I Introduction

1.1 Motivation

The study program of precolombian archaeology at the Faculty of Archaeology, Leiden University, gives relatively little attention to the Intermediate Area. Even less time is dedicated to the preceramic cultures. This is one of the reasons why the author’s attention was specifically drawn towards this area and period. She participated in the excavation of the preceramic site Galindo in Colombia. The principal material that was found at that site consisted of large amounts of very simple chert flakes, belonging to the so-called “Abrian industry”. The flakes were all registered as artefacts and a large percentage was labeled as “tools” with specific functional attributions. However, the typomorphological criteria by which this was done did not convince the author.

She was introduced to the possibilities of wear trace analysis by dr. A. van Gijn, head of the Lithic Laboratory in Leiden. This type of analysis had never been done on the Colombian artefacts, and the expectation rose that whatever the outcome would be, it would yield more information than the lithic studies on that material had done so far. As these lithic industries are also found at various sites in the surrounding countries, the results might be valid for a far larger area. Most Micro wear analysis was done on flint. Other stone has been studied on a small scale, like quartz (Dickson 1977; Beyries 1982; Fullagar 1984; Sussman 1984, 1988; Lima & Mansur 1986/90; Knutsson 1988; Huang & Knutsson 1995), basalt (Plisson 1982) and obsidian (Hurcombe 1992), but wear traces on rather coarse grained chert, that forms the principal raw material for the Colombian artefacts, had not yet been studied. It would be a new application of the method.

1.2 Research aims

“The earliest inhabitants of tropical America had to adjust their way of life to the drastic climatic, vegetational and faunal changes of the Pleistocene/Holocene transition. The Colombian Andes is one of the focus points of research. Lithic tools, specifically those of chert, are in addition to faunal remains and other site parameters a major source of information on former activities. Microwear analysis of a series of well-documented assemblages of various ages and locational settings will be of great value to specify tool functions and activities, and consequently site functions and inter-site relations. This will contribute to a better understanding of changes in palaeoindian life style, 11.000-7.000 years ago.”

This was the initial description of the research project. As will appear, some of the suppositions that formed the basis for the formulation of the research objectives did not hold very strongly. When the project was initiated, around 1990, there were still very few scholars engaged in lithic studies and interested in the earliest occupational period in Colombia. Stratified preceramic sites were mainly searched for, and found on the High Bogotá Plain, while in the rest of the country evidence of early human activities was mostly restricted to undatable surface finds. New evidence was found when rescue-surveys and small excavation projects started in the Middle Magdalena Valley around 1990. In the past five years, sites that yield information on this period have also been found in the Cauca Valley and in the Amazon forest. The focus area of this research project, however, is the High Plain of Bogotá and the middle Magdalena Valley. An important start for the reconstruction of the first occupation of the Colombian territory were the excavations at El Abra and Tequendama on the High Plain of Bogotá, as part of the interdisciplinary project “Medioambiente Pleis-tocénico y Hombre Prehistórico en Colombia”. This project aimed to reconstruct the Pleistocene environment and subsistence of the earliest inhabitants by joining palynological and archaeological studies. The close cooperation between these disciplines and consequently, the ecological deterministic line of reasoning which characterises the inferences and hypotheses were perfectly in accordance with the theoretical framework ruling in the seventies.

Based on the finds especially from the rock shelter Tequendama, it seemed justified to suppose a sequence of various periods of occupation from 11.000 BP onwards, by groups of hunters and gatherers who lived at the High Plain of Bogotá under rock shelters. The presence of artefacts from raw material from the valley and floral and faunal remains from tropical areas suggested that these people also
moved into the Magdalena Valley to the west of the Plain. The rock shelters on the Plain were interpreted as temporary hunting camps of the groups of hunters, who lived on the terraces in the river valley during other parts of the year (Correal & Van der Hammen 1969; Correal, Van der Hammen & Lerman 1977). Initially it was thought that only rock shelters were used as campsites, but the discovery of sites like Galindo and Checua proved that there were open air settlements as well, as early as 8,700 BP.\(^1\) The sites Tequendama and El Abra became type-sites for the “Abrian” and “Tequendamian” lithic artefact classes. Although the distinction is primarily based on technological grounds, these artefact groups are referred to as “classes”. While in search of a better definition, I will follow this description. As will be shown, there is a tendency to treat these classes as “cultures”. At Tequendama, the presence of eight distinct, finely retouched artefacts in the lowest occupational level (11,000 — 9,500 BP; Correal & Van der Hammen 1977:84), some of which are of imported fine-grained chert from lower areas, led to the hypothesis that the earliest inhabitants of this shelter manufactured these special tools during a seasonal stay in the valley and took them with them on their return to the rock shelter. In other areas of the country, dispersed pressure retouched artefacts and bifacial projectile points were found on the surface. Though undatable, this industry was labeled “Tequendamian” and associated with a period in which hunters had designed a specialised toolkit to hunt large mammals, e.g. mastodons, which were amply available during the Late Pleistocene. The climatic shifts that characterised the onset of the Holocene around 10,000 BP brought about faunal and vegetational changes, among other things a substitution of large open grasslands by dense forests (see further chapter 3). The fact that the only dated Tequendamian tools were exclusively found in the oldest level of the site Tequendama was seen as evidence for the theory that the hunters gradually adapted to the new environmental conditions: they became less specialised and depended on a smaller and more varied fauna. Other evidence for this adaptation was seen in a decrease of the amount of deer remains and a considerable increase in the amount of rodent remains around 8,500 BP at Tequendama. The presence of shells of land gastropods at that site from that period onwards is interpreted as an indication of gathering activities (Correal & Van der Hammen 1977). However, the strongest evidence for this hypothesis consisted in the Abrian artefact class. Next to the eight finely retouched artefacts, at Tequendama huge amounts of unretouched percussion-flaked artefacts (“Abrian”) made of local, relatively coarse grained chert were found. The presence of these implements was directly linked to the environmental changes. The large mammals had disappeared and the technically complex artefacts were supposed to have disappeared with them. The Tequendamian class would have been totally replaced by the simple “edge trimmed tool tradition (Hurt 1977) or “Abrian” industry (Correal & Van der Hammen 1977). The Abrian tools were, for a large part, interpreted as being manufactured to make more elaborate implements from other — perishable — material like wood (more forests!) and bone. In other words, many of the Abrian artefacts should be seen as tools to make tools (Correal & Van der Hammen 1977; Correal 1979; Dillehay et al. 1992 a.o.). The Abrian class of artefacts seems to have been produced without significant technological or morphological changes from the oldest period, throughout the ceramic phases until the time of the conquest, when the Spaniards introduced metal tools on a large scale. This type of artefact production is not restricted to Colombia but appears to be typical for the entire Northwest of South America (a.o. Hurt 1977, Sto techert 1985, Cardich 1991).

Since 1977, after the named excavations, a remarkably extensive classification system was designed for the Abrian class to cover all possible typo-morphological characteristics. The classification system combines a functional attribution on the basis of morphology (like: scraper, knife, drill), shapes (triangular flakes, prismatic section s, concave edges etc.) and technological aspects (like flake, blade and the incidental presence of unifacial retouch). The largest number of artefacts, however, is classified as “atypical flakes” (e.g. Correal 1977,1979,1990; Correal & Van der Hammen 1977; Correal & Pinto 1983; López 1991) or “amorphous multifunctional tools” (Ardila 1984). For example, at Tequendama 75% of all classified stone artefacts belongs to this category (see further Ch.2.3). Till very recently, lithic analysis in Colombia was mainly concerned with organising the assemblages according to this standard typology and not so much with exploring other analytical possibilities of this material category. The distinction of two artefact-classes, Abrian and Tequendamian, and the classification of the Abrian class, seemed to rule most inferences. Interpretations on site functions and inter-site relations were, as far as the earliest period was concerned, strongly guided by this distinction and by the supposed functions of the Abrian artefacts. A number of functional inferences linked to the Abrian type-categories became implicit: wherever artefacts with concave edges were found, these were associated with wood-working (e.g. Correal & Van der Hammen 1977; Pinto 1991), triangular flakes were either interpreted as tools for butchering small game (e.g. Pinto 1991) or for fish-processing (e.g. Correal 1977), scrapers were associated with hide-working. Linked to these interpretations the lifestyle reconstruction was easily adopted as well. In view of the climatic changes that marked the beginning of the Holocene, wood working was seen as one
of the reasons for the disappearance of the well-made Tequendamian tools: the appearance of the Abrian artefacts might be explained by the notion that the makers concentrated on manufacturing artefacts of other materials like wood, bone and shell instead of stone and, consequently, lost their stone working skills (a.o. Correal & Van der Hammen 1977; Pinto 1991; for a specific tropical context Linares & Ranere 1980). Though not necessarily wrong, with the modern analytical techniques the ease with which these interpretations were, and are still adopted, is no longer justified. Some important facts should be taken into account when the lifestyle of the first occupants is studied taking the two artefact classes as a point of departure. In the first place, on the High Plain of Bogotá most of the raw material of which the Abrian artefacts are made, consists of tabular blocks of coarse grained chert, found locally. This chert does not have the same flaking properties as fine grained chert or flint. This is a determining factor for the morphology of the flakes. It is practically impossible to work this type of chert into a shape which deviates from the tabular structure dictated by the stone. In the Magdalena Valley finer grained chert cobbles are amply available along the river edges. This material is far more suitable for manufacturing predetermined shapes (see also chapter 3/4). Secondly, the absence of clear, predetermined, well defined typological characteristics and the fact that there is no transformation of this system for several millennia, makes it extremely difficult to detect changes in tool-use through time or to recognize adaptations to changing environmental conditions on the basis of tool-typology. An exception is the appearance of grinding stones, edge ground cobbles and nutting stones from ca. 7,500 BP onwards (Ardila 1984), from which a transition towards a more plant-based diet could be hypothesized.

Thirdly, the “Tequendamian” class of artefacts does not seem to be restricted to the late Pleistocene. Though most pressure-retouched artefacts were found on surface scatters, two planoconvex scrapers were found in association with Abrian artefacts in stratigraphic levels. One of these was dated 10,400 (La Palestina), which is in accordance with the traditional hypothesis, but the other one is from 5,980 BP (Peñones de Bogotá), which would be several millennia after the time of the specialised hunters. If technology (well-controlled pressure retouch) is taken as a main characteristic, there are “Tequendamian” artefacts found in ceramic levels as well, e.g. at the sites from La Miel in the Magdalena Valley, roughly dated between 1500 and 500 BP. At these sites they are also associated with Abrian artefacts (see further ch. 6).

Be it Late Pleistocene or far later, the association of the two technically so different artefact classes, both at Tequendama on the High Plain of Bogotá and at the sites in the Magdalena Valley, naturally raises the question whether there is a functional or cultural differentiation between them.

Microwear analysis was introduced as a new research method to be applied on the artefacts found in the classical, stratified lithic assemblages from the Sabana de Bogotá as well as in new sites excavated in the Magdalena Valley. The research goals were formulated as follows:

1) To critically evaluate the existing typo-morphological classification of the Abrian tools. With microscopic analysis it would be possible to assess the supposed correlations between form and function, and consequently, to determine whether this system should be used for the identification of activities and site functions.

2) To explore the relation between Abrian and Tequendamian artefacts by determining the exact function of the implements.

3) To identify in detail diachronic changes in tool use and activities throughout the Late Pleistocene and Early Holocene in the context of supposed drastic changes in environment and subsistence.

4) To study in detail the exploitation and the supposed movements/contacts of the occupants of two different environments, by analysing material from synchronic sites from those areas. This would lead to either confirmation, rejection or adjustment of the existing models for settlement systems and exploitation of both major landscapes under study.

The results of the analysis will be presented in the following chapters. The history of archaeological research in Colombia will be the first subject to be explored. In order to understand the importance of the present study it is relevant to be aware of the background of modern Colombian archaeology, the development of lithic studies and the traditional typology. Also relevant is some insight into the modern environment as opposed to the palaeoenvironment, which will be presented in the third chapter. An overview of the archaeological data from the early preceramic period and of the selection of sites to be studied will conclude this chapter. Chapter four explores the state of wear trace analysis, describes the methods followed, the sources of information used to design the experimental program and consequently the experiments executed for this project. In the chapters five and six the results of wear trace analysis will be linked to the available contextual data from each studied site. Finally this will lead to a synthesis which is presented in chapter seven.