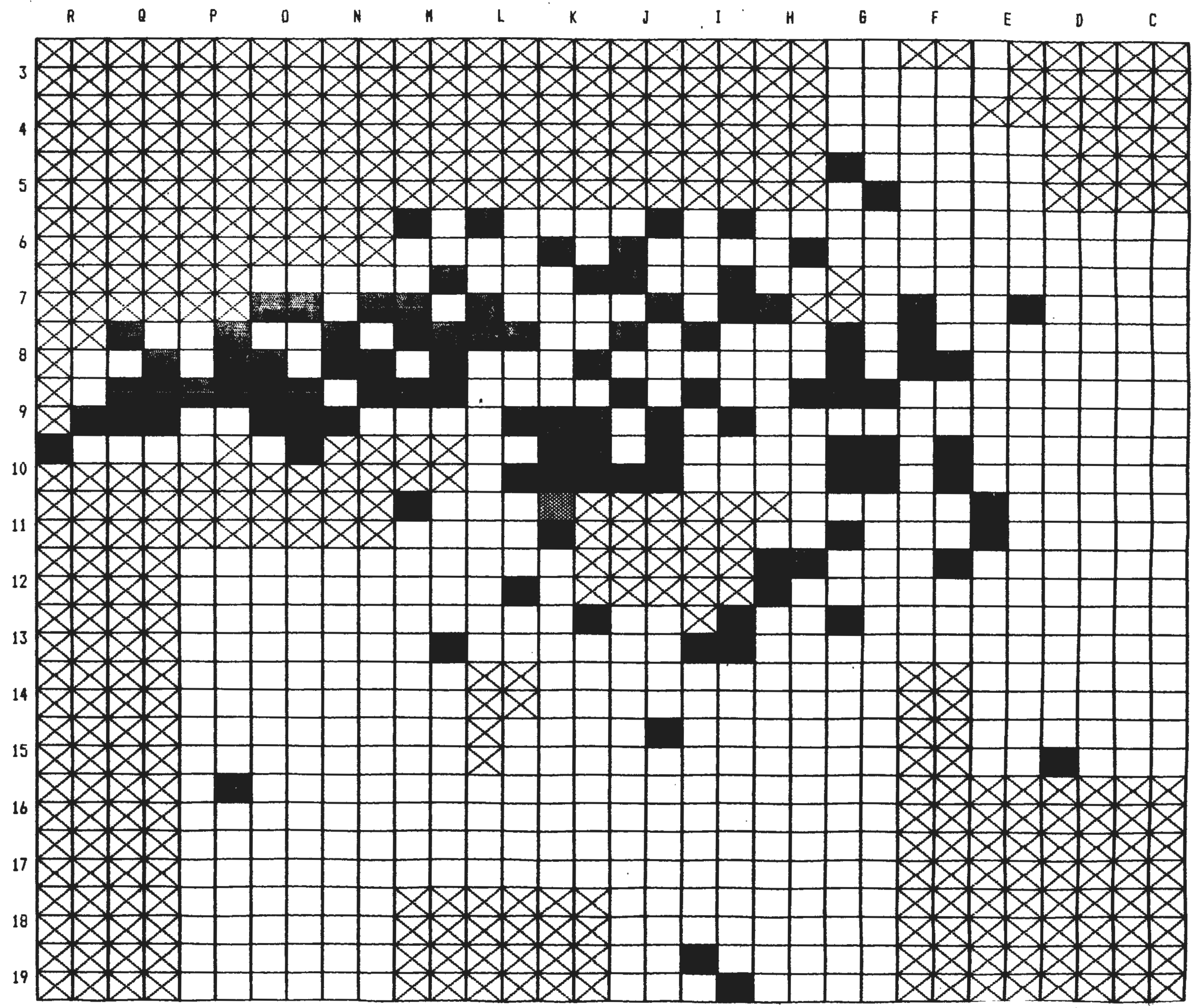
63 ADZES : COMBINED RAW MATERIALS n = 230



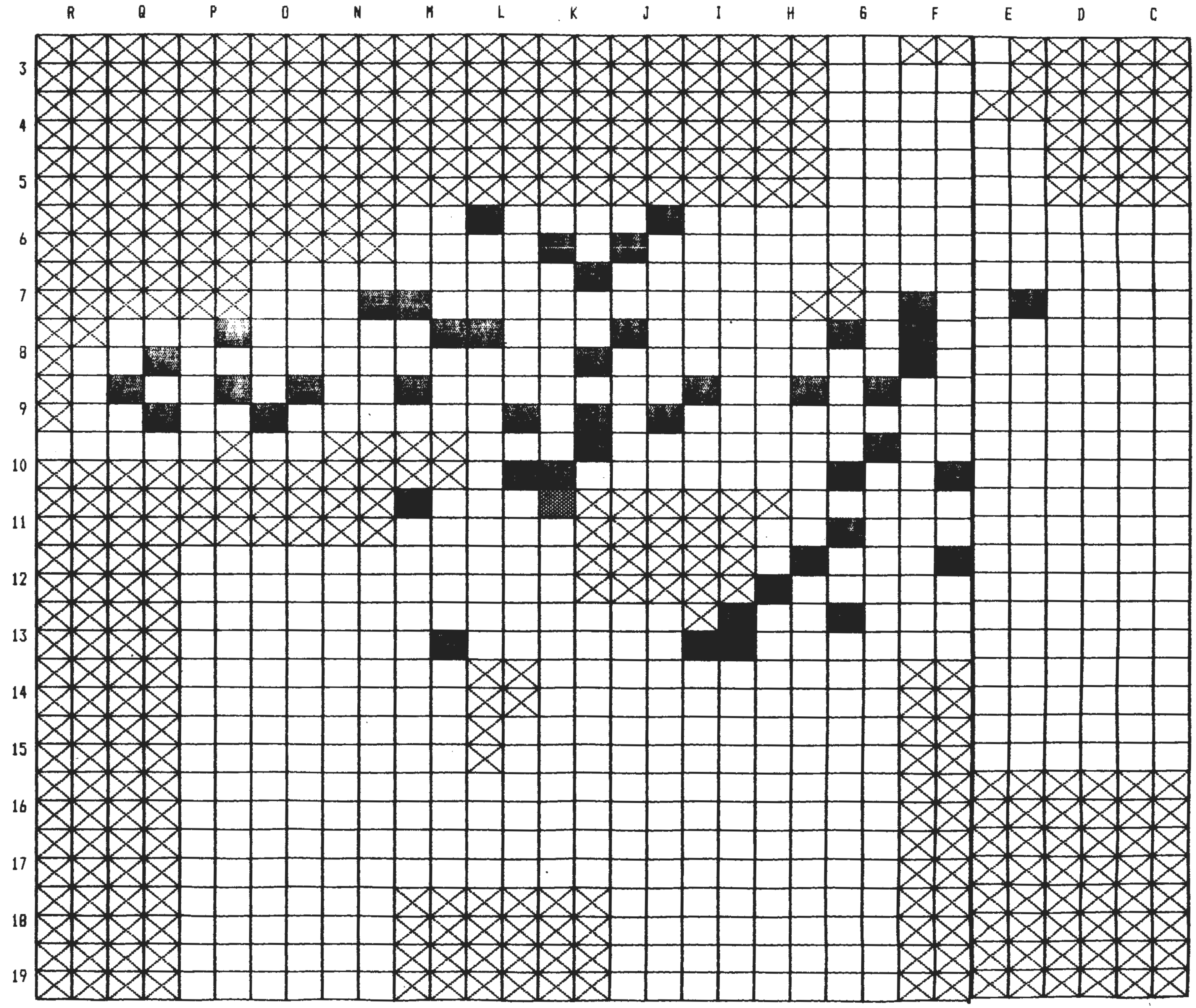
64 ADZES : HORNFELS n = 190



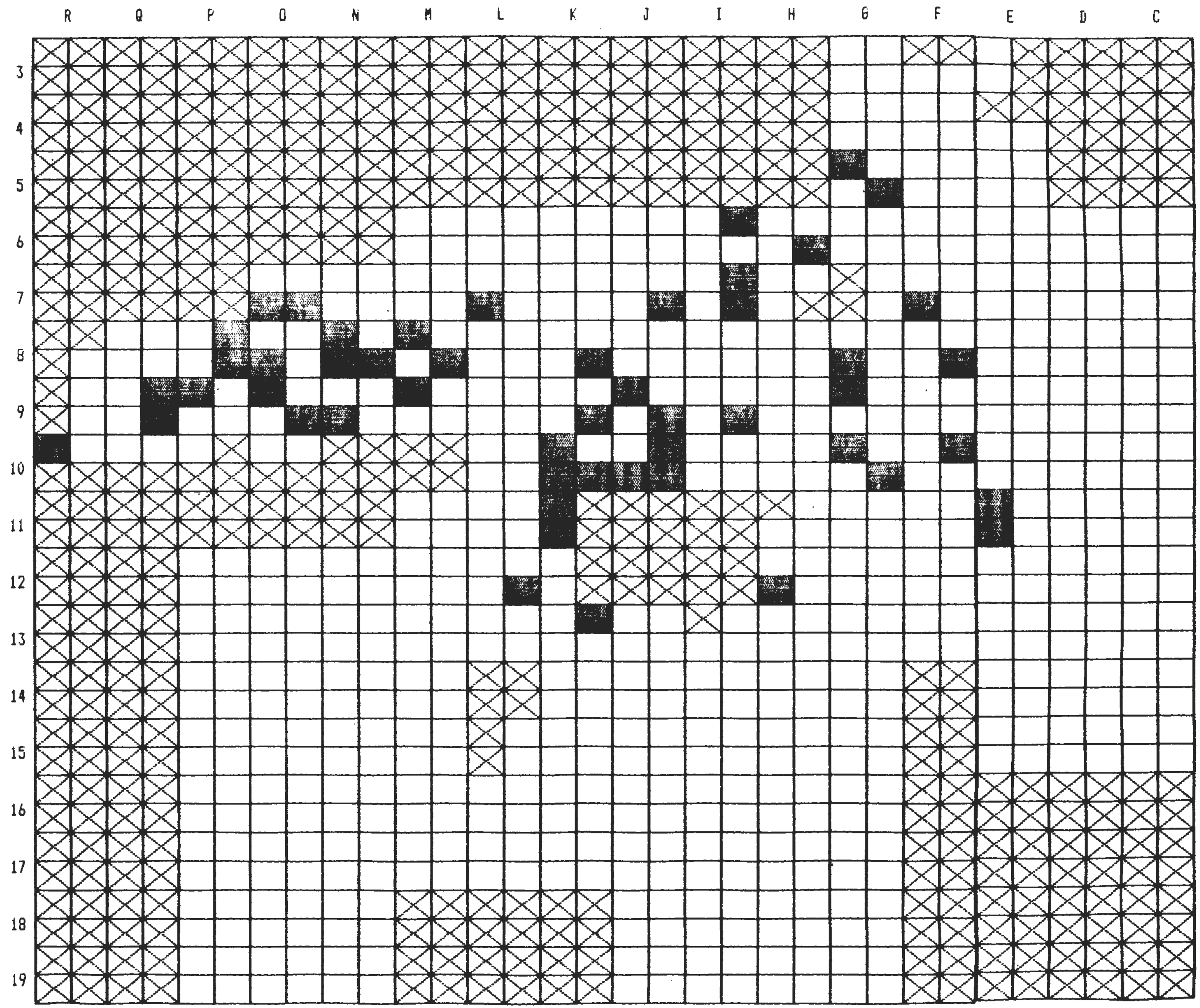
65 ADZES : CCS n = 36



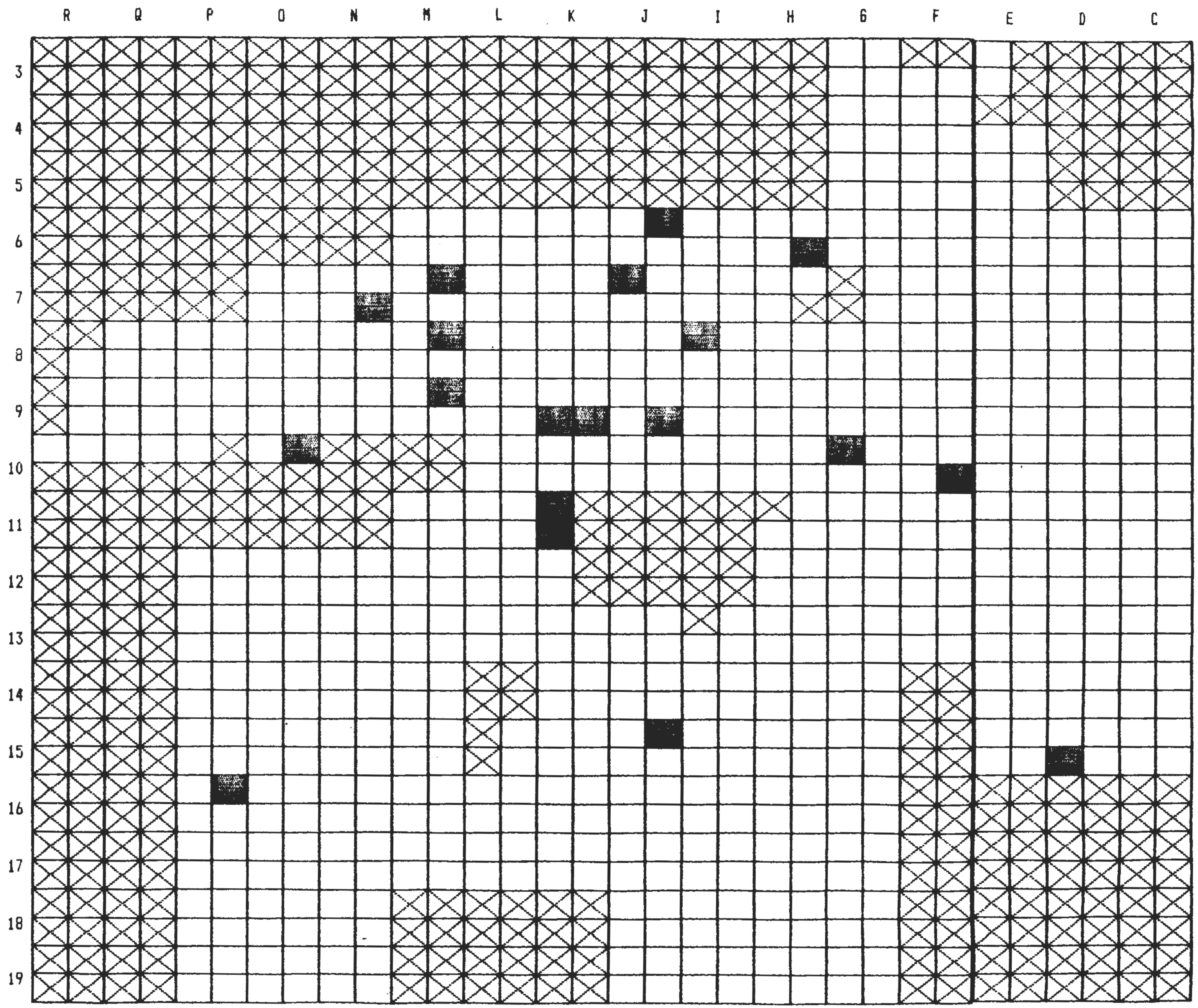
66 SCRAPERS : COMBINED RAW MATERIALS n = 148



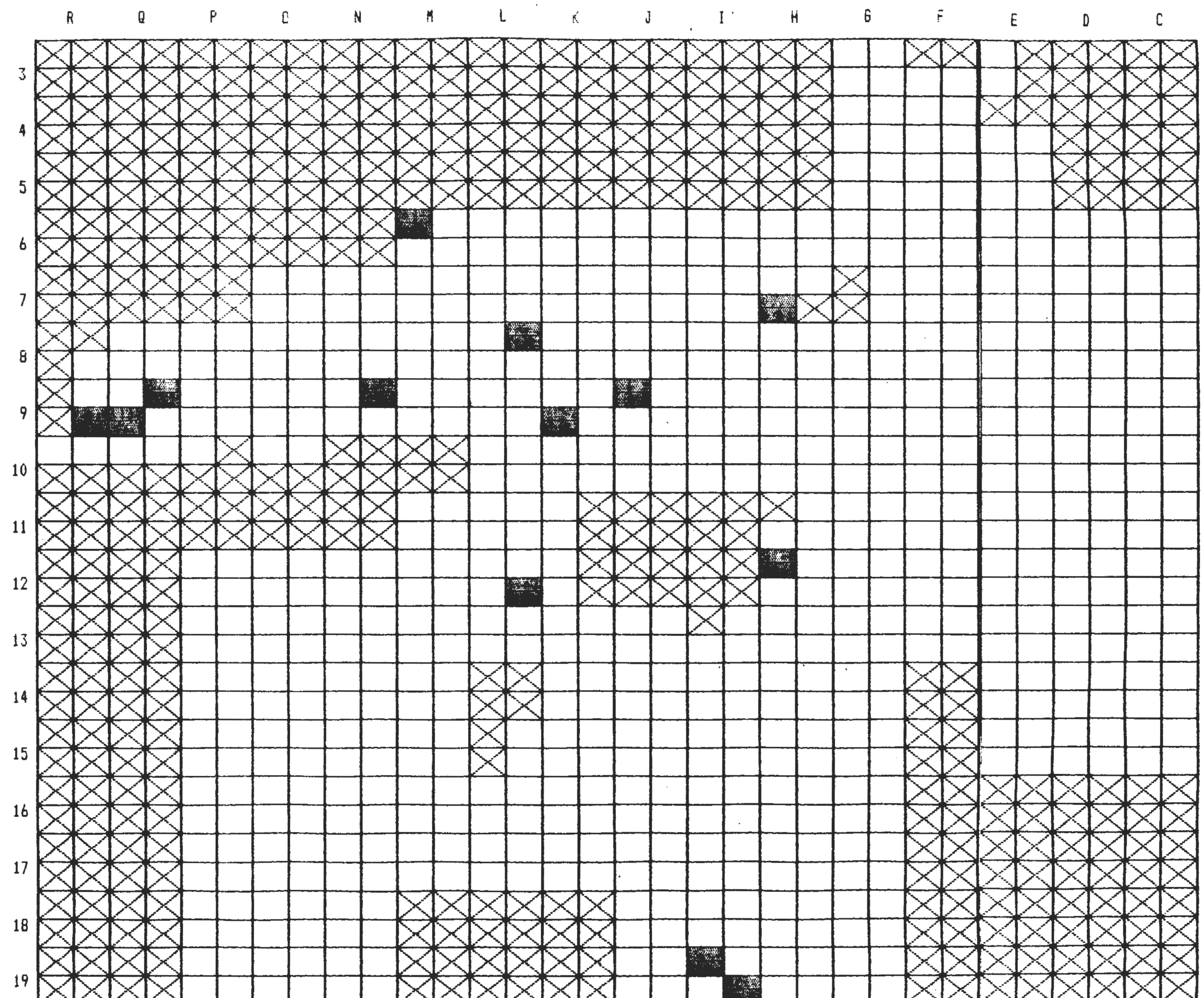
67 SCRAPERS : QUARTZ n = 58



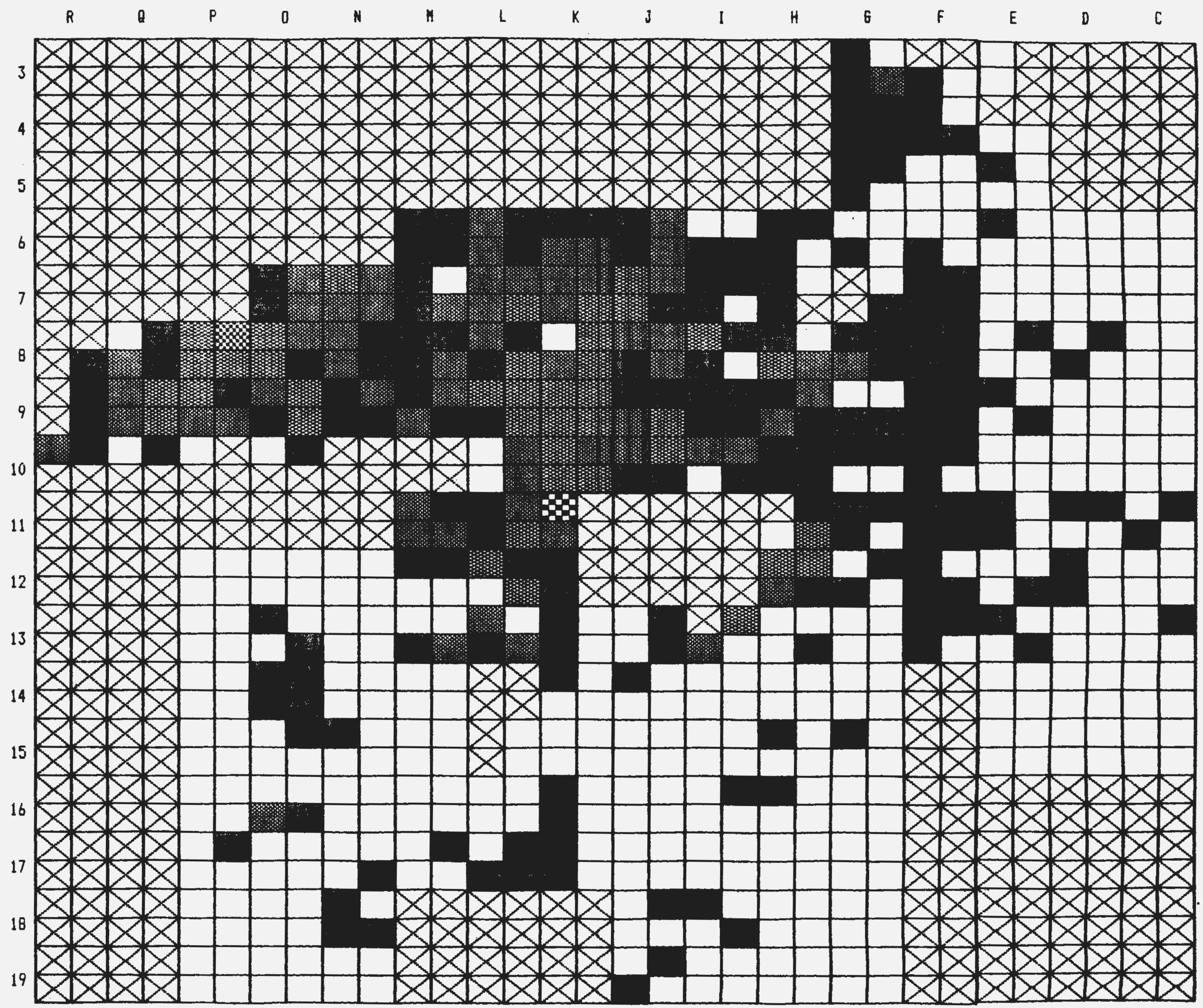
68 SCRAPERS : CCS n = 57



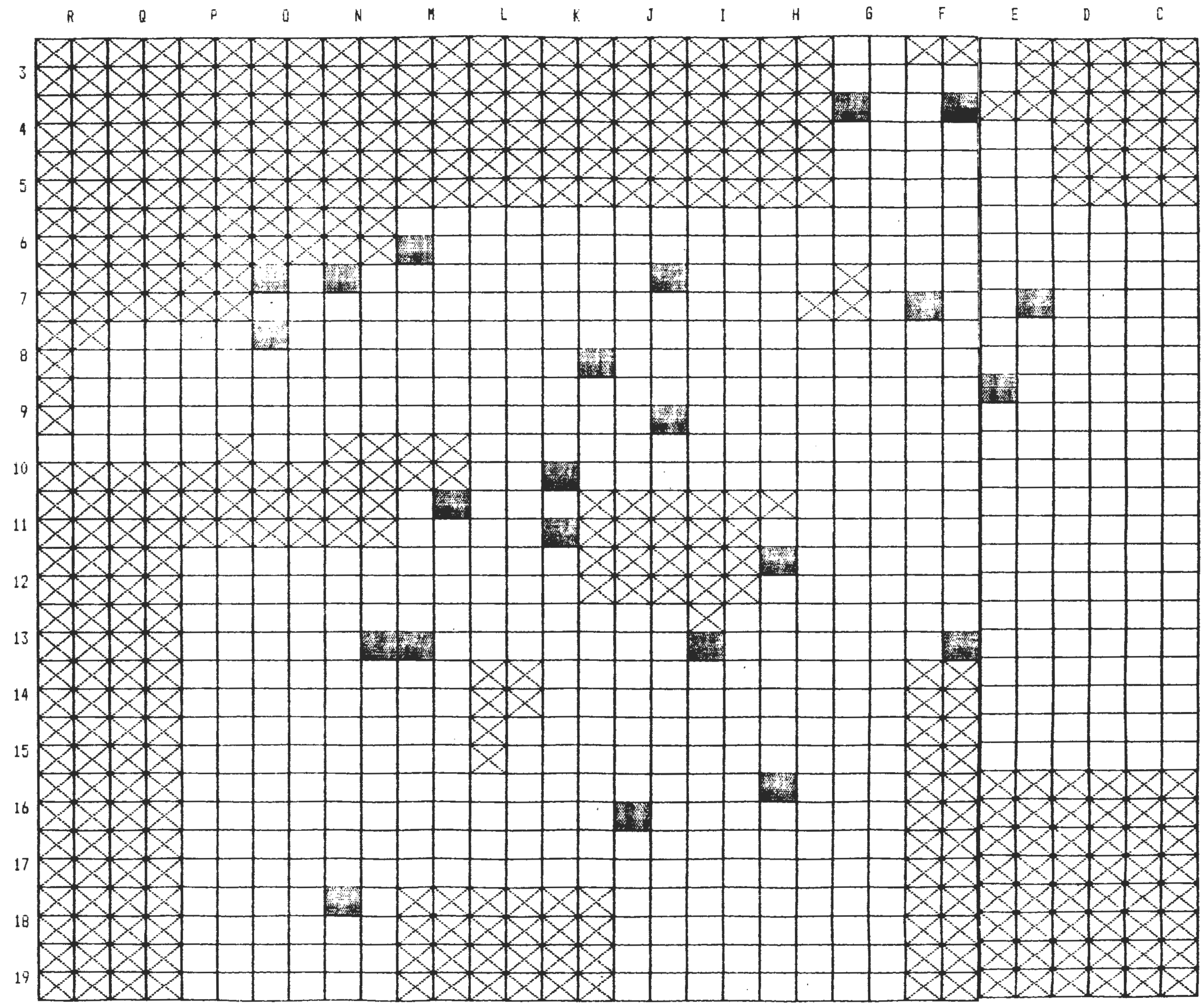
69 SCRAPERS : HORNFELS $n = 20$



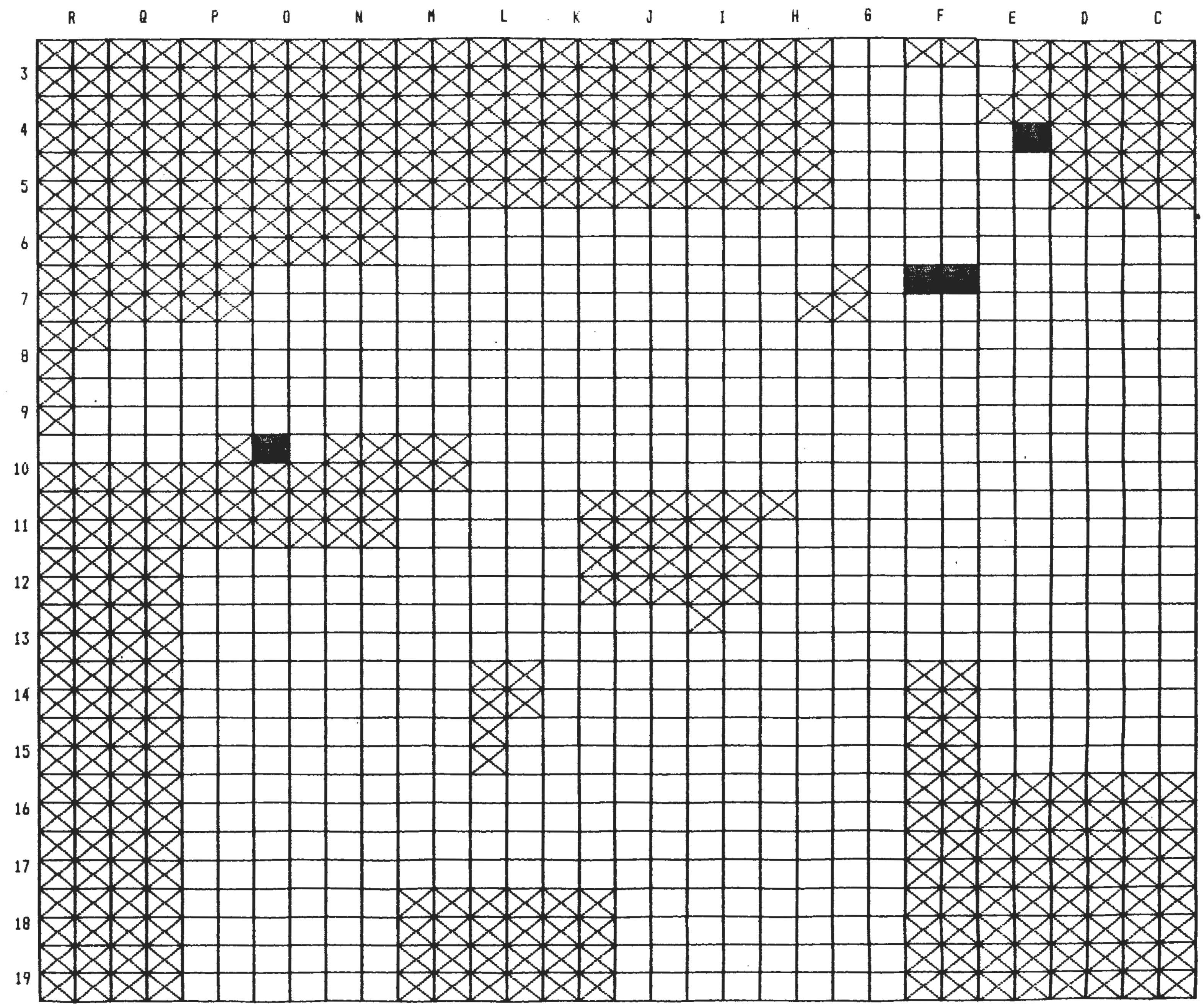
70 SCRAPERS : SILCRETE n = 12



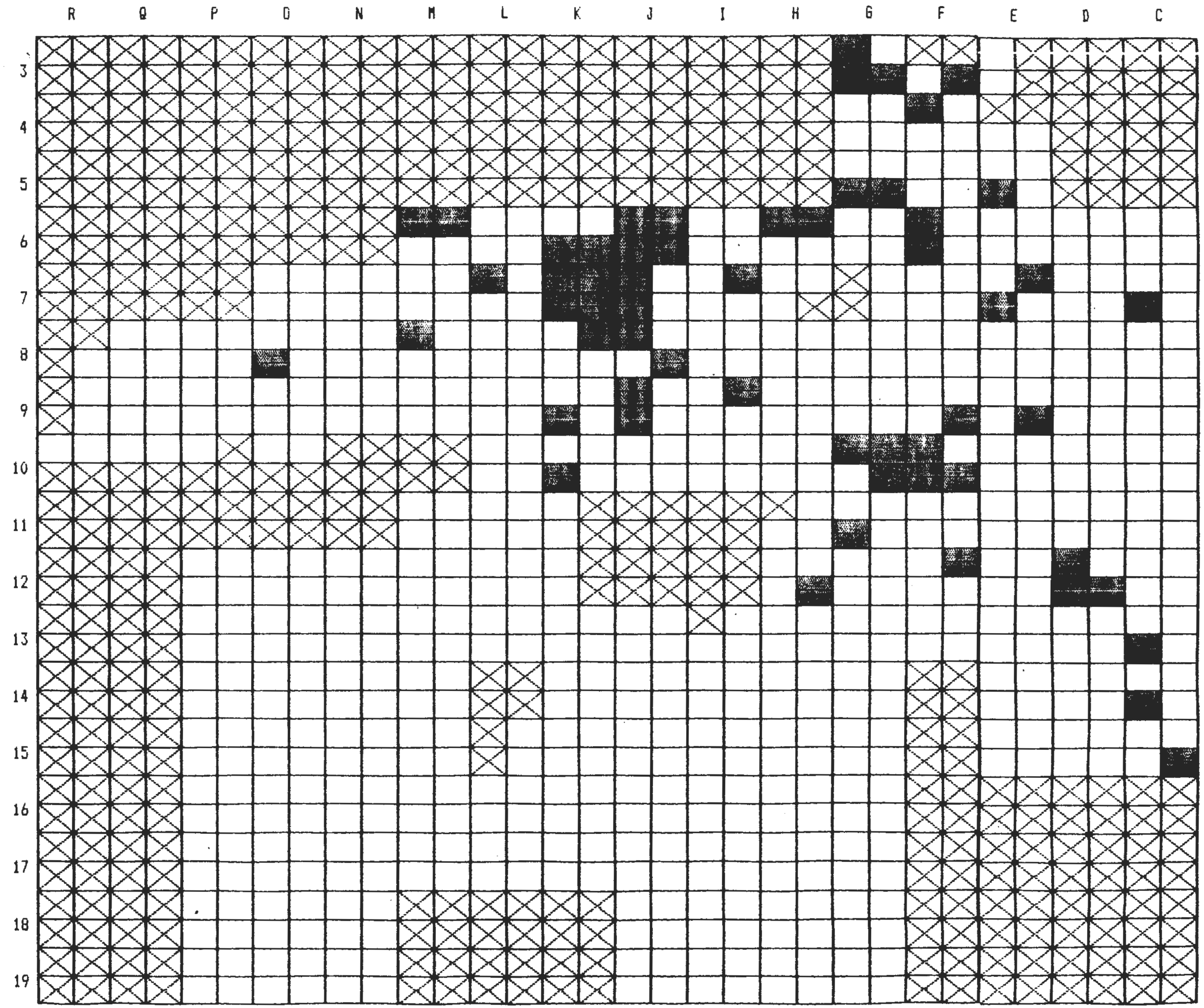
71 OCHRE n = 1390



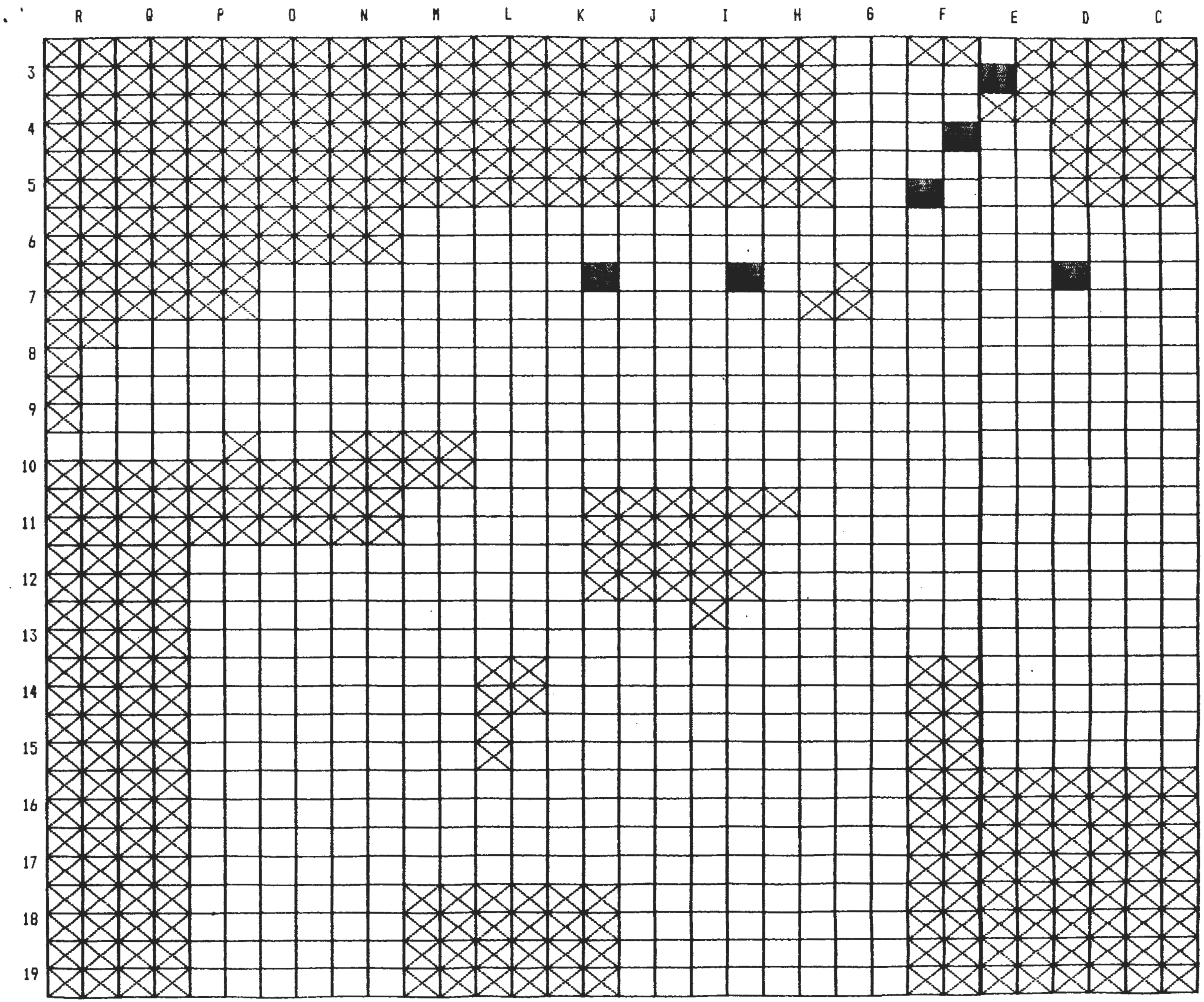
72 QUARTZ CRYSTALS n = 23



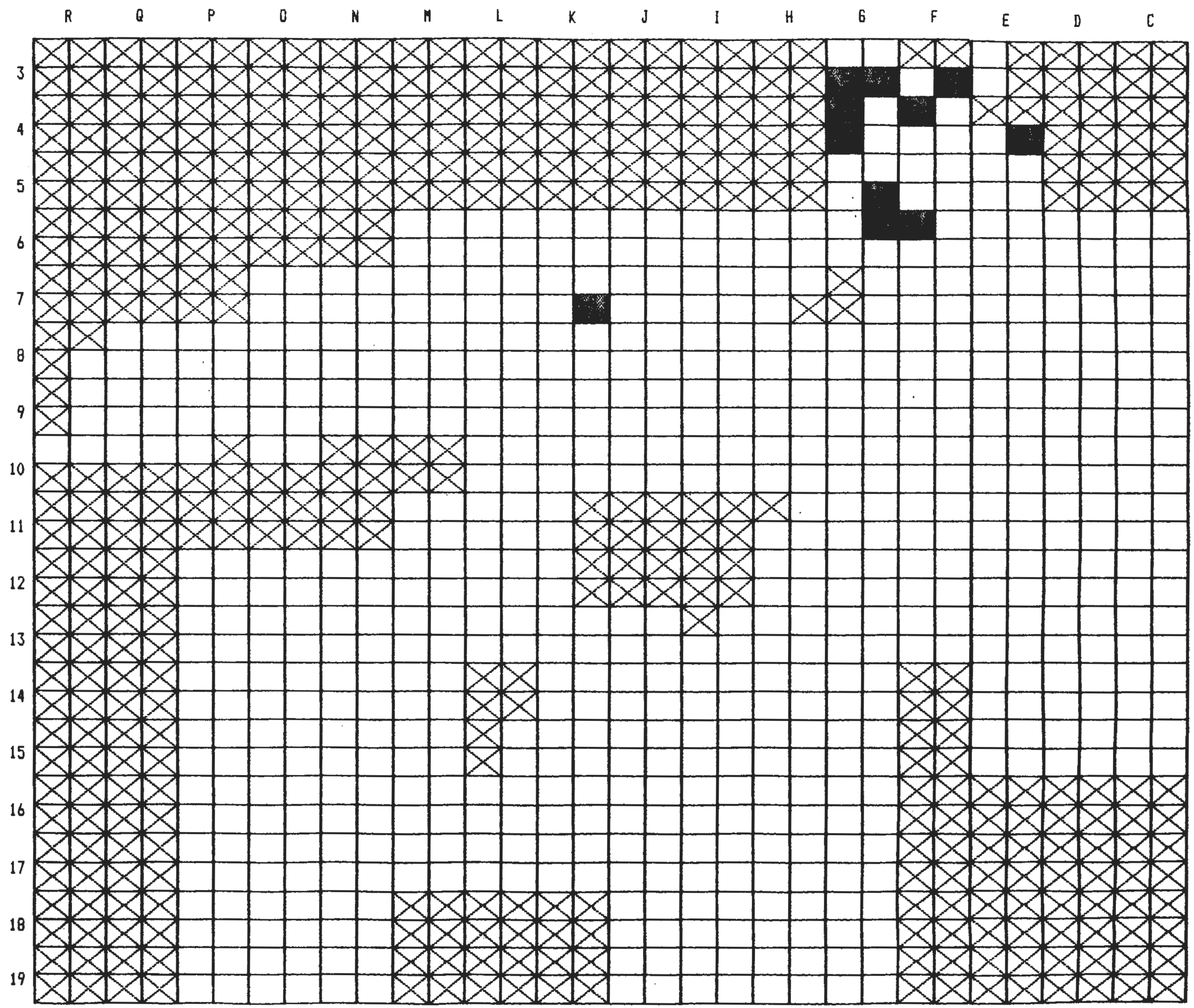
73 LOWER GRINDSTONES : QUARTZITE $n = 6$



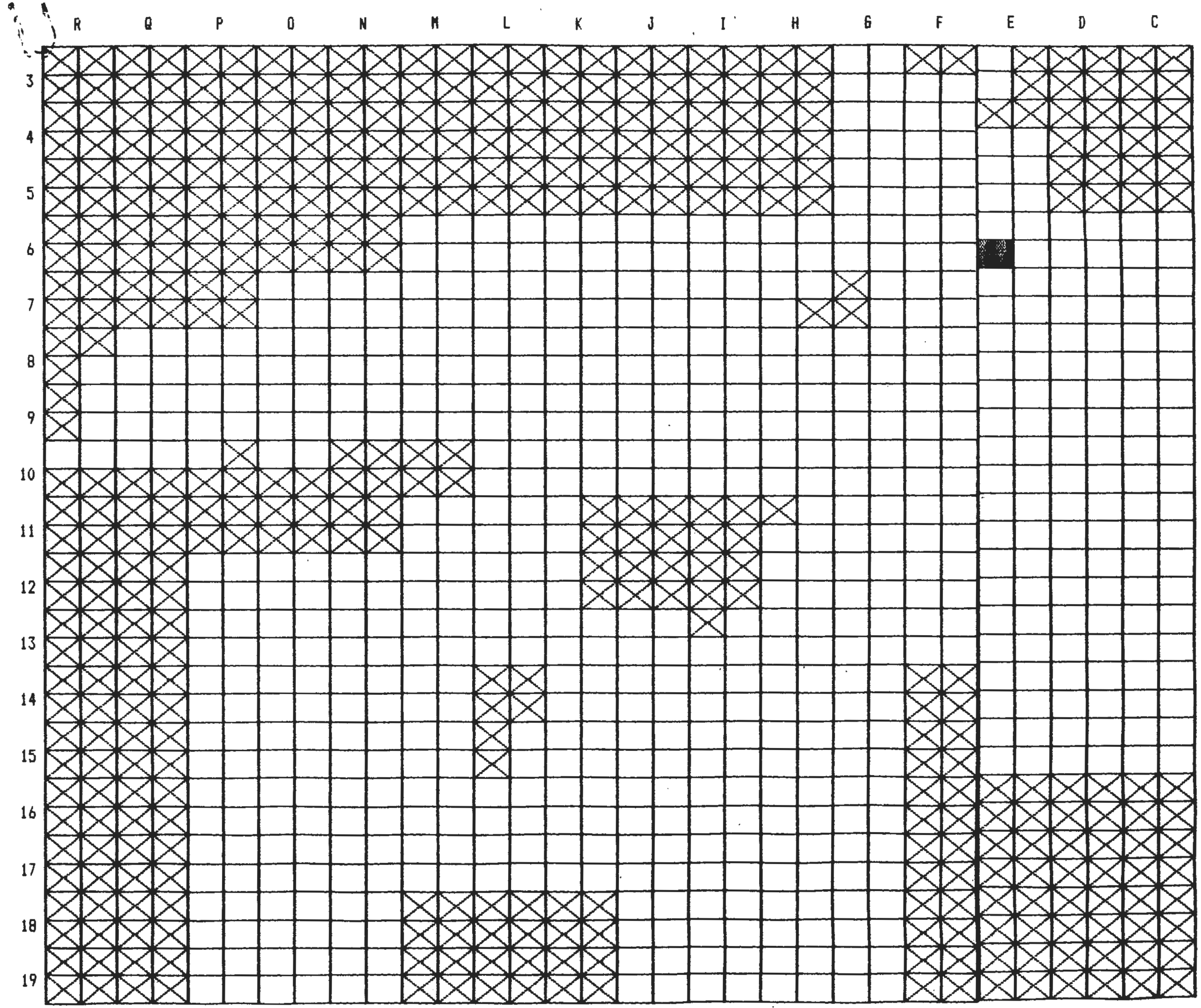
74 OSTRICH EGGSHELL : FRAGMENTS n = 84



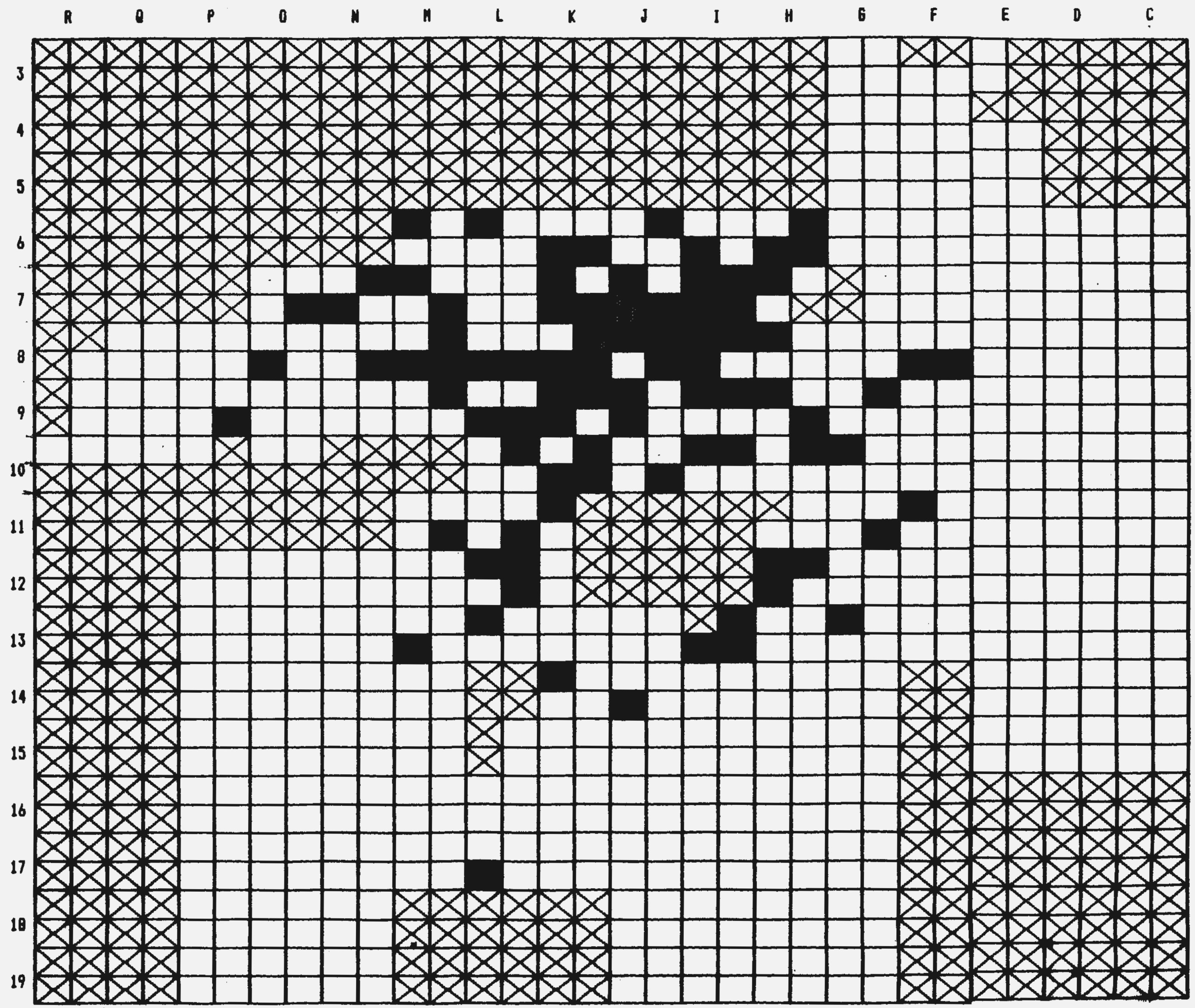
75 OSTRICH EGGSHELL : UNFINISHED BEADS $n = 6$



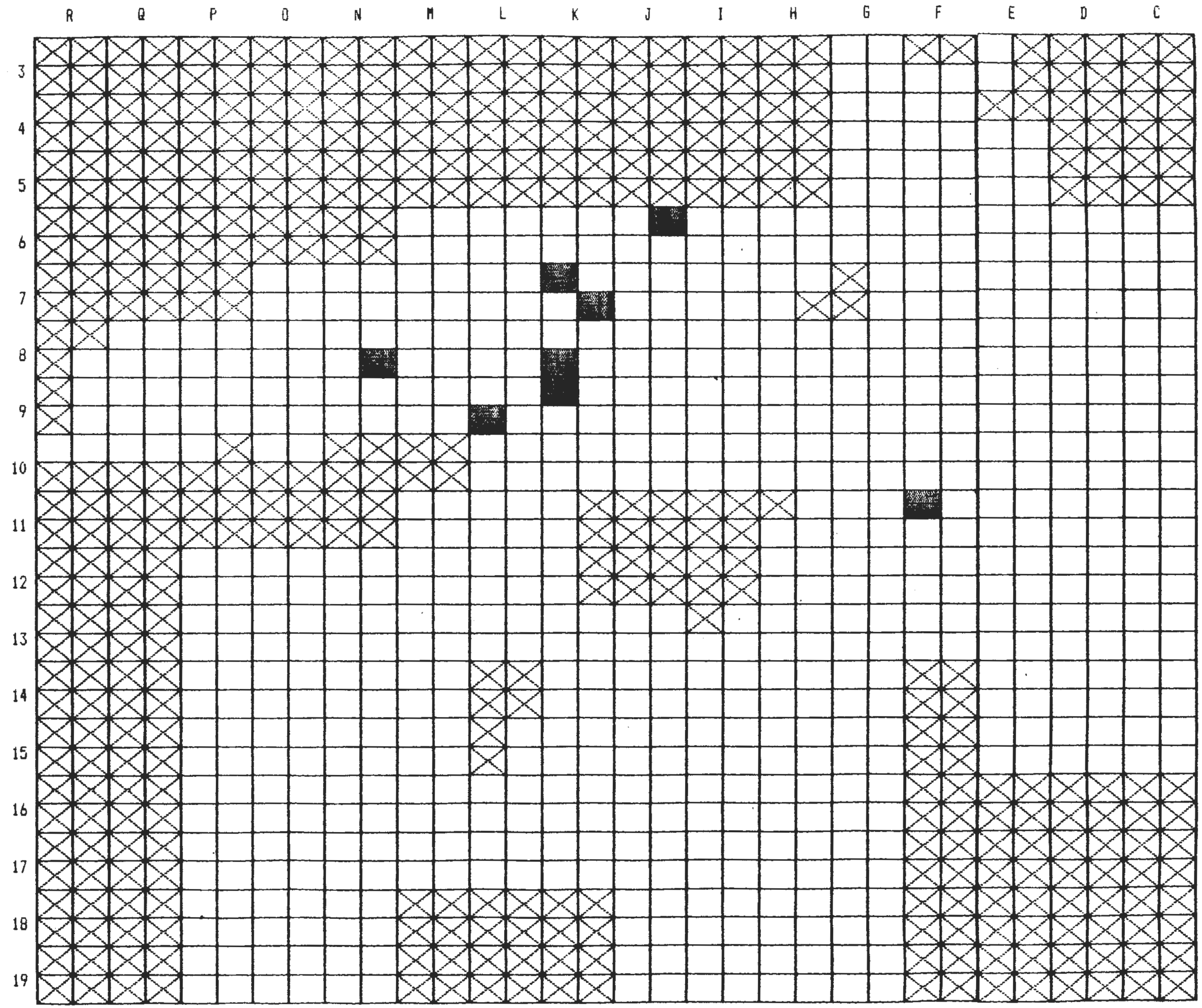
76 OSTRICH EGGSHELL : BEADS n = 16



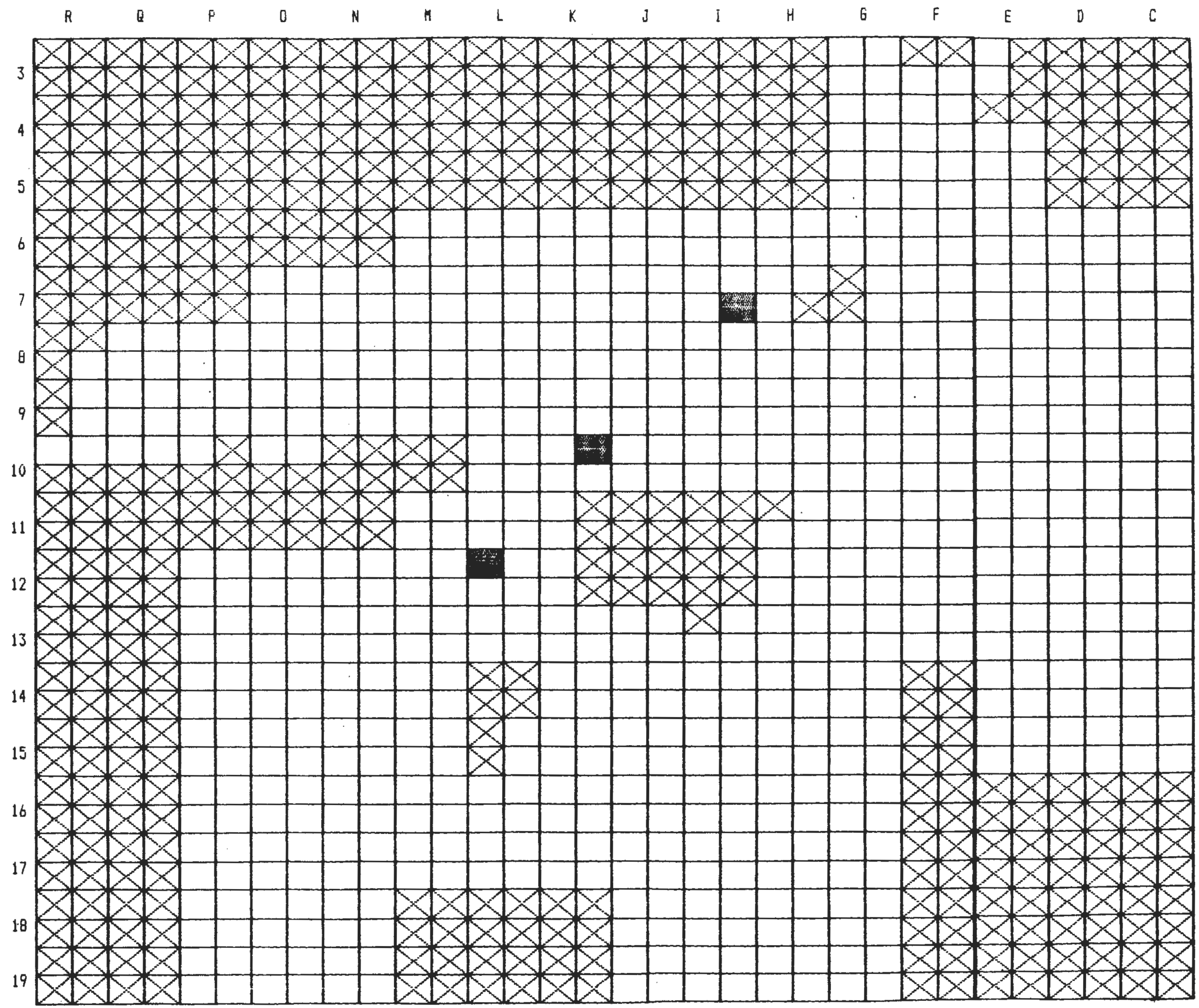
77 OSTRICH EGGSHELL : WATER CONTAINER FRAGMENTS n = 1



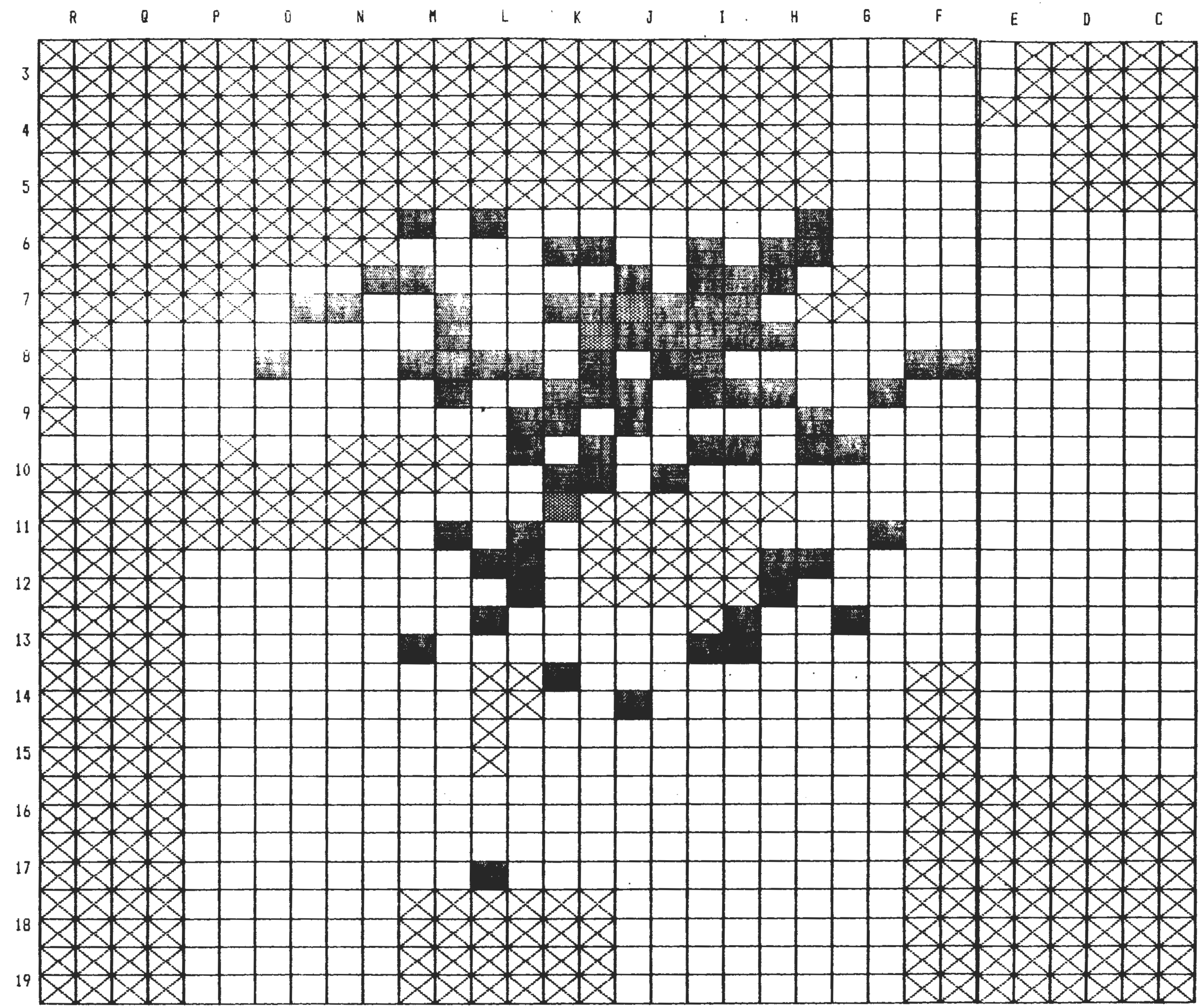
78 POTTERY : COMBINED SAMPLE n = 152



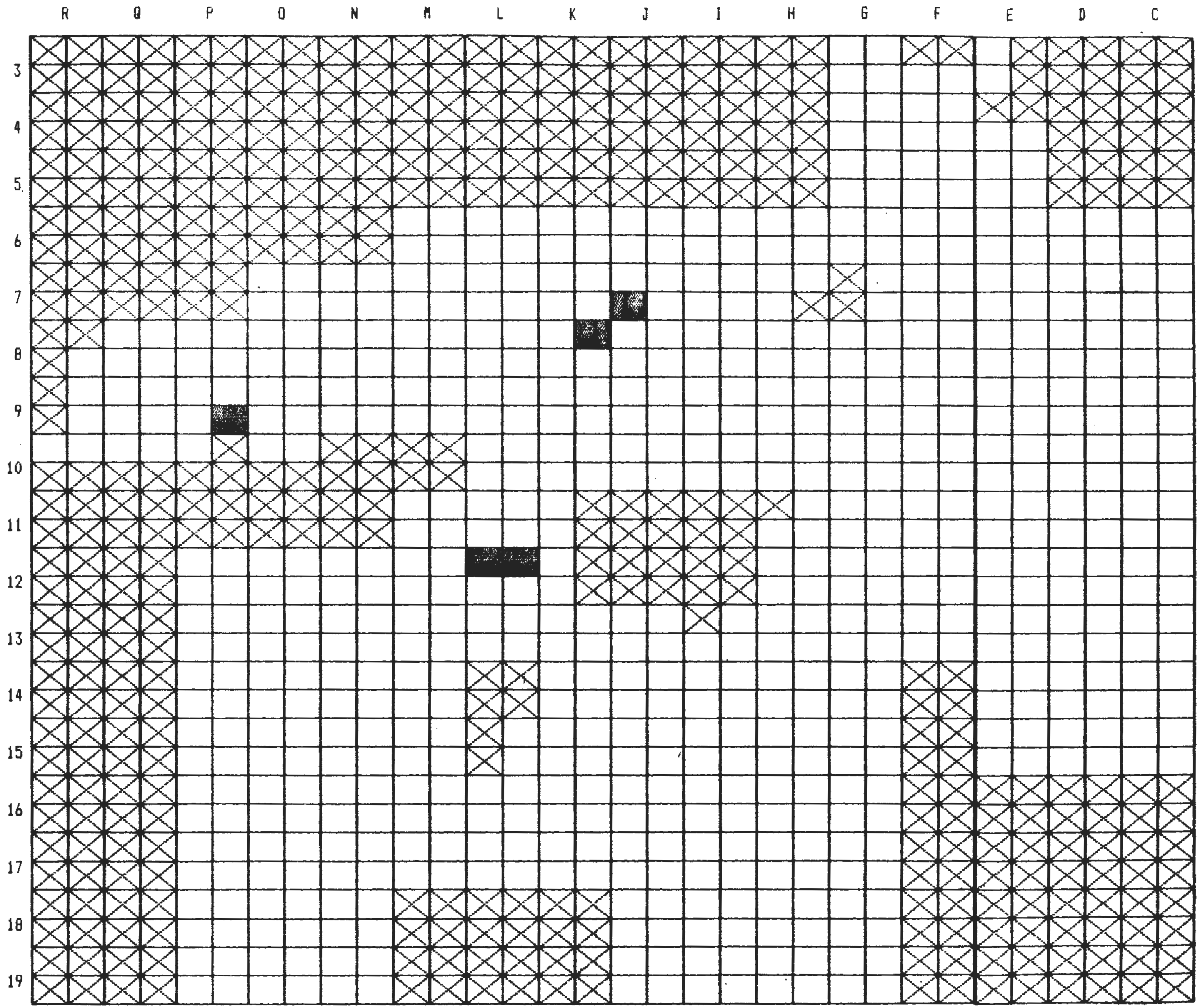
79 POTTERY : UNDECORTATED RIMS n = 5



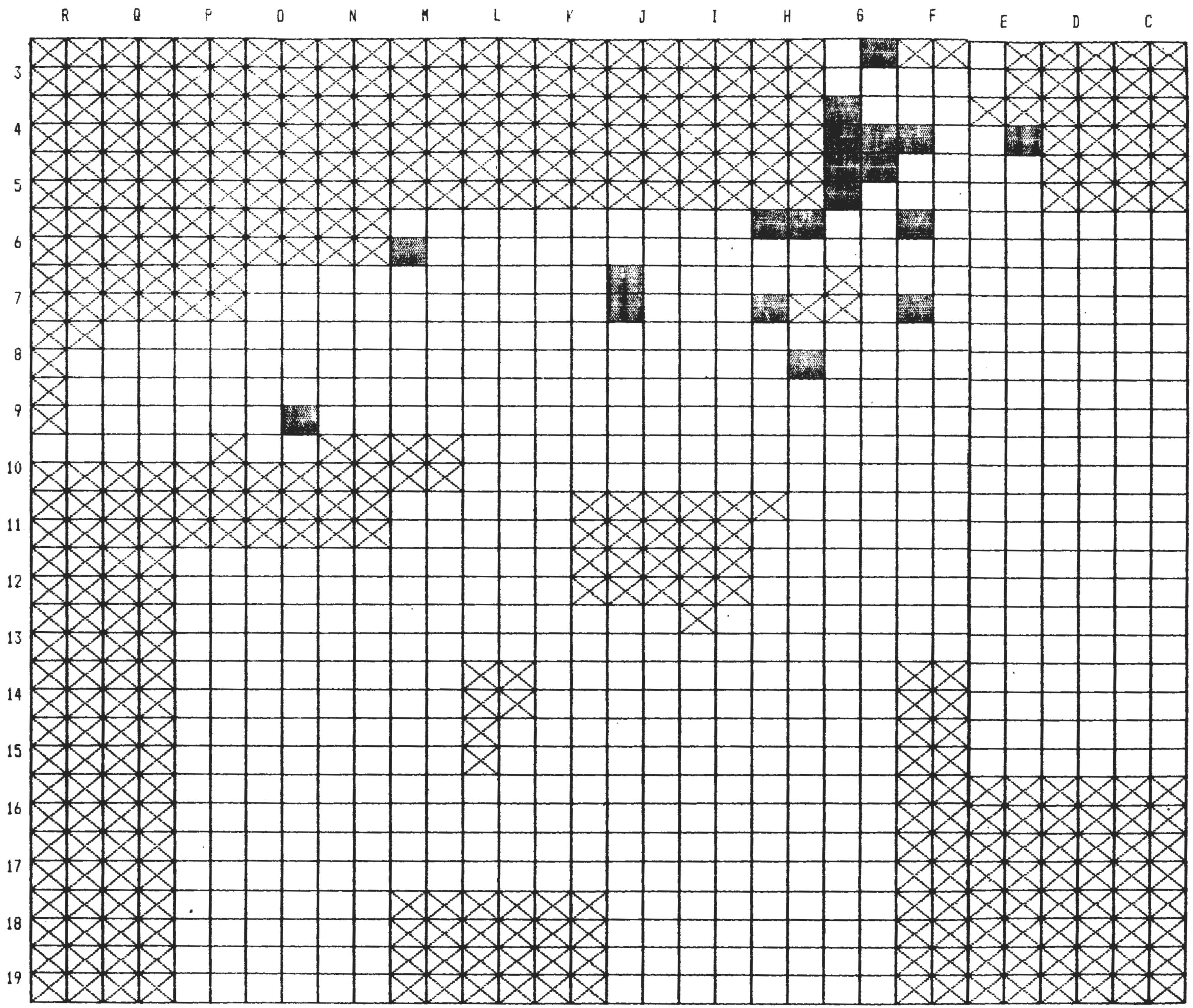
80 POTTERY : DECORATED RIMS $n = 7$



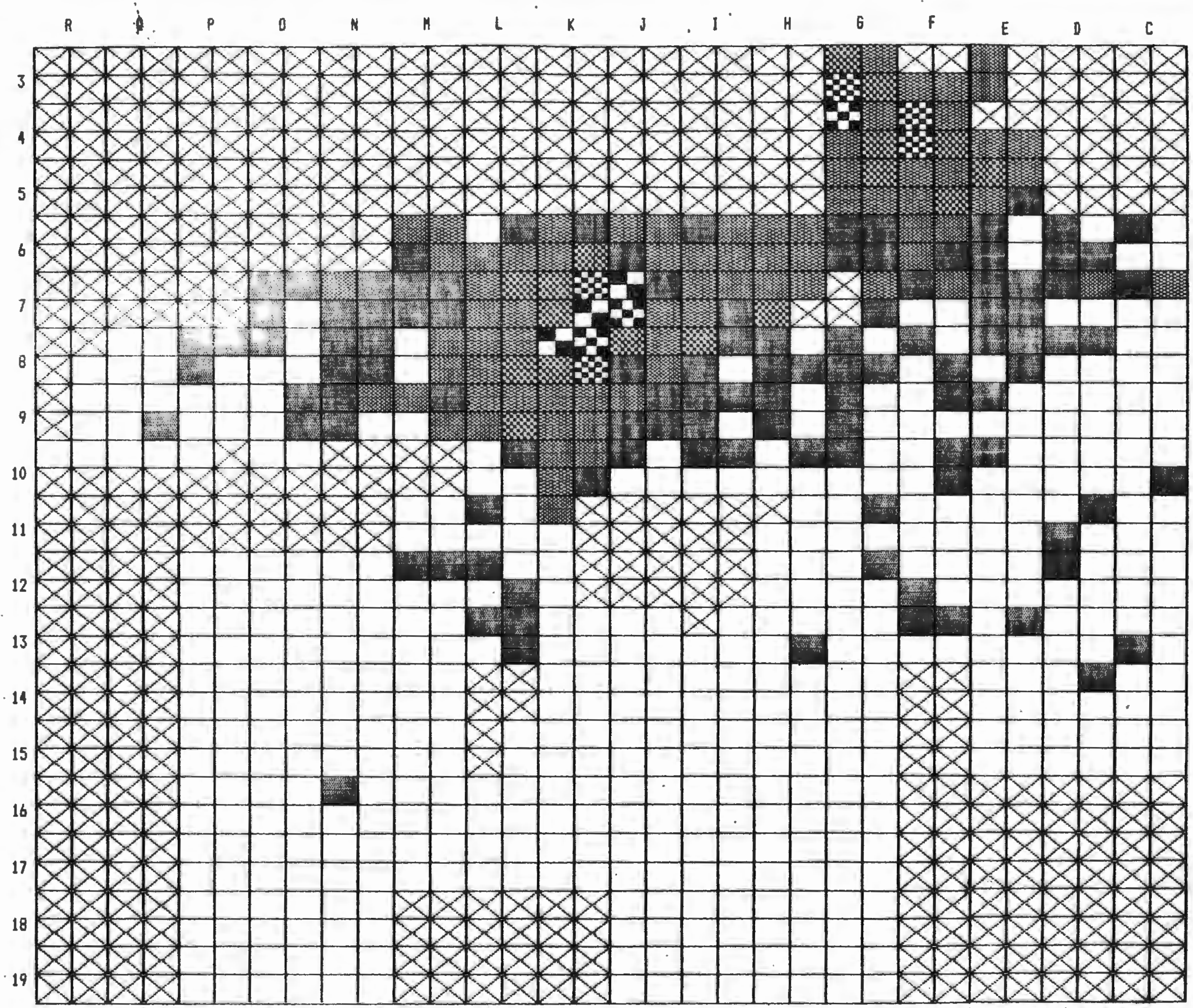
81 POTTERY : UNDECORATED FRAGMENTS n = 131



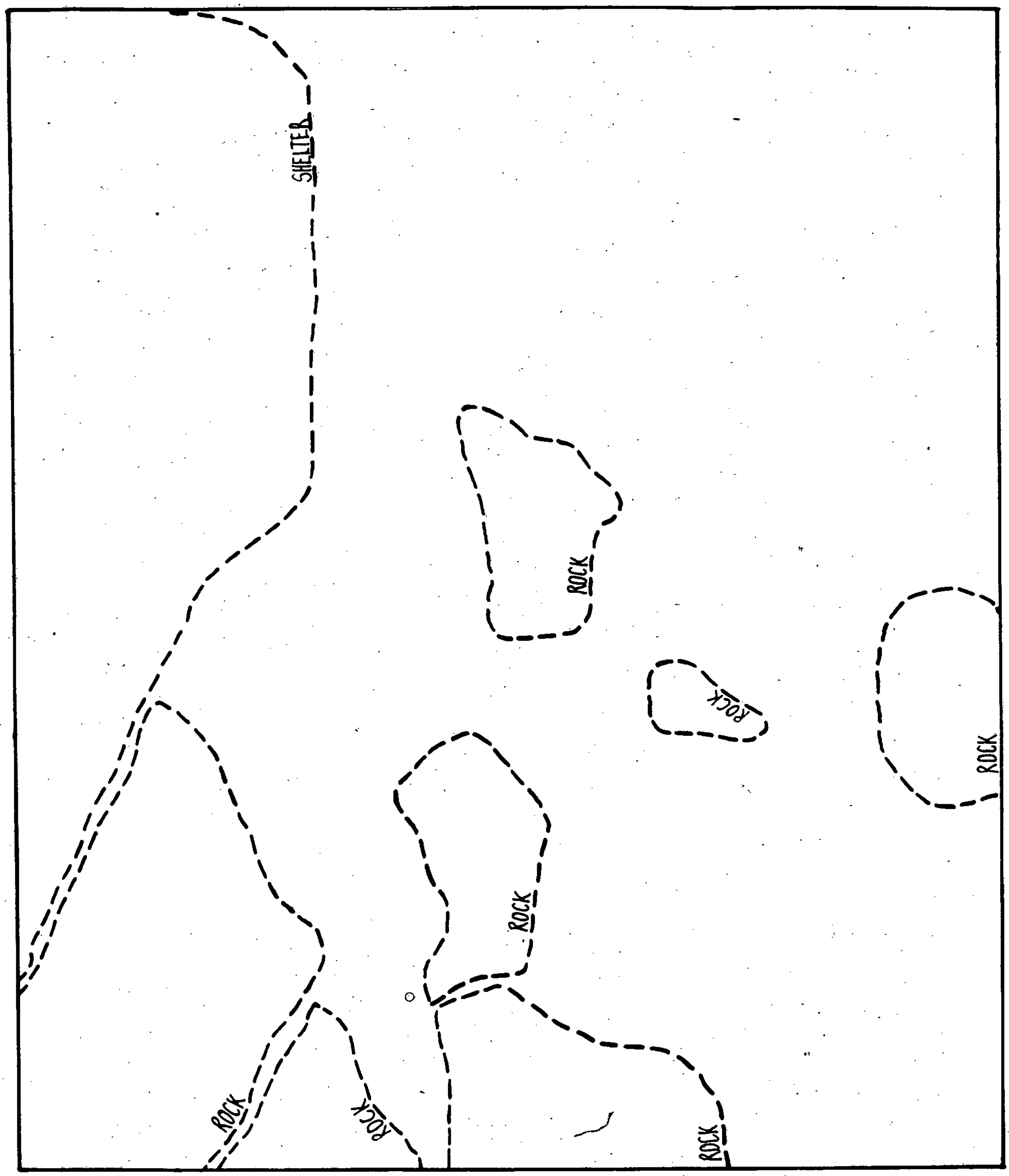
82 POTTERY : DECORATED FRAGMENTS n = 9



83 MARINE SHELL : ALL FRAGMENTS n = 29



84 BONE : COMBINED SAMPLE (INCL TORTOISE CARAPACE) n = 2313


SHELTER
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