

**MIGRATION AND ITS ALTERNATIVES  
AMONG THE IBAN OF SARAWAK**



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98

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AMONG THE IBAN OF SARAWAK



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## FOREWORD

Writing a few years ago about the Tsimihety people of Madagascar, the anthropologist, Peter Wilson, noted that they did not seem to have a distinctive way of “going about things, at least not a way so well defined that it could constitute a sort of ethnographic trademark”. Instead, how these people acted and thought was “simple and straightforward, devoid of flourish and subtlety, and suited to personal situations”. These observations led Wilson to speculate that many other peoples of the world may in actuality be like the Tsimihety, with unspectacular, flexible, pragmatic, and utilitarian responses to the problems of their existence, and that even some peoples with the trademarks have them only because selected features of their ways and thoughts have been blown up as a result of the esthetic and intellectual predilections of ethnographers and their readers.<sup>1</sup> If Wilson is right, programs of demystifying many of the peoples of the world and a general overhaul of our ethnographic knowledge are in order. Suggestions along these lines have been made in some of my own recent writings, in which the need for greater attention to people’s responsiveness to changing circumstances is emphasized.<sup>2</sup>

In Christine Padoch’s monograph on the Iban of Sarawak, that attention is paid. The Iban are a people with whom two trademarks have been associated: inveterate headhunting and prodigal, forest-destroying shifting cultivation. Their headhunting effectively ceased more than half a century ago, but the assumptions made by many scholars are that continual expansion into primary forest and the reckless cutting of it for rice swiddens not only have been but also remain standard Iban practices.

Dr. Padoch’s monograph effectively refutes these assumptions. It does this by showing that various responses other than migration to areas of primary forest are made by Iban when land or other resources available to them become limited. Among the responses described in detail in separate chapters of the monograph are recourse to more conservative cropping-fallow regimes and more labor-intensive farming; increase in rates of borrowing land for swiddens and of temporary wage-labor migration; and decrease in rates of population growth and fertility.

The Iban emerging from the pages of the monograph are accordingly

demystified. Like the Tsimihety described by Wilson, they can be seen as pragmatically varying their behavior and responding effectively to the different conditions in which they find themselves. As a result of Dr. Padoch's field work and her able exposition here, they refute not only the assumptions about expansive forest destruction as an Iban trademark but also the more general, underlying assumptions that have been made about the Iban as well as other shifting cultivators to the effect that their behavior, regardless of whether it contributes to maintaining the environment or to degrading it, is fixed in a static or repetitive pattern. Dr. Padoch's monograph is one which can be read with interest and profit not only by specialists in Borneo ethnography or the study of shifting cultivation but also by all concerned with developing more dynamic and thereby more accurate models of behavior and change among rural and tribal peoples.

*Jakarta, July 1982*

ANDREW P. VAYDA

#### NOTES

1. Peter J. Wilson, "The Problem with Simple Folk", *Natural History* 86(10):26-28, 30-32 (1977).
2. A.P. Vayda, C.J.P. Colfer, and M. Brotokusumo, "Interactions between People and Forests in East Kalimantan", *Impact of Science on Society* 30:179-190 (1980); A.P. Vayda, "Progressive Contextualization: A Method for Integrated Social and Biological Research in the Man and the Biosphere (MAB) Program", in *Proceedings, Workshop on Ecological Bases for Rational Resource Utilization in the Humid Tropics, January 1982*, Faculty of Forestry, Universiti Pertanian Malaysia, Serdang, Selangor, Malaysia, in press.



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## PREFATORY NOTE

Several of the units of measure used in the following chapters may be unfamiliar to some readers and may require some explanation. These units – man-days of labor, *gantang* (gallons), and acres – are used, in preference to other measures, in order to make the data presented in this monograph easily comparable to the data given in Derek Freeman's *Report on the Iban*, and other works.

These units may be converted as follows: a man-day of labor is rather variable, but generally seven to eight hours of work can be considered a day. A *gantang* or gallon equals 4.04 liters; a *gantang* of unhusked rice or *padi* weighs approximately 2.4 kilograms. An acre is in area about two-fifths of a hectare.



## CHAPTER 1

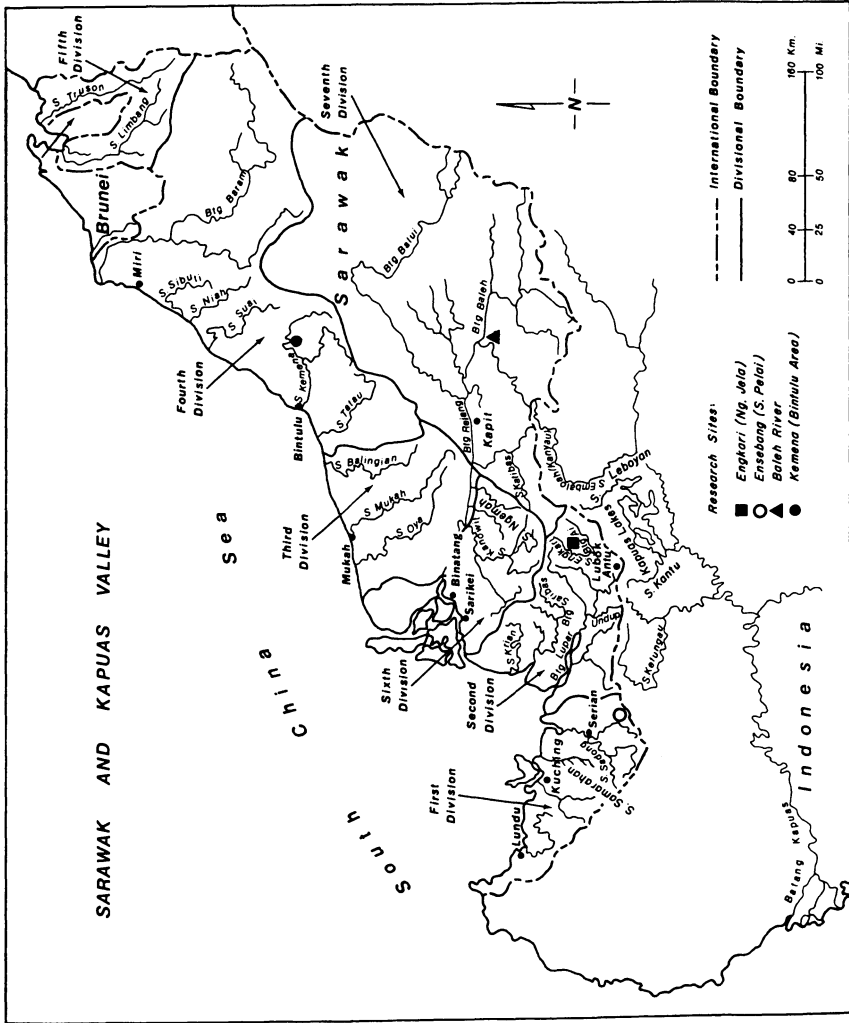
### INTRODUCTION

Rapid change typifies not only advanced industrial countries but even many of the recent “backwaters” of the Earth. These dramatic transformations, often socially disastrous and environmentally destructive, are frequently contrasted with a pre-industrial past when human populations presumably lived for millenia in unchanging, equilibrated relations with their environments.

While change in pre-modern societies obviously did occur, most accounts of such changes have focussed on the description and explanation of broad evolutionary shifts in population size and resource use. Apart from such major “revolutions” in human adaptations, an equilibrium in man-environment relations, maintained by sensitive, finely-tuned homeostatic mechanisms is widely assumed to have prevailed. The examination and explication of how such equilibrating mechanisms and processes kept ecosystems functioning smoothly has preoccupied many students of the human ecology of traditional peoples.

That rates of societal and environmental change have varied with time and place is patently true, and that in contrast to industrial societies, the resource use patterns maintained by many pre-modern populations allowed for a continued existence in a relatively stable ecosystem is equally indisputable. However, the prevalence of truly unchanging, balanced relationships of populations with their environments has been increasingly questioned.

Following or paralleling similar shifts in emphasis in biological ecology (see Holling 1973; Slobodkin 1968), it has been suggested that constant change and disequilibrium may be far more usual in small-scale societies than is a state of delicate balance. Recent works have argued that even populations which in the long view appear to have been demographically and technologically stagnant, have in all probability experienced significant oscillations and variation in size and demographic structure (Kunstadter 1972; Ammerman 1975); and the existence of any permanently balanced, unchanging agricultural systems has been questioned (Clarke 1971:71). Therefore, it is argued, change rather than the lack of it has tended to be more constant in the history even of pre-modern populations, and patterns of flexibility and change, and processes of adjustment, deserve greater atten-



tion and study (Padoch and Vayda n.d.; Vayda and McCay 1975; Grossman 1977; Orlove 1980; Salisbury 1975).

This monograph is an attempt to describe some of the technological, demographic and other adjustments made by groups of shifting cultivators in response to changing environmental conditions, in particular, to variations in resource availability. These changes are neither dramatic shifts from one major "type" of resource exploitation to another, nor are they evidence of a "breakdown" of a system occasioned by overpowering economic or political forces. The descriptions to be given are of several communities of Iban (or Sea Dayak) resident in the Malaysian state of Sarawak. The changes that these communities have apparently undergone and are undergoing are, Iban history suggests, changes that they have repeatedly, with some variation, experienced. And while the environmental changes which are dealt with are influenced by outside events, they are also in large measure effects of the Iban's own actions. The Iban's system of resource use, particularly their agriculture, will be described in the following chapters as an example of a system that is "self-maintaining but [is] self-transforming too" (Clarke 1971:202).

### *1. Shifting cultivation: Stasis and change*

Although the anthropological and geographical literature abounds in descriptions of the many variants of shifting cultivation, discussions of gradual change in shifting cultivation systems are still rare. With a few notable exceptions (Clarke 1966; Boserup 1965; Brookfield 1962; Brookfield and Hart 1971; Waddell 1972; Seavoy 1973a; Pelzer 1978; Vayda, Colfer and Brotokusumo 1980), discussions of systems of extensive agriculture tend to present them as unchanging; numerous typologies have been proposed marking important differences that are found among shifting cultivators (see Conklin 1957; Watters 1971; Spencer 1966; Miracle 1967), but few suggestions have been made as to whether and how any of the types are ever transformed into any others.

The generally static nature of most descriptions of shifting cultivation systems, however, is one of the few similarities among the descriptions and assessments that have been presented. Shifting cultivation in all areas and in all its variants was until recently (and in some quarters still is) condemned as always wasteful of human, biotic and land resources. Most critical of the practice have been foresters, who decry what they regard as invariably a concomitant of shifting cultivation, the wanton destruction of valuable timbers; they have called shifting cultivation "the greatest obstacle in humid tropical countries . . . to the conservation of the production potential for the future, in the form of soils and forests" (FAO Staff 1957:9). Agonomists and developers have often echoed these strong condemnations,





labelling the practice of shifting cultivation a “robber economy” (a Dutch colonial epithet quoted in Pelzer 1945:21), and stating that “necessarily, responsible governments look with disfavor on this destruction and have attempted to suppress it” (Grist 1965:164).

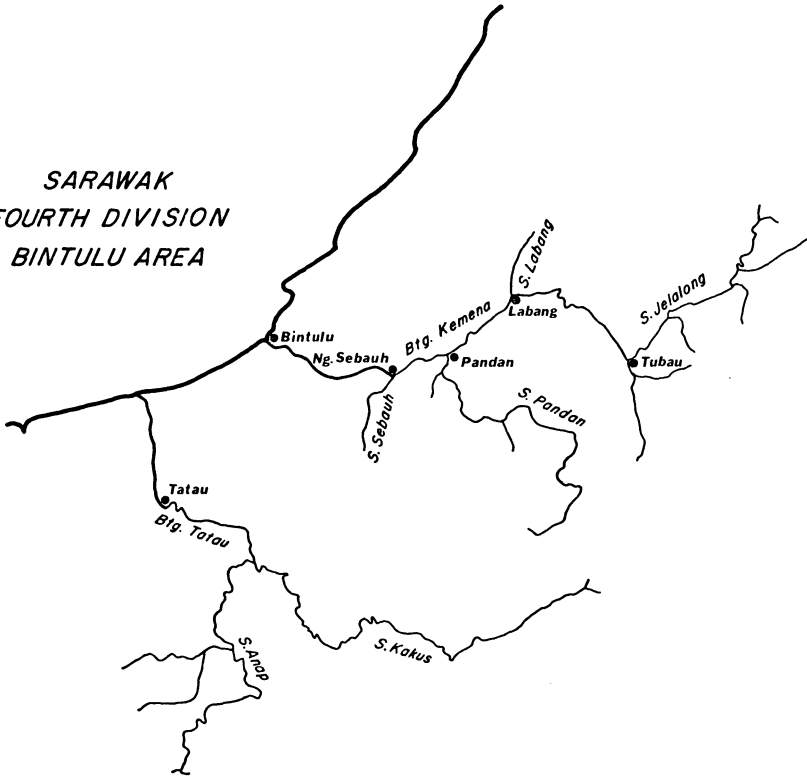
In this literature, it is the low and unexpandable level of production of such systems, as well as the accompanying destruction of lands that is reported and emphasized; evolution of shifting cultivation technologies is not discussed.

It has largely been in only the last three decades that researchers, principally anthropologists and geographers, have quarrelled with these long-held absolutely negative opinions, and have presented the practice as, in most cases, a sound and non-destructive way of exploiting resources of a particular type and in particular areas. Ethnographers of several groups of shifting agriculturists, among them the Philippines’ Hanunoo (Conklin 1957), New Guinea’s Tsembaga Maring (Rappaport 1968) and the Kuikuru of the Amazon basin (Carneiro 1961), have stated or implied that the farming practices employed by these populations are not leading to long-term degradation of their physical and biotic environments.

Arguing the case for the basically conservative nature of shifting cultivation systems more broadly, some scholars have suggested that “when local populations possess adequate land ranges, their shift cycles usually are ecologically sound and constructive rather than destructive” (Spencer 1966:3). This defense of shifting cultivation implies that neither severe soil erosion nor irreversible successional deflection to grassland usually result from the practice, effects that have often been imputed to it by critics. Furthermore, many recent commentators have suggested that the waste of commercially valuable timbers is also not one of the common results of shifting cultivation. Most shifting farmers, it is alleged, prefer to fell and farm areas of secondary, that is, previously felled, vegetation (Conklin 1954; Goodenough 1959), which contain few scarce or valuable marketable species. In addition, they tend to reuse fields that they have previously farmed. Therefore, not only do most shifting cultivators not destroy the areas they use, they tend to reform them cyclically, and largely avoid disturbing virgin areas.

The defenders of shifting cultivation as a usually conservative exploitation pattern with ecological effects “no more malignant than those of the more ‘advanced’ alien agricultural technologies” (Ruddle 1974:9), are certainly in most cases correct in their judgements. There has been a tendency, however, for the observations of relative non-destructiveness to be transformed into questionable allegations of the agriculturists’ state of complete equilibrium with the environment, and into implications of changelessness in practices, inputs, outputs, and effects. Spencer describes most groups as “ecologically in balance with tropical environments” (1966:3), and Geertz agrees that

*SARAWAK  
FOURTH DIVISION  
BINTULU AREA*



when conditions allow for sufficiently long fallows, shifting cultivation is “an equilibrated, non-deteriorating and reasonably productive farming regime” (1966:23). Watters, using every possible term to denote stability states that the shifting cultivator, left alone, will be in a “stable state of balanced equilibrium within his ecological environment” (1971:8).

All students of shifting cultivation systems recognize that not all groups maintain balanced relations with their environments: not cutting new forests, not degrading old lands. However, many commentators attribute almost all instances of obviously unstable agricultural situations to modern “outside pressures” which force, supposedly “stable” farmers to “shorten the interval between crops, or to clear unsuitable soils in drier climates” (Bennett 1973:29). Also blamed for upsetting previous equilibria between shifting cultivators and their land resources are “crowding” (also considered an effect of outside forces) and the involvement of such populations in a market economy (Spencer 1966:3). Apart from such examples of “break-downs” of systems allegedly balanced in the past, instances of destructive behavior by shifting cultivators are often attributed to the ignorance of proper practices on the part of former intensive cultivators forced, by land shortages in their home territories, to migrate to previously unexploited lands and become shifting agriculturists (Watters 1971:11; Conklin 1957:3).

The other instances of “non-equilibrated” farming practices among shifting cultivators are quite few; they include several groups in Southeast Asia who are now, or until recently were, pioneering new territories, and allegedly destroying the lands that they used (Lafont 1959; Freeman 1955, 1970; Geddes 1976). The best documented case of such “integral pioneering” shifting cultivators (Conklin 1957) or “lateral-shift” (Spencer 1966) farmers are the Iban of Sarawak, the subjects of the rest of this monograph. Here, I will only point out that such unstable cultivators are commonly considered unusual and aberrant; the Iban’s behavior has been attributed to a “warrior’s view of natural resources as plunder to be taken” as well as to a “superior indifference toward agricultural proficiency” (Geertz 1963:27). The Iban have been called “less shifting cultivators than *mangeurs de bois*” (Geertz 1963:27).

The implication of all the above statements that “real” shifting cultivators are almost invariably in a state of perfect balance with their important resources, has been questioned by a number of scholars. Not only have views of unchanging agricultural systems been attacked as ecologically (Clarke 1971:71) and demographically (Kunstader 1972) unlikely, but the accusation has been made (see Street 1969; Bennett 1973; Brush 1975) that anthropological and geographical studies of shifting cultivation have not included assessments of environmental variables nor of the effects of historical events (Salisbury 1975) adequate to ascertain whether significant change is going on. Therefore, argue the critics, no convincing statements concern-

ing the stability of these agricultural systems have been made. Among studies so criticized are some of the classics of the literature on shifting cultivation in anthropology and geography (Conklin 1957; Brookfield and Brown 1963; Carneiro 1961; Rappaport 1968). Indeed, having neither accurate historical accounts of past variations in population, agriculture or environmental configurations, nor the time or expertise to detect ongoing, often subtle, biotic, pedological or nutritional changes, many students of shifting cultivation have merely assumed that no significant changes have been or are occurring.

The geographer Street suggests that this essentially static and often erroneous view of shifting cultivation systems arises not only from the limited capacity of most investigators to gather all pertinent information, but also from those investigators' "tendency to become enamoured of the object of their scrutiny; the [shifting cultivators] appear to be so self-sustaining, so well-integrated into their environment, so in harmony with nature it is hard to believe that they may be damaging the resource base" (1969:106).

However, even when static, equilibrated relations with the environment are not attributed to shifting cultivators, the description of the resource use patterns that results is often still an essentially static one. For instance, Freeman's monographs on the pioneering Iban (1955, 1970), as well as descriptions of other pioneering shifting cultivators (Geddes 1976; Lafont 1959), acknowledge that change is occurring in the landscape: virgin forests are transformed into farms, and the fields are then, through overfarming, purportedly reduced to grass-infested wastes. However, the descriptions of the techniques of land use by pioneers tend to suggest that these techniques are immutable; no changes or adjustments other than further migration ever occur. Not only are farmers like the Iban prodigal in their use of their abundant forests, but they are alleged to be addicted to these prodigal methods (Freeman 1955:141); an end of freely available land for Iban, for Miao, and for Djarais, according to their ethnographers, is sure to result in disaster.

I have argued that studies of shifting cultivation have, with a few exceptions, tended to give a static view of the practice; categorizations and typologies of tools, technologies and crops have been forthcoming, descriptions of processes of change and adjustment largely have not. In the case of studies of supposedly stable or established shifting agriculturists the static quality extends to both the human and non-human components of the system: the people using unchanging techniques live within the available resources and the resources renew themselves indefinitely. In the case of pioneering shifting cultivators, it is the destructive agricultural techniques and reliance on migration that have been presented as immutable.

It is certainly the limitations of time and information in the investigations of shifting cultivation that have led to this static emphasis. Neither the tropical grasslands and other evidences of past “unequilibrated” agricultural activity, nor the existence in many parts of the tropics of land and labor-intensive agriculture support views of technological and demographic stagnation. Physical and biotic characteristics of areas obviously change constantly, as do agricultural techniques, labor patterns, crop assemblages, land tenure codes and sizes of populations of shifting cultivators.

Few discussions of these topics in any but the most general terms have been presented. The present study is an attempt to add to these few investigations of variation and change in resource use of particular populations of shifting cultivators.

## 2. *Change in Iban resource use*

The discussion of change in behavioral patterns closely affecting resource use of a group of shifting cultivators, which will be presented in the following chapters, is based on data gathered during over two and one-half years of research in several Iban communities in Sarawak, as well as on data found in published sources.

The Iban are not an unstudied group. Their proclivity for head hunting and rapid migration, and their fame as the recalcitrant subjects of an equally colorful ruling family, the Brookes (“White Rajahs of Sarawak”), brought them considerable attention which in turn resulted in a number of historical and ethnographical accounts. These include one of the finest studies of shifting cultivation in the anthropological literature, Freeman’s *Report on the Iban* (1970) – largely the same as the earlier *Iban Agriculture* (1955) – detailed accounts of Iban history (Sandin 1967a, b; Pringle 1970), religion (Jensen 1974), warfare (Wagner 1972; Vayda 1976), and of recent changes among urban-oriented Iban (Sutlive 1978), as well as many shorter scholarly works, reminiscences of colonial officers, journals of expeditions into Iban territory and numerous hardly believable tales of Bornean horrors and heroics.

The picture of the Iban that emerges from the major works (particularly those of Freeman and Pringle) is of a population of aggressive, expanding shifting cultivators and warriors, successfully intimidating and displacing other Bornean groups, and over-farming and destroying the lands they took over. As warriors they have been called “the wickedest headhunters . . . perhaps in the whole world” (MacDonald 1956:10), and as farmers, “the prototypical *mangeurs de bois*” (Bronson 1972:193).

This picture, although accurate for particular periods and areas of Iban occupation, must be now modified considerably. Headhunting effectively ended over a half century ago; pioneering and migration continue, but many

Iban are not the wasteful shifting cultivators of hill rice continually advancing into neighboring high forests that Freeman described (1955, 1970). While I will not attempt to present a discussion of Iban which will faithfully describe all the approximately 300,000 of them in Sarawak (among them today some town dwellers and intensive cash croppers; see Sutlive 1977, 1978), the picture given in this monograph will introduce some variation to the usual description of Iban shifting cultivators of hill rice.

Freeman, in his earlier monograph on Iban agriculture, cautions the reader that his report "is primarily an account of Iban methods of shifting hill rice cultivation in pioneer areas . . . this means that proper safeguards must be observed before applying any of the findings of this report to other Iban areas" (1955:vii). Nevertheless, his descriptions and conclusions have been heedlessly applied to all Iban in innumerable discussions concerning the group. Even in studies that purport to discuss the agricultural techniques of non-pioneering Iban, the descriptions seem unduly influenced by Freeman's findings. For instance, Jensen's summary of the land use of Iban in the long-settled Lemanak river valley: "having exhausted the natural resources of soil, game, and timber of one district [they migrate] to fresh jungle" (1966:7), is hardly plausible as a description of an area which has been continuously settled for over three hundred years.

An indeed unchanging picture of Iban agricultural methods is conveyed by such particularly inappropriate repetitions of Freeman's observations as that quoted above, together with Freeman's previously noted contention that Iban are "addicted" to their wasteful methods, and his statement that:

. . . the action of confining the Iban will – in due course – only aggravate the spoliation it is designed to curtail. As we have seen, Iban methods of land usage are adapted to a system of constant expansion. When the possibility of further expansion is ruled out, the deleterious effects of Iban prodigality become an even greater threat (1955:137).

Although occasional mention has been made in the literature of other farming practices employed by Iban (Freeman 1955:vii; Pringle 1970:26; Leach 1950:64; Sutlive 1978) these are invariably references to exploitation methods used in areas of topography unlike that of Freeman's research sites, that is, lowlying swampy regions.

However, familiarity with Sarawak's history and geography leads to the realization that the cultivation of hill rice among all Iban cannot be done as Freeman described it, nor among *any* Iban as Jensen reported. The fact that there are numerous river valleys in Sarawak which have been continuously settled by Iban for over three hundred years, immediately suggests that land use among all groups is not predicated on constant migration. The further observation that no extensive area of Sarawak colonized by Iban in the past has been voluntarily completely abandoned by them, and all such areas continue to be exploited by shifting cultivation, points to the fact that the

natural resources of these areas have not been "exhausted".

The field research that I carried out had as its principal task the determination of whether and what significant changes appear in Iban patterns of land use as the length of settlement of an area increases, the supply of unexploited land dwindles, and as the frontier recedes. The method elected for studying such changes was the comparison of several Iban communities differing in little but the span of time they had existed in their approximate present locations, and therefore also in the amount of previously unfarmed land they possessed within their territories.

Chapters 2 and 3 describe some of my difficulties in finding research sites where all variables other than the date of first settlement and access to unclaimed land were indeed constant. The intrusion of other variables causes, of course, some difficulties in interpreting the differences in resource use that were detected, and limits the generalizations that can be made. (The unplanned variations that existed in the physiography of the various sites led, however, to my gathering unexpected information on land use among Iban settling lowlying regions, which considerably broadened the generalizations that could be made concerning field site selection in pioneering areas.)

The sites that were chosen for field research included one which had long been settled and farmed by Iban, one that had only recently been invaded, and one area which still included some virgin areas, but had been first colonized by Iban over half a century ago. This last area was added to my research sites primarily as a region where the demographic concomitants of pioneering might be observed; the effects of migration to a virgin area would not have been detectable in the newly settled site as many of its residents had arrived only two years before my research began. Freeman's research sites comprised several communities (longhouses) in a region largely settled by Iban for about twenty-five years.

In the chapters that follow several aspects of Iban resource use are described and the several sites compared with each other, and with the data presented in Freeman's monographs.

The description of Iban resource use patterns that emerges from these comparisons is of a changing and flexible system; the suggestion made previously that migration is not the Iban's sole response to changes in resource availability is supported by the comparisons and is elaborated. Although emigration to new areas continues to occur from even very long-settled zones far removed from virgin forests, these rates of population movement are very low. Many other behaviors which appear to act as suitable responses, and are therefore "alternatives" to migration, are noted among residents of areas of long Iban occupation.

These "alternatives" include shifts in agricultural practices, particularly the use of more conservative cropping-fallow regimes and more labor inten-

sive farming patterns, as well as increases in the rates of borrowing of land, of temporary wage labor migrations, and lower rates of human fertility and population growth. The multiplicity of the factors or responses that were detected is notable, as recent works on population growth and resource depletion following the "Boserup model" (Boserup 1965; Spooner 1972) often stress only one response – agricultural intensification – to the problem of limitation of land. The identification of many changes, each presumably alone quite inadequate as a response, but all together apparently successful, parallels findings of other investigators of problems of land shortage (Vayda and Rappaport 1963; Brookfield 1970; Kunstadter 1972).

Also to be noted is that the factor perhaps most frequently accused of disrupting a supposed balance between shifting cultivators and their environments – involvement in markets – is found in the Iban case to be indeed a very important, but more conservative rather than destructive influence. Participation in activities through which income for the purchase of market goods is obtained, appears to significantly affect long-term patterns of resource use. The varying types of income-producing activities prevalent in the different areas apparently influence rates of population growth, slowing growth in long-settled regions, spurring it in pioneering zones. The relations between these variables will be more fully explained in Chapters 5 and 6.

A more complete presentation and discussion of all the differences that were found between the research sites is given in the following chapters. However, those variations which I detected and discuss below should not be understood to be an exhaustive enumeration of all the important adjustments that Iban populations have made and that could have been identified if there had been more time and resources for research. Differences in measures of health and nutrition would especially have been of interest; although some of these measures were indeed obtained, their incompleteness precluded my using them in this discussion. I should also note that as no successful, rigorous measurements were made of significant environmental changes, no statements concerning relative "degradation" of biotic and soil conditions are made in the chapters that follow. My comments on processes of environmental change will be confined to observations of very general floristic differences between regions, as well as to some historical arguments which question statements made by others on the extreme destructiveness of Iban land use methods.

I shall end this chapter with a brief comment on the limitations of the usefulness of the descriptions of the various research sites, and of the comparisons between them, for the understanding of the processes of change in Iban resource use methods. The settlement by Iban of many areas was from all – often few and sketchy – accounts a complex process. As Morgan (1968:141) and Pringle (1970:42) have stressed, migrations into and through river valleys tended to be erratic, the rates and paces of move-



ment varied, the effects of differing historical events, government pressures, epidemics, warfare and natural catastrophes were felt and reflected in settlement and other patterns. While the various sites that were investigated are identified and used in the following discussions as examples of differing phases – pioneering and long-settled – in the Iban occupation and exploitation of areas, it should be understood that they are neither representative of all areas settled for equivalent spans of time, nor do the number of years they have been settled indicate that these sites exemplify some definite stages in settlement. As the histories recounted in the following chapter show, the Iban settlement of an area does not follow an even path; it is not a process of steady, gradual filling of an area to a level of equilibrium. The histories of long-settled areas record several expansions, faster and slower, and several greater and lesser waves of emigration. The research sites and their descriptions therefore, represent only particular points in complex and ever changing processes.

## CHAPTER 2

### A HISTORY OF MIGRATIONS

Iban migratory expansion, a process remarkable in its scope, rapidity and its frequent accompaniment by warfare and headhunting, has been described and discussed in a large number of works. A general account of Iban movements from the time of their entrance into the Batang Lupar drainage until the coming of the Brookes has been given by Sandin (1967a, b), and their movements since the establishment of the Brooke Raj have been recounted by Pringle (1970). Descriptions of the settlement of specific rivers are found in works by Freeman (Baleh River, 1955, 1970), Sandin (Niah, 1957), King (Leboyan and Embaloh, 1976), Brooke (Katibas, 1866), as well as in numerous Brooke officers' reports. Discussions and speculations on the motivations for and consequences of Iban expansion are to be found in all of the above works as well as in those of Vayda (1961, 1976), Morgan (1968), Sutlive (1978) and Wagner (1972) among others.

As the above sources are all available, in this chapter I shall present only a very brief summary of the main directions, events, and dates in the general history of Iban migratory expansion. This short overview is provided so that the reader may have some understanding of the broader historical context of the particular migrations which I will go on to discuss in detail. The more detailed discussions will be limited to the histories of the areas in which field research was conducted. I shall attempt to describe how and when the first Iban migrations into the three research areas took place, and discuss population movements subsequent to the initial invasions. I shall try, in recounting the particular histories, to point out those aspects of each that may be of more general application, as well as to mention the events and conditions peculiar to each described area which limit the generalizations that can be made.

Many chroniclers of the processes of Iban expansion have echoed Pringle's statement that "the story of the Iban migrations . . . is not a simple one" (1970:247). Indeed, although the narratives presented in this chapter represent attempts to order, summarize and simplify some confusing and at times contradictory oral and written information, the considerable complexity of Iban migration history, especially of the settlement of the first research site, the lower Engkari region, remains evident. If there is any

generalization that the data to be presented point to, it is that the rates and modes of Iban migratory expansion have varied greatly in particular times and particular areas, and that resource use and other Iban behavioral patterns can be expected to have varied also. The histories of many long settled regions such as the Engkari show that initially rapid rates of expansion were followed by alternating periods of lesser and greater population movements. These variations in migration rates together with the long histories of continuous settlement of such areas, testify to the inadequacy of the commonly repeated characterizations of all upriver Iban as destructive cultivators forced to constantly migrate.

### *1. Iban migration: An overview*

Iban oral histories and genealogies point to the Kapuas basin of Kalimantan Barat (more specifically, the Ketungau tributary) as the homeland of the Iban prior to their entrance into the territory of modern Sarawak. Using these oral sources, Benedict Sandin (1967a, b) has written the history of the early Iban migrations from the Kapuas into the western areas of Sarawak. Beginning with what were probably the first major movements, about sixteen generations before the present, in approximately the middle of the sixteenth century, ancestors of the Sarawak Iban population are believed to have crossed the watershed from the Kapuas drainage into the Batang Lupar drainage, first settling on the Undup River. From the Undup, within a period of about five generations, the pioneers migrated to the north, east and west, occupying all the major rivers (apart from the Krian) in what is now Sarawak's Second Division, as well as some of the downriver areas of the First Division. In the course of these migrations, and in most of their subsequent movements, the Iban pioneers occupied land which was inhabited by hunting and gathering populations, although some cultivators were also encountered (see Sandin 1967a:20; Freeman 1955:25n; and Boyle 1865:94). These groups were in some cases absorbed into the invading Iban population; in others, largely destroyed or forced to remove from the Second Division eastward. By the early 1800's large-scale movements of Iban were underway into the basin of the Rejang River, an area now divided into the Third, Sixth, and Seventh Divisions of Sarawak. These migrants crossed mostly from the headwaters of the northern tributaries of the Batang Lupar and Saribas rivers, into the southern tributaries of the Rejang. Others, from the upper Lupar (Batang Ai), crossed the border into what is now Indonesia (Kalimantan Barat) following the Leboyan and Kanyau (Embaloh) rivers, and eventually reaching the Katibas, a tributary of the Rejang. These migrations into the Rejang drainage area, as well as the later movements during the period of Brooke rule (1841-1941), are described and discussed at length by Pringle (1970); I shall summarize them very briefly.

By 1870 Iban in large numbers were settling on the Oya and Mukah rivers in Sarawak's Fourth Division, and moving on to the Balingian, Tatau and Kemena (Bintulu) rivers before the turn of the century. Around the same time, groups of Iban settled areas of the lower Baram River and its tributaries. They were forbidden by the Brooke government to occupy the next rivers to the northeast – the Suai, Niah and Sibuti – but by 1901 there were Iban settlements along the Limbang River in Sarawak's northeasternmost division, the Fifth. Other major Iban migrations included the final occupation of the Baleh tributary of the Rejang in 1922 (for a history of the Baleh region, see Freeman 1955, 1970), the settling of the Suai, Niah and Sibuti in 1927, a government sponsored move to Lundu in the First Division in 1955, and more recent moves to government development schemes in the Second and Fourth Divisions. As will be discussed later, both government sponsored and spontaneous migrations continue into the present.

## 2. *Iban migration: The Engkari basin*

The available historical data suggest that most, if not all, of the migrants from the Second Division into the Rejang basin, as well as those who later moved into the rivers of the Fourth and Fifth Divisions, left areas which were generally hilly, upriver regions where the shifting cultivation of hill rice was the only important agricultural activity. Thus it was not the Iban of the flat and swampy lower reaches of the Batang Lupar, Samarahan, or Saribas rivers who migrated – not the Balau, Sebuyau, Undup or people of the lower Saribas – it was rather the residents of the upper Batang Ai, Lemanak, Skrang and Layar who moved toward the northeast.

Although little actual data exists, it is probable that one of the upriver areas from which the Rejang and later migrations originated, is the Engkari River, a true right tributary of the Batang Ai. The Engkari rises not far from the headwaters of the Katibas and flows south, joining the Batang Ai about twenty miles upriver from the market town and administrative center of Lubok Antu. The entire Engkari is a fast flowing, shallow river which is navigable, but only with great difficulty when the level of its water is exceptionally high or low. Although it has no dangerous rapids for most of its inhabited length, the Engkari is known for its frequent sudden turnings, which send boats crashing into rocky, steep banks. The terrain drained by the Engkari and its tributaries is highly dissected, and, except for the extreme upriver reaches, it is today largely covered with secondary growth, rubber gardens, and rice fields. Field work was conducted in several long-houses along the Engkari and its tributary, the Jela stream. The greatest volume of data was collected at a longhouse of thirty-eight doors (households) located at the confluence (*nanga*) of the Jela and the Engkari and

referred to by its place name – Nanga Jela.

In late 1973, when field research at Nanga Jela was begun, the landscape of the lower Engkari showed evidence of a significant period and level of agricultural exploitation; it harbored populations of mammals, fish, and other animals, domesticated and wild, of sizes and species largely determined by human activities, and a human population of a particular age and sex structure, spatial distribution, fitness and physiological size. In order to determine with any accuracy the processes and events which served to produce these particular configurations of present-day plant, animal and human life on the Engkari, a detailed knowledge of the local history is essential. Unfortunately, the only sources of historical data that are available are a few orally-transmitted stories and genealogies covering the very earliest period of Iban settlement of the Engkari, and Brooke officers' reports and life histories of present Engkari residents covering the most recent times. The migrations, wars, and other events of the entire middle period of Iban occupation of the region – a span of at least two centuries – are not mentioned in any of the oral or written materials that I collected. Thus the history that I shall present is largely based on extrapolation from the histories of Iban occupation of other areas and in other periods, and is at best tentative.

In his story of the first Iban settlers of the Batang Ai, Sandin (1967a:7) mentions Patih Ambau, a leader of fourteen generations ago who settled at Pangkalan Tabau, just above the modern town of Lubok Antu. Although Sandin does not mention his moving any farther upriver than Pangkalan Tabau, the same Ambau is said to have headed the first Iban migration into the Engkari. In a story and genealogy recited to me by Kula at the longhouse at Langkau Bala, Ambau led a group of pioneers up the Batang Ai, building several longhouses along the way, and then entered the Engkari River, making houses, and presumably farming for a while, first at Nanga Engkari and then at Nanga Mengiling (just upriver from Nanga Jela). Kula could remember no further stories concerning the migrations of Ambau nor of any of his party, subsequent to their settling at Nanga Mengiling. It should be noted that according to the oral history, Ambau engaged in hostilities with the hunting and gathering Ukit who were the previous occupants of the area; Ambau's longhouse at Nanga Engkari was surrounded by a stockade (*kota*).

Another account of what is also alleged to have been the earliest Iban migration into the Engkari and which also mentions frequent battles with the Ukit, was recited by Jabop of Nanga Jela. Jabop's story concerns the migrations of Aji, Gila and Moa Hari (Tinggi), who led a group overland from the Lemanak River, following the Kesit and Jela streams into the Engkari, and then upriver, almost to the Engkari's headwaters. From the

story of these migrants from the Lemanak, it is unclear how many members of Aji, Gila and Moa Hari's groups actually migrated from the lower Engkari all the way to Nanga Talong in the extreme upriver reaches, a distance of at least 18 miles. However, since Gila is mentioned as taking part in hostilities with the Ukit at Nanga Talong, it appears that the move was accomplished rather quickly, probably within one or two generations. During that movement upriver, beginning with the first settlement in the Engkari drainage, a total of six longhouses were built by the pioneers: the first on the Darom stream, a tributary of the Jela, and the last at Nanga Talong.

The apparent speed with which the greater part of the Engkari's length was invaded, and the significant distances which the migration leaders traversed in their careers were characteristic of Iban pioneering in other areas and at other times. For instance, Sandin mentions Manggi of the Skrang, who "like many of the migration leaders . . . was a pioneer in more than one place" (1967a:11). In another work (1967b:118–120) Sandin recounts the migrations of Ba, a leader of more recent times, who covered great distances, moving between the Seriang River, near the Kapuas lakes in what is now Kalimantan Barat, to several places on the Katibas and Rejang, and then back again to the Kanyau River, a Kapuas tributary. Freeman has remarked on the migrations of Temonggong Koh:

(Koh) is now (1950), farming virgin jungle on the western bank of the Baleh . . . distant about two hundred miles from the place of his birth. Over the entire distance there stretches a "trail" – discontinuous and often erratic – of secondary jungle that has resulted from the yearly farm-clearings of Koh's *bilek* [single household] family (1955:25).

The oral histories of the early settlement of the Engkari, as told by Jabop and Kula, are largely descriptions of the invading Iban's mostly belligerent contacts with the Ukit and Bukitan, and a record of the place names of their settlements. In these accounts, no mention is made of the number of people taking part in the migrations, nor even of the number of households or doors making up newly built longhouses. Descriptions of their farming methods and other subsistence techniques are similarly lacking. It can only be assumed that the first settlers' activities were in great measure similar to those recorded for Iban migrating into largely uninhabited regions in later times (see Chapters 3, 4).

The story told by Jabop goes on to recount that when the early migrants reached Nanga Talong (which in 1973 was the site of the northernmost settlement on the Engkari), they stopped their upriver movement and returned to the lower Engkari, settling at Nanga Jela. At that point Jabop's narrative ends, as also does one phase of Iban occupation and exploitation of the Engkari. Although the oral account does not mention the reason why the pioneers failed to continue northward, farther into areas of unexploited primary forest, we can surmise that, at least in part, the same reasons that

account for the non-occupation of the extreme headwaters of the Engkari today, can explain the ending of this first pioneering movement. Problems such as the difficulty of reaching market towns with their medical dispensaries and other government facilities, are, of course, more important in explaining the more recent reluctance of Iban to live far upriver, and the fear of enemy attack has almost ceased to be a consideration in choosing a longhouse site. However, some characteristics of the upriver environment, such as the steep slopes, rocky soil, difficulty of navigation and of obtaining necessary trade items such as iron and salt, as well as the lack of fish, probably then, as now, discouraged Iban occupation of far headwater areas. It can be hypothesized that when the first Iban reached Nanga Talong, some change occurred in the previous balance between the costs and benefits of moving to new, unfarmed areas, and the costs and benefits of remaining in the Engkari valley; that is, further moves upriver became less desirable than they had been on the river's lower reaches.

Although no stories or travellers' reports are available describing the situation on the Engkari subsequent to the first pioneering phase and before the earliest probable migrations to the Rejang river system – roughly from about 1600 to 1800 – we can assume that during this period the Engkari's population grew and that intensity of land use increased. The specific changes in Iban behavior that may have occurred during this time: changes in farming techniques and other patterns of land use, in human fertility and other demographic variables, which contributed to these general trends will be discussed in other chapters. It should not be assumed, however, that any increase in population, nor decrease in high forest availability proceeded at a steady rate for any significant length of time during this span of two hundred years, for there is no reason to believe that the disruptive events which are recorded for the area in more recent times – the crop failures, smallpox and cholera epidemics, warfare, and arrival of new settlers – did not occur and have major effects during the period in question.

Although I have found no accounts of migration from the Engkari into the Rejang river system, the rather short distance from the headwaters of the Engkari to those of the Rejang's southern tributaries, as well as the fact that such emigration is recorded for the neighboring Lemanak and upper Batang Ai areas (Pringle 1970:152), points to a high probability that movements to the north did occur. The remark by H.E. Deshon, Resident of the Third Division, that the "Ngemah Dyaks (are) closely related to people in the Engkari" (*Sarawak Gazette* 445, 3 Feb. 1903) suggests that the Ngemah tributary of the Rejang may have received immigrants from the Engkari, and it also may have served as their principal route into other parts of the Rejang basin. (It should also be noted that often all areas of the Batang Lupar river system above Lubok Antu are referred to as "Batang Ai" or "Ulu Ai", including the larger tributaries such as the Engkari and the Delok.

Thus, some accounts of migration from the "Batang Ai" may well include Engkari Iban.)

The earliest date for any Iban migration to the Rejang is generally accepted to be about 1800 (Brooke 1866 (II):336). What pressures or events determined the timing of this major movement is unknown, although intense warfare is suggested as a reason by Sandin (1967a:81) for the exodus from the upper Batang Ai, and defeats by some of the earliest Brooke punitive expeditions may have given impetus to the later movements (1940's and later) from the lower Batang Lupar (Pringle 1970:78). Whether lack of desirable farming land, crop failures of considerable severity or frequent occurrence, lack of fish, game, or other pressures less apt than warfare to be memorialized in oral histories also contributed to the willingness of the Second Division Iban to cross the headwater regions that had stopped them previously, remains uncertain.

Although it is open to question whether the following data include migrants from the Engkari River, I should like to present Dutch and British estimates of the number of Iban who left the entire Batang Ai area around 1800, and settled on the Katibas River and on Kapuas tributaries. Even when these sources (Brooke 1866 (II):336, and Veth 1854 (I):55) are very conservatively interpreted, they give a total population of emigrants from the Batang Ai of at least twenty thousand persons. As will be discussed in Chapter 5, the estimates cited are of very questionable accuracy. However, since in the same work Brooke estimates the total Batang Ai population (in 1861) to be about twenty thousand, such high figures for the emigrant group do encourage speculation as to the possibly dramatic effects on subsistence techniques and other variables, that such a massive exodus might have had.

From 1800 onward for almost a century, some emigration to the Rejang basin may have continued, the pioneers moving out gradually, stopping to farm for several years along the way as Charles Brooke (1866 (I):327) observed in 1859 along the Kanowit River:

Such parties would do their four or five days' march, then build their houses, and proceed to farm for one or two years, after which they would recommence their march and so on, until they arrived at their final destination. [It is uncertain what Brooke meant by "four or five days' march". Since migrants moved with all their belongings, including rice stores, the actual distances between settlements were probably small.]

In 1876 the Katibas River, a southern tributary of the Rejang was closed to Iban settlement by order of the Brooke rajah (and so it remained for forty years), and by the late nineteenth century the other Rejang affluents most accessible from the upper Engkari were largely filled with settlers. In the 1870's some pioneers were already moving out of the Rejang drainage into the rivers farther to the north (Pringle 1970:265). These rivers, among



them the Tatau, Balingian, and Kemena, also became the destinations of Iban from the Second Division. But, as Pringle points out, for Batang Lupar Iban, migration to these Fourth Division rivers was not accomplished by making a succession of farms, as moves to Second and Third Division rivers had been made:

Would-be pioneers had to have boats and the skill to handle them off a long harborless coast. They needed a greater degree of determination to start settlements in a strange land, sometimes in the neighborhood of unfriendly, non-Iban peoples. They also needed enough rice to sustain themselves until they could grow their first crops. (Pringle 1970:266.)

Thus, although during this time emigration and pioneering into largely virgin areas continued to be an option for Batang Ai Iban, such moves were accomplished at rather great cost and were probably undertaken by relatively small and select groups. Unfortunately, it again cannot be said with certainty whether any Engkari Iban joined migrants from the Skrang and Lemanak rivers who are known to have left their Second Division homes for the Fourth Division. All that can be said is that any very large-scale migration from the Engkari to Fourth Division rivers appears unlikely since the historical sources for this period – Brooke District Officer's reports and the reminiscences of present-day Engkari residents as well as of Iban of the Tatau and Kemena rivers – fail to mention any such movement.

In the discussion thus far of the changing costs and problems of emigration from the Engkari, the factors of difficult topography and long distance have been emphasized, largely because data on other hardships encountered by potential or actual migrants are unavailable. Some brief mention has been made of hostilities between Iban pioneers and indigenous peoples, which may have slowed or diverted some early movements (although eventually all areas of the Second Division were occupied by Iban). In examining later contacts with non-Iban groups, as well as in discussing all Iban migrations after 1850, the interventions of the Brooke and Dutch governments, and, in more recent times, of British, Malaysian and Indonesian administrations must be considered.

The effects of Brooke policies in encouraging Iban expansion into some areas (e.g. Baram, Limbang) and discouraging it into others (Baleh, Balui, Anap) are discussed at length by Pringle (1970:ch. 8). In this brief historical presentation, I shall only mention that in the most recent times, both the Brooke and the British colonial governments did not support Iban expansion, except into those regions specifically designated as development areas. Among the general laws which served to restrict further Iban movements into virgin territory were Brooke statutes forbidding Iban from journeying to other districts without written passes from their District Officers, a law forbidding the felling of any forest in which Borneo ironwood (*belian*) was found (1863), and finally a law, promulgated by the British colonial

administration in 1955, forbidding the felling of any virgin forest without the express permission of the District Officer. This last ordinance in effect bans all pioneering in Sarawak. It is, however, unenforceable and largely unenforced. The gazettement of large tracts of land in Sarawak beginning in the 1930's as Protected Forests and Forest Reserves has indeed stopped pioneering into some areas, as the laws prohibiting the cutting of reserves are more frequently enforced than the general ban on the cutting of all primary forests. However, as will be discussed below, forests protected by the State have been, and are still being felled by Iban pioneers.

Government restrictions, such as those mentioned above, rather than the actual difficulties involved in moving, render migration into new areas a difficult task for present-day Engkari Iban. Expansion into primary forest today requires enough determination to resist often forcible attempts at removal by government officers and frequently demands a willingness to serve prison terms and pay fines. The physical hardships suffered by earlier pioneers have to some degree been alleviated by the increased appearance and use in many areas of outboard motors, and of bus and truck transportation wherever there are roads.

In lieu of clearing virgin lands in defiance of government regulations, within the last three decades Engkari Iban who wished to better their situations by migrating to more productive areas could seek inclusion in a government development scheme. During my residence on the Engkari, I found that this option was frequently discussed, and as will be noted below, has at times in the past been elected. The reasons why migration to government schemes has not been viewed favorably by many, if not most, Nanga Jela residents is a subject worthy of extensive inquiry. I should merely wish to mention that the great, or exclusive, emphasis of such schemes on the production of cash crops, as well as the single-household dwelling units provided on most schemes, seemed to be considered undesirable by many on the lower Engkari.

The era of difficult and costly emigration to a desirable destination, which began with the closing of most possibilities of gradually migrating overland, may be considered to have extended into the present time. I do not wish, however, to imply that no emigration from the Engkari has occurred during the twentieth century. It is probable that small-scale movement, of a few households at a time, has taken place throughout this century but has largely been unrecorded. Between 1968 and 1976, for instance, five households, totalling twenty-seven persons (about 10% of the total population), left the longhouse at Nanga Jela. Such moves by individual families do have a cumulative effect on the population of any area. More dramatic, however, are migrations of entire longhouses, several of which have occurred in recent decades. Some of the larger movements such as the government sponsored moves (in 1955 to Lundu, in 1959 to the Jelalong, Fourth Division; and in

the 1960's to development schemes in the lower Skrang and the Fourth Division) removed substantial populations out of the general Batang Ai area, and in the case of the moves to the Lambir schemes near Miri, Engkari residents numbered significantly among the migrants. The most recent large emigration from the Engkari took place in 1974 and 1975 and, in contrast to those mentioned above, was a spontaneous move. Three entire longhouses, of the fifteen found on the Engkari, as well as several houses from neighboring parts of the Lemanak and Batang Ai, left the area. The emigrants would have been followed in 1976 by many other longhouses, including about one-half the households at Nanga Jela, had the plans of the latter group not met with very strong disapproval from the district administration. This move will be described in greater detail below.

I have thus far in this chapter discussed those factors which throughout Engkari history served to influence or change the degree of ease with which migration from the Engkari to some acceptable destination was accomplished. Apart from a brief mention of the intensity of land use, and population density as variables which tended to increase during inter-migratory periods, and of warfare as a factor that at times might have triggered emigration, I have largely failed to mention factors which may have led to changes in the need or desire of Iban groups to migrate or expand. Extensive discussions of changes in agricultural practices, of variations in practices closely linked with human fertility, such as the growing frequency of labor migration, as well as of shifts in land tenure patterns, will be found in the chapters that follow, together with suggestions of the relation of these variables to the patterns of Iban migratory expansion. In concluding this section on the history of the Engkari area, I should only briefly like to mention a few of the important events and changes which occurred on the Engkari, but which will not be treated in separate chapters. Although it may be difficult to determine what the precise effect of some factors, such as the displacement and possible loss of life caused by Brooke punitive expeditions and raiding by other Iban, was on the need or desire of Engkari Iban to migrate, the importance of these and other events in affecting settlement patterns and, to a large extent, agricultural practices within the Engkari area is undisputed.

In the earliest phase of Iban occupation of the region, I have suggested that hostile relations with the Ukit and Bukitan may have temporarily stopped migration into some areas or generally slowed the pioneers' expansion into virgin territory. Another possibility, that migration was at times stimulated by the existence of a hostile but generally weaker population might also be considered. It is plausible that some groups, perhaps headed by persuasive leaders, may have desired to maintain contact with a receding or fleeing population of hunters-gatherers in order to get head trophies, or

to establish the leader's reputation as a warleader and brave man.

In more recent times, attacks on upriver Engkari areas by Layar and Skrang Iban, which are mentioned both by present Engkari residents and in government reports (see *Sarawak Gazette* 32, 1 Nov. 1902, p. 220 and 33, 2 Jan. 1903, p. 11) caused movements to the lower reaches of the river, and may have increased the desire of some harrassed groups or households to remove from the area entirely, as did some upriver houses from the neighboring Lemanak River (*Sarawak Gazette* 34, 3 March 1904, p. 54). Punitive expeditions sent by the Brooke government (the first in 1868 against the Batang Ai [Pringle 1970:216]) were frequent until the early twentieth century. Some larger operations, such as the 1902 Great Cholera Expedition, recalled by Ucha, an eighty-year-old resident of Nanga Jela, although not directed against the Engkari, sent lower Engkari inhabitants fleeing to upriver areas and to hills farther from the main river. The years following that expedition – 1903 and 1904 – were times of extreme unrest on the Engkari. During these years, according to Pringle, “large areas of the Second and Third Divisions were plunged into virtual anarchy, and the situation did not improve measurably for another half decade” (Pringle 1970:228). The number of casualties of the raids from upriver and of the government sponsored engagements is unknown. The possibility of a significant loss of life on the Engkari due to warfare during this period is suggested by data on casualties in neighboring regions. In 1903 the war-leader Kana (whose natal household is at Nanga Jela) and his followers, in the course of one raid, took twenty-six heads in the Entabai; in the same year Iban from Dutch Borneo killed twenty-two persons in the Lemanak, and in 1905, on one raid, took thirty-four heads in the upper Skrang; in 1906 Ulu Ai warriors took seventeen heads in one raid against Sermat (all cited in Ward 1966:122–23). Although it is unknown whether any Engkari Iban were killed by government levies, it is recorded that longhouses and *padi* fields on the river were destroyed in the course of Brooke sponsored expeditions (Sandin 1967b:121; Ward 1966:121). Again, because data on movements out of the Engkari around this time are generally lacking, it is difficult to determine whether the unrest during the first half-decade of this century resulted in emigration being generally increased or decreased, or, at various times, both, or neither. The disruption of settlement patterns during this time is evident in the life histories of the older residents of the longhouse at Nanga Jela; many recall being brought from far upriver reaches as children to locations near their present home.

Another historical factor which had unclear effects on emigration rates, but undoubtedly important ones on settlement along the Engkari, were regulations issued by the Brookes limiting Iban settlement to downriver reaches of the main Engkari River, which were more easily reached by traveling government officers (see *Sarawak Gazette* 36, 3 Jan. 1906, p. 14

and 48, 16 Feb. 1918, p. 42). The regulations were often disobeyed. However, the greater concentrations of population in some areas, caused by these orders, doubtlessly affected subsistence practices, especially cropping-fallow cycles. Whether the hardships produced by greater settlement density also prompted households to leave the area entirely is again undocumented.

### 3. *Iban migration: The Kemena basin*

While the Iban invasion of the Engkari is an event recalled only vaguely in oral traditions, the first settlement by Iban of the rivers above the town of Bintulu in Sarawak's Fourth Division was witnessed and recorded by Brooke officers, and remembered (in second-hand accounts) by many of the area's older inhabitants.

A large tract of land including the Kemena River on which the town of Bintulu is situated was ceded by the Sultan of Brunei to the Brooke government in 1861. According to a published account by Gema anak Saeng (1961), five years later Iban pioneers entered the Kemena watershed, settling in the Pandan tributary. These first permanent Iban residents had been preceded by Iban "jungle produce" seekers, tappers and collectors of damar and other resins, gutta-percha, *jelutong*, and other products. These young men brought back reports of great expanses of available, largely still virgin land to their Second Division homes. The earliest settlers, reportedly led by Jenging, Beti, and Jelani (all of the Skrang River) obtained the Rajah's permission to move with their followers to the Fourth Division, but apparently, from District Officers' and other accounts, they were not followed by any substantial number of Iban until thirty years later.

In 1900, following Charles Brooke's declaration that unrestricted migration to the Kemena River would be allowed for a while, a great exodus from the Second Division to the Fourth took place. Individual Iban households and entire longhouses, principally from the Skrang, but also from the Lemanak, Batang Lupar and from the Katibas and other Rejang tributaries made the costly and often dangerous trip by boat to Bintulu. A Brooke District Officer at Simanggang noted in July, 1900: "A considerable number of Dyaks [Iban] have left for Bintulu during the past month, those that had not sufficiently large boats of their own to go in, chartered schooners or *bandongs* to take them to their destination. In many cases they had to pay as much as \$21 a door for passage and freight by these boats" (*Sarawak Gazette* 416, 1 Sept. 1900, p. 175). His counterpart at Bintulu in the same month also commented on the migrants' difficulties, reporting an incident of a schooner carrying fifty-five Iban from Lingga, which was wrecked on the bar near Bintulu. All the passengers' rice stores and valuables were lost in the mishap (p. 177).

By September of 1900, the Fourth Division Resident, H.R.A. Day,

estimated that over two thousand Iban were living in the Kemena drainage area (*Sarawak Gazette* 418, 2 Nov. 1900, p. 210); five years later a Brooke officer reported that “there are quite enough if not too many [Iban] in this district and the natives of this country are likely to suffer if the [Iban] is allowed to overrun the land” (*Sarawak Gazette* 478, 2 Nov. 1905, p. 253). The “natives” of the region, Melanau, Malay, Punan, and Kayan had all, prior to the Iban influx, engaged in some agriculture, although only the Kayan of the Tubau stream, were probably as dependent on the products of shifting cultivation as were the Iban. However, these “natives” together with the earlier Iban arrivals had succeeded, according to Day, in clearing “only the merest fringe of jungle along the bank” (*Sarawak Gazette* 418, 1 Nov. 1900, p. 210).

The majority of the Iban who settled in the Bintulu and Sebauh (a tributary of the Kemena) districts came from upriver reaches of the Skrang, an area not unlike the Engkari. The country which the immigrants came to settle, differed in many important aspects from that which they had left. The Kemena up to Tubau, as well as its affluents for much of their lengths, are turbid, slow-moving rivers, draining a low-lying, swampy country. Both fishing and farming techniques had to be changed somewhat in order to effectively exploit the new areas. According to Manjan, a present-day resident of the longhouse of Dato Temongong Abok on the Sebauh River, many immigrants initially moved to upriver areas, such as the upper Pandan, to higher, better-drained land, which more closely resembled the regions which they had left. After several years however, many moved to downriver areas, where they learned and began the cultivation of some swamp rice (see Chapter 4), and there they have continued to farm.

Moves from hilly, upriver areas to downriver lowlands were not the only Iban migrations within the Kemena drainage. Malay, Punan, and other previous occupants of the region often complained to Brooke officers that Iban were encroaching on territories the government had forbidden the immigrants to farm (*Sarawak Gazette* 496, 3 May 1907, p. 172; 503, 4 Jan. 1908, p. 115; 821, 1 Feb. 1922, p. 50). A Brooke officer in Bintulu wrote, criticizing Iban expansion at the expense of other peoples, “once they [Iban] arrive, they fondly imagine that they own the place, oblivious of the fact that there are also Milanos, Malays, Punans, and Kayans who also want land” (*Sarawak Gazette* 945, 1 June 1932, p. 119). In more recent reports, British colonial officers at Bintulu found internal migration to be a continuing major problem (*Sarawak Gazette* 1216, 30 June 1959, p. 141; 1220, 31 Oct. 1959, p. 249).

Frequent movements within an area during the first few decades following initial settlement also characterized the early history of Iban on the Engkari. However, a rather large difference between the Bintulu and Engkari regions must be noted in the frequency of these early migrations and probably in

the distances that were covered. Some older residents of the Kemena recall three major moves of their longhouses within the area. Although a total of three such moves hardly marks the Bintulu Iban as sedentary, such a pattern differs from that of the more frequent moves recorded for the Engkari pioneers, as well as for participants of other migrations. For instance, some pioneers moving from the Entabai to the Tatau area, a river system settled somewhat earlier than the Kemena, are alleged to have made sixteen moves, many of them major ones, in their initial 125 years in the Fourth Division (Lagok anak Achih 1961).

The apparent differences in internal migration and settlement patterns of the Kemena and Engkari drainages may be attributed to a number of conditions which were prevalent in the Bintulu area in the late nineteenth and early twentieth centuries, and lacking in the Engkari in the seventeenth. The most important of these is the control of the Bintulu district by the Brooke government at the time of its first settlement by Iban. The authorities controlled Iban movements in the area, marking boundaries between them and other groups, and forbidding, for long periods, Iban entrance into some areas such as the Labang and Tubau streams. The complaints of other groups concerning Iban encroachments testify to the frequent ineffectiveness of Brooke regulations upriver. Nevertheless, the presence of Brooke authority doubtlessly restrained much Iban migration. Control of movement by the government distinguished not only the Kemena invasion from pioneering episodes in the Second and Third Divisions, but also most if not all subsequent Iban migrations, including the permanent settling of the Baleh region studied by Freeman. Although supervision of Iban settlement of the Kemena was not as strict or effective as that of the Baleh in 1922, government intervention was probably important enough so that Freeman's observation that the dispersal of settlements on the Baleh "should not be viewed as being the spontaneous expression of tendencies in Iban society" (1970:143), also applies to the settlement and migration patterns in the areas upriver from Bintulu.

Apart from directly limiting migratory expansion, Brooke rule can probably also be credited with control of warfare, both between groups of Iban, and between Iban and others. Although some migrations within the Bintulu area, especially those from the upriver regions of the Kemena's western tributaries, were, according to some present-day Bintulu residents, responses to threats of attack by Rejang Iban, no warfare ever did take place. Disruptions of settlement patterns due to attack by marauding Iban or government punitive expeditions never occurred in the Bintulu area. If the Fourth Division settlers indeed moved from their Second Division homelands to find peace, as many present residents allege, in Bintulu they apparently realized their goal.

The relative non-mobility of Bintulu Iban may also be attributed to

several other conditions. It is apparent from government reports that in the period of a few months in 1900, almost two thousand Iban arrived in Bintulu, spreading quickly into most of the areas permitted to them. Opportunities to migrate were further limited by an almost simultaneous influx of Foochow Chinese to the region around Nanga Sebauh, and by the fact that permission to settle in the nearest sparsely inhabited river systems to the northeast – the Niah, Suai, and Sibuti – was denied the pioneers.

Also to be considered are various physiographic features of the Bintulu region, which distinguish it from the upriver areas of the Second Division. Among these are the existence of low-lying areas suitable for swamp rice cultivation within the territories of many of the longhouses, and the comparative ease of transportation to markets where jungle products or cash crops can be sold and some wage employment obtained. The effects of these two as well as other factors in influencing rates of migration will be discussed in later chapters. But the presence of government authority with the ability to fine or imprison as well as to forcibly remove violators of regulations setting limits on Iban farming lands in the Bintulu area appears to be the prime reason for the Kemena Iban's moving somewhat less frequently than the Second Division and other early pioneers.

In spite of the opinion of a District Officer quoted above, that in 1905 there were already too many Iban in the Kemena drainage area, immigration from other Divisions did not stop in the first decade of the century. Although the rate of immigration slowed considerably, some new settlers arrived, often to join relatives. 1959 and 1960 saw a number of Second Division Iban settle in the upland, fast-flowing Jelalong stream.

Although some permanent emigration from the Bintulu area has occurred, Iban moving both to more sparsely settled areas farther north and, in a few cases, returning to their old homes, the Bintulu region has remained to the present an area of net migration increase.

Continuing immigration and the restriction on internal movements have not resulted in exhaustion of all the virgin forest within the territories controlled by the longhouses that were studied. Residents of each of those longhouses have felled an area of previously uncut forest about every year since their coming into the Fourth Division. As observed by Freeman in the Baleh, although longhouse sites were quite fixed, the territories claimed by those houses were often very large, and thus both the Kemena and Baleh can still be called pioneer areas, i.e. "areas where virgin forest is still being felled and farmed" (Freeman 1970:viii). It should be pointed out, however, that the areas of uncut forest are known by the residents of most of Bintulu's rivers to be limited, and due to be depleted in the near future. During the period of field research, concern about sufficient land resources was expressed by many, and plans for migration to other areas, although still very vague, were discussed.



Field work in the Bintulu area was conducted in mid-1975 for a much shorter time than in either of the two other research sites. Most of the data were collected in several longhouses on the main Kemena River and its true right tributaries, particularly the Labang stream. Some data were also gathered in longhouses which had within the last few years moved from the banks of those tributaries to points along the Miri-Bintulu road which was built within the last decade.

Although the inhabitants of the longhouses which were studied were descended from migrants who had arrived on the Kemena at different times, most had come in the large migration around 1900. The few households who had arrived later (1920's or 1930's) came from the Second Division by way of Binatang and Mukah, or through Sarikei, and therefore had been pioneering at least as long as the earlier arrivals, that is, since at least the turn of the century.

#### 4. *Iban migration: The Upper Ensebang basin*

While most of the Iban of the Bintulu region may be called pioneers following Freeman's definition, they are certainly not newcomers to the area, as the term might suggest. At a much earlier stage of pioneering are a group of Second Division and Kalimantan Iban who have only recently settled near the Ensebang River in the First Division. Pioneering in Sarawak's southwesternmost Division is quite exceptional, as that region is the most populous in the State, and probably longest settled by agriculturists.

Most of the drainage basin of the Sadong River is settled by the Bidayuh (Land Dayak) people, who are presumed to have resided in the area for a very long time. Another much smaller group, the Milikin, who are difficult to classify as they are alleged to be neither Bidayuh nor Iban but rather strangely appear to "fall mid-way between these two great families in total culture" (Pringle 1970:13n), also occupy parts of the basin. The lower Sadong and its eastern tributaries are largely settled by Iban, chiefly of the Balau group, long allies of the Brooke government and enemies of the Batang Ai. Today the Balau differ from their former enemies in many aspects, particularly in agricultural practices – their concentration on wet *padi* cultivation and cash cropping – as well as in their sedentariness; few if any Balau households have migrated into the eastern areas of Sarawak.

The Balau occupation of portions of the Sadong region occurred well before the Brooke raj was established. I have found no mention of any subsequent Iban migration into the eastern Sadong until the twentieth century influx of Second Division Iban. Between 1918 and 1922, a substantial number of households left the Skrang and Saribas rivers to settle along the Sadong. Much of the land which the new immigrants occupied was apparently claimed by Milikin, as the Sadong District Officer mentioned

their complaints in several of his reports (*Sarawak Gazette* 815, 1 Nov. 1921, p. 160; 825, 1 June 1922, p. 152). In spite of the fact that in a 1921 report the Brooke officer in charge of the area remarked that the Milikin were excessively greedy in wishing to keep immigrant Iban out of large tracts of unused forest, in 1929 some Iban were fined heavily by the government for farming on the Ensebang River in Milikin territory (*Sarawak Gazette* 916, 2 Jan. 1930, p. 24), and in 1936 all immigration of Iban from other Divisions into the Sadong basin was forbidden. By that time any exploitation of the upper Ensebang by Iban or any others was considered illegal, as the area had, in the previous year, been gazetted as the Balai Ringin Protected Forest (*Sarawak Government Gazette* 28(26), 2 Dec. 1935, p. 726).

That the area of the upper Ensebang (or Ensebang Baru) River was constituted a Protected Forest suggests that until that time its lands were largely covered by high forest. This assumption is confirmed by a report of a Brooke officer who, in 1893, ascended the Krang River (and probably the Ensebang, its tributary), and reported that apart from the gardening of "two or three Malays", the area was forested and uninhabited (*Sarawak Gazette* 330, 1 Aug. 1893, p. 132). Later, Iban attempting to move into the area and farm it were evicted and fined (*Sarawak Gazette* 426, 1 July 1901; 916, 2 Jan. 1930), and so the area remained largely unfarmed. The region's resources were not completely untouched during this time, but the exploitation mostly took the form of extraction of choice timbers and resins (Forest Dept. 1948:5) and gold "washing". (*Sarawak Gazette* 366, 1 June 1896; 415, 1 Aug. 1900.)

Why the Milikin or Balau of the area, living nearby for several centuries, had never expanded their farming operations into the area of the upper Krang, particularly the Ensebang and Danau rivers is unknown. Among possible reasons for the region's non-use by agriculturists is its difficulty of access. The Ensebang and Danau are largely very shallow streams, hardly navigable, and choked with fallen trunks of heavy, hardwood trees. Before the Serian-Simanggang Road was built through the area around 1959, transportation was a very difficult problem. Perhaps more important is the relatively poor quality of the land of the upper Ensebang and its tributaries for agriculture. The soils and vegetative cover of the area will be discussed at greater length in another chapter; I shall only mention here that the soils of the region are largely sandy with badly drained sections often acidic and peaty.

Another factor which may account for the area's lack of inhabitants is its position between Milikin, Iban, and Bidayuh territories, as well as its proximity to the Indonesian border. Andriess (1972:106) suggests that the area now occupied by the Balai Ringin Protected Forest may in the past have been "a type of nomansland".

While the Ensebang's relative unattractiveness as an agricultural area may have kept pioneers away until the end of the nineteenth century, the exhaustion of free land in the Second Division and the easily accessible parts of the Rejang basin, spurred Iban migration into the upper Sadong basin after the turn of the century. I have already mentioned the fining of Second Division Iban by Brooke functionaries for attempting to settle the area in 1901, 1921, and 1930. After the gazettement of the region as a Protected Forest, would-be settlers were fined and evicted by officers of the Forest Department. Departmental reports mention several invasions of the Balai Ringin Protected Forest, including some instances of rather persistent Forest Law offenders. The infraction of Departmental Rules forbidding the felling of trees for agricultural purposes in Protected Forests included in the 1960 Report is quite typical:

In the Balai Ringin P.F. 13 Dayaks cleared land for farming in defiance of the law . . . They were fined \$5 each and later committed to prison for one week for breach of the bond executed by them in court. They were ordered to leave the area, but eight of them continued farming and were prosecuted again on the advice of the District Officer. They were fined a further \$7 each, and ordered to leave the area on completion of the padi harvest. (Smythies 1961:12.)

None of the settlers in the Ensebang area of the Balai Ringin Protected Forest have been as persistent, however, as a group who entered the area around 1966 and have remained to the present, having been joined recently by a very large number of new arrivals.

The original group of immigrants comprised about seven households of Iban, all from the upper Kapuas River (Seriang and Kantu or Gerugu districts) of Kalimantan Barat. The chief reason for their move, cited by these immigrants was the desire to escape alleged harassment by members of the Indonesian Armed Forces stationed in the area during Confrontation. The group was allowed to enter and permanently stay in Sarawak territory by government authorities; they were settled in an area known as Sengkabang upriver from the town of Simanggang. This low-lying area along the Batang Lupar River was not considered desirable by the immigrants and so, without government permission, they moved into the Balai Ringin Protected Forest, an area in which some of them had previously worked cutting hardwoods.

Since the time of their entrance into the Ensebang drainage area until 1974, the group remained at the same approximate size; it lost several members who chose to migrate farther to the east and was joined by a few doors of Second Division Iban. During those years they were fined a number of times by Forest Department Officers, and some members of the group were imprisoned. However, a core group has persisted in the area, refusing to leave. They enjoyed good harvests throughout most of their years at the

site, obtaining surpluses of rice which they marketed. More recently they have planted black pepper vines and now obtain some necessary cash from the sale of that crop.

In 1974 a large influx of new immigrants occurred. A group of about eight households came to the area from the upper Batang Ai, and were soon joined by approximately twenty households from the Delok stream, a Batang Ai tributary far upriver from Lubok Antu. All members of the migrating households did not arrive at their new site near the Ensebang River at the same time. Many adult men came first, and built houses for the families which joined them later. Rice fields were cleared that same year, many of them smaller than usual, as both time and manpower were short.

Another eight doors joined the previous migrants several weeks later. This group came from an area of the Engkari River, some distance upriver from Nanga Jela. The following year, 1975, a group of twelve households from the Lemanak River, a tributary of the Batang Ai flowing to the west of the Engkari, arrived. Another approximately eight doors of Iban from Empran, an area of the Kapuas drainage just over the watershed from the upper Delok stream completed the population which I censused in July of 1975.

The moves from upriver areas of the Second Division and neighboring part of Kalimantan Barat, to the Ensebang were in most cases accomplished by traveling to either the town of Lubok Antu or Engkilili by motor-powered boat, and then by chartered truck to the footpath leading from the Serian-Simanggang Road to the settlement. The last part of the trip, a rather short distance, was done on foot, with all goods carried on the back. While smaller, poorer households accomplished the moving of all their possessions in one operation, other households split up and made several, gradual moves.

The costs of making the move varied according to the mode of transportation used, the distance moved, and the amount of goods transported. A large household from the upper Delok spent a total of M\$600 (U.S.\$240, approximately) for river transportation by outboard motor powered dugout, and rental of a truck to move to the First Division. Smaller households shared boat and truck rentals with other families and made the trip from the upper Batang Ai with their possessions for about M\$150. Households leaving the Engkari spent a little less on transportation as their trip by boat was shorter; total costs of moving from the Engkari varied from about M\$70 to M\$150. (One rather poor household paid only M\$39; they paddled a non-powered boat to Lubok Antu.) The Lemanak emigrants spent even less as the distance both by river and by road from the Ensebang area was considerably shorter. The group moving from Empran had more difficulty, although less monetary expense, in transporting themselves and their belongings. Since they lived in the Kapuas drainage basin, across the watershed from all the others, they were forced to carry all goods on their backs

to Lubok Antu, the nearest point in Sarawak served by a road. The overland trek of several days limited the volume of goods the Indonesian Iban brought, and allowed them to confine their expenses to a few Malaysian dollars in bus fares.

The migration and settlement in one site of such a large number of Iban from several rivers – over 400 persons in all – has resulted in a rather unusual situation. While Iban villages composed of more than one longhouse and guided by more than one headman can be found in Sarawak – e.g. formerly at Nanga Delok on the Batang Ai, Nanga Entawau on the Baleh – they are extremely rare. The new village at Sungai Pelai near the Ensebang River is highly unusual in both its physical and political configurations; in 1975 the village comprised four political entities, i.e. four longhouses each with an elected headman. The location of the four houses in very close proximity to each other (some parts of the houses are actually attached), has already led to some disagreement and confusion over ritual and other matters. The unusually large number of residents of the village has also resulted in some, as yet minor, difficulties, which may be expected to grow more serious as all land near to the settlement is used, and fields must be made at great distance from the longhouses.

At the time of writing, all the four houses were still located at the same site. I would predict, however, that within the next few years some dispersal of settlement will occur. It appears that the houses have remained grouped for two reasons, the first far more important than the second. While the settlers in the Balai Ringin Protected Forest remain in defiance of the law, and continue to be faced with the constant threat of expulsion, they wish to keep together. The size of their village at present, makes any plan of eviction or resettlement extremely difficult to carry out. Secondly, the present settlement site is conveniently located for transportation to the nearest market and medical dispensary. As the Ensebang River is, in the Sungai Pelai area, largely unnavigable, all goods must be carried in. Dispersion of the longhouses would almost surely result in some residents' having to make a much longer walk.

Not only the political and physical form of the settlement at Sungai Pelai, but also the legal situation of the settlers as squatters in a Protected Forest is rather unusual, but less so than might be immediately apparent. At present, all Iban pioneering not confined to government sponsored development schemes, is illegal, and the problem of felling of Protected Forests is an important one in many parts of Sarawak. As more roads are constructed in the future, opening up previously unfarmed, and because of their inaccessibility, previously undesirable lands, the problem may become more serious.

The settlement by Iban of areas officially closed to them by government authorities is also not a modern phenomenon; it has occurred frequently in

the past. Among the most prominent of such illegal pioneering episodes were the earlier Iban invasions of parts of the Baleh River, discussed by Freeman (1970), as well as the very frequent flouting of government restrictions on settlement in upriver areas of the Batang Ai, Engkari, and other Second Division rivers, mentioned earlier in this chapter.

During the 1975-76 agricultural year, each household at Sungai Pelai near the Ensebang had access to and was farming large plots of previously unfelled forest, part of an extensive tract of such forest stretching east and south to the Indonesian border. Some of the households were clearing their first fields in the area, and none had lived there longer than ten years. Most of the residents of the longhouses studied near Bintulu were members of households that cleared some high forest from an obviously very limited supply, and although few members of Bintulu longhouses had permanently left the area for more sparsely populated regions, many talked of moving. On the lower Engkari, no high forest was felled, as none was available; settled for 300 years, the area had been denuded of high forest, except for small islands preserved for ritual reasons, many years before.

The very general differences summarized above, mark the Ensebang and Bintulu areas as pioneering regions, with the former obviously at a far earlier stage of settlement than the latter and the situation observed on the Baleh in 1950 by Freeman, falling in somewhere between the two. The Engkari, on the other hand, is an area where pioneering is over; it is, and long has been, a source of migrants to other regions.

As examples of populations of Iban shifting cultivators exploiting areas of greatly varying resource type and availability, the residents of the three research sites, their agricultural practices, demographic patterns, land tenure and other behavior will be discussed and compared in the chapters following. The historical outlines presented above, as well as the physiographic, pedological, and hydrological descriptions of the study areas which will be given in subsequent chapters suggest that the comparisons must be carefully made, as resource availability and duration of settlement are quite apparently not the only important differences between the areas.

Even more caution is necessary in using the materials gathered on conditions prevailing between 1973 and 1975 to make inferences about the past of the Engkari or the future of the Iban near Bintulu or the Ensebang. The great changes that have taken place since the seventeenth century render the making of any such longitudinal inferences risky.

While the historical descriptions given above have illustrated the limitations of the comparisons to be made, and the difficulties inherent in trying to distinguish clear stages or general trends in the Iban settlement of any area, it is hoped that the outlines have also suggested that different phases in settlement do exist, that Iban resource use in upland areas is not of only the

one type described in most of the literature: destructive overcultivation of virgin lands. The history of the Engkari region, apparently continuously settled for about three centuries, shows that while a totally "stable" system of cultivation — one in complete equilibrium with its available resources — has not been achieved by upriver Iban shifting agriculturists, periods of greater and lesser emigration did occur in its history. The following chapters will suggest some of the possible changes in Iban behavior which have made migration a more or less necessary or desirable action in the past as well as in the present.

## CHAPTER 3

### LAND USE AND LAND TENURE

The several communities of Iban studied by me and by Freeman differ considerably in their histories and their environmental settings. The residents of each of these communities, however, subsist primarily on the fruits of their farming, and the farming practices of each group are rather similar forms of shifting cultivation.

The discussion of Iban methods of the shifting cultivation of hill rice and subsidiary crops will begin in this chapter and continue in the next. As it is the alleged prodigality of Iban agriculture that has made them famous in the anthropological literature and which prompted my field research, practices which affect long-term rates of forest regeneration, soil quality and erosion were emphasized in my investigations and will be highlighted in this discussion.

Of these variables perhaps the most important in determining rates of forest regrowth and therefore of long-term land capability for shifting cultivation, is the cropping-fallow regime. The study of the number of times any piece of land is cleared, cropped, and fallowed within a span of years is especially important in a discussion of Iban land use, as it is precisely this aspect of the Baleh group's behavior that Freeman found prodigal (1970:305).

I shall begin the discussion of cropping-fallow cycles and site selection among the residents of the research sites by first examining the types of land that are available to each group. (The "type" of a plot of land is here understood to be a description of the age, height, and composition of the vegetation covering it and its drainage characteristics.) The availability of different types of land is dependent on the physical and biotic characteristics of the area — topography, soil, climate — the region's previous history of human use, and by the rules of land distribution and land tenure that are followed.

In the preceding chapter some mention was made of the physical characteristics of each of the three research sites. I shall here attempt to present a somewhat more detailed, although still brief, account of the relevant features of the physical environments found on the lower Engkari River, and in the newly-settled area of the Ensebang River, near the Pelai and



Danau streams. The discussions in this chapter will be largely confined to those two research sites, as they are the areas where most of the data dealing with agricultural practices were collected. However, some comparable information from the Bintulu region as well as the Baleh area studied by Freeman, will also be presented.

### *1. Research sites: Physical and biotic characteristics*

The region drained by the lower Engkari and its tributaries, like most of the Batang Ai area above Lubok Antu, is very broken and hilly, watered by numerous clear, rushing streams. Although the hills in the area reach no notable elevations, they are often quite steep, and level terrain is virtually nonexistent. No significant areas suitable for swamp rice cultivation are to be found in the whole region upriver from the immediate vicinity of Lubok Antu bazaar. All but the very steepest slopes are considered arable and are farmed. In the region around Nanga Jela large areas of forty degree slopes are cultivated, and farms on thirty-five degree inclinations are very common. The slopes are not quite as extreme as those farther upriver on the Engkari or the Batang Ai. The steep fields found near the Delok stream on the upper Batang Ai prompted the following comment from a Brooke officer in his report on a punitive expedition:

... it is a matter of surprise how the Dyak women can find strength to farm on the land on the hillsides. There is no exaggeration in saying that to look ... over some of the yawning gulfs below almost makes one giddy (*Sarawak Gazette*, 20 May 1876).

While not steep enough to cause vertigo, the slopes around Nanga Jela are sufficiently inclined to occasionally slip; the landslips' red gashes are a common sight in the region.

The instability of slopes is also to some extent an effect of the very high rainfall in the area. The Engkari lies in a region in which four seasons are recognized by climatologists, although they are not clearly marked. The northeast monsoon, bringing much rain from October to January or February is followed by a somewhat drier period of about eight weeks, which leads into the milder southwest monsoon lasting from April to July or August, which again is followed by a two-month transitional season (Seal 1958:501). The average annual rainfall in the Lubok Antu District, calculated from data collected over twenty years, is about 3500 mm (Drainage and Irrigation Dept., Sarawak, 1974:53). While more rain falls during the northeast monsoon, rarely are monthly means of less than 150 mm of rain recorded. Occasional droughts lasting more than a week do occur, at times leading to agricultural failures, health problems – especially outbreaks of cholera in downriver areas – and difficulties in transportation. They are, however, both rare and unpredictable.

The climate of the area, like that of most of Sarawak, is also characterized by uniformly warm temperatures, and constant high humidity. At sea level, the temperature ranges from 22 to 31°C; the daily mean is 25°. Nanga Jela, which is at a slight elevation, seemed, from experience, to average a few degrees cooler, although no precise measures were taken.

The unvarying high rainfall, temperature, and humidity have contributed to the formation of generally poor soils throughout much of Sarawak. The Engkari area appears to be no exception. Precise statements concerning the fertility of the soils found there, are difficult to make, since variations are very great, depending on slope position and agricultural history. A soil survey of the area does state that "considerable applications of fertilizer would be necessary in any agricultural development" (Scott 1963:7), and recommends that no agricultural projects be pursued on the hillsides of the region (p. 8).

The clearing of the climax vegetation, high dipterocarp forest, in much of the region, has doubtless contributed to some increase in erosion of soils, especially on extreme slopes. Although run-off sheet erosion occurring on hill *padi* farms having slopes of 25% has been observed to be, contrary to earlier beliefs, negligible (Andriess 1972:75), erosion by landslides and slumps appears to have been important. The introduction of cash crops such as pepper, the cultivation of which requires that soil surfaces be kept almost bare, is probably now leading to more severe soil removal by sheet erosion, than was ever experienced in the past.

While the topography, climate and soils of the region contribute to the formation and maintenance of a multi-canopied, high mixed dipterocarp forest in most of the Engkari valley, the actions of man have completely transformed the vegetation of the area, so that the climax vegetation is hardly to be seen. The landscape comprises mostly cropped fields and gardens, and patches of secondary growth of various successional stages, ranging from small plots occupied almost exclusively by grasses and sedges to areas of high secondary forest where trees well over two meters in circumference are not uncommon and to the inexperienced eye appear to be areas of primary forest. (Such forests are indeed termed by Engkari Iban *kampong*, a word usually translated as primary or virgin forest (Freeman 1970:306); Engkari Iban will say, however, that such forest is not *kampong dalam*, "deep *kampong*" or *kampong amat*, "true *kampong*", nor is it *rimba*, probably the more precise Engkari word for primary forest.) A few very small stands of truly high forest – primary or very similar to it – can be found in the Nanga Jela region. These stands, including graveyards and copses believed to be the abodes of forest and hill spirits, have all been preserved for ritual reasons. Occasionally, small islands of high timbers are also found in the middle of cleared fields, serving as firebreaks around valuable fruit or other trees. (The possible conservative functions of these

small groves of high forest will be discussed in Chapter 4.)

The ritually preserved stands are all unavailable for cultivation, although gathering of products of the forest, both for food and other purposes (e.g. rattan for building) is allowed in them. None of the preserved areas that were seen were at all extensive, and considering the usual size of rice fields on the Engkari, hardly constituted a significant loss of farming land. Also unavailable for farming were former longhouse sites, again a very limited area, and valuable for other reasons, as such abandoned sites tend to be thickly planted with fruit trees that once surrounded a house.

A somewhat more significant loss of land once available for rice farms is represented by areas under perennial crops, especially, in the Engkari, rubber gardens. While not large in areal extent, rubber gardens are situated on some of the better land in Nanga Jela's territory. Because of the exigencies of rubber collecting – tapping must be done very early in the morning and the heavy, liquid latex must be carried to processing areas – gardens tend to be situated very close to longhouses and, as it is easy to spill latex walking on steep slopes, often on rather level ground. All together, however, the raising of rubber and other perennial cash crops occupies a rather small percentage of the arable land on the lower Engkari. (More on rubber cultivation, as well as pepper and fruit trees, will be said in Chapter 6.)

Although little distinguishes the general climate of the Ensebang River region from that of the lower Engkari, the areas differ greatly in other physical characteristics. Most striking is the difference in topography. The Ensebang region is low and undulating; slopes of more than ten degrees are rare, and poorly drained, swampy areas are found in many parts. The low relief is broken only at the southern edge of the area, where hills of significant elevation mark the border with Indonesia and the Kapuas drainage basin. The lands farmed by the settlers at Sungai Pelai are still several miles away from the regions of higher topography.

The low area is drained by slow-moving, brown-stained streams. Both the Ensebang and the Pelai, its tributary, are clear but tea-colored; their water, like that of other tropical blackwaters, is presumably stained dark by large amounts of humic acids (Janzen 1974:69).

Some, although not all, of the poorly-drained sections near the Ensebang and Danau streams are highly acidic, probably contain peat deposits, and are unfit for the cultivation of rice. Most of the region, moreover, has soils of very low agricultural potential. Largely grey-white podzolics, the soils of the area are generally very sandy and their fertility is very low. (The surfaces of footpaths and streambeds in the area are often covered by pure, white sand.) According to Andriess (1972:176), the family of soils that predominates in this region is "very poor . . . chemically as well as physically, and farming is only recommended if the soils are located near large markets

so that vegetable growing or citrus cultivation may be economical." The immediate banks of some of the streams may have some richer soils due to deposition in recent floods. These areas are so restricted in size, however, as to be negligible.

The vegetation of the part of the Balai Ringin Protected Forest in which the settlers are farming is largely undisturbed mixed dipterocarp forest characterized by high species diversity, some large, often buttressed, trees, hung with epiphytes and lianes, and little underbrush. Some parts of the forest, however, are evidently of a transition type. Probably because of the very sandy soils, the vegetation shows some characteristics of a poorer, scrubrier forest type known in Sarawak as *kerangas*. Although no expert examinations of the vegetation were done, and no species compositions determined, the far smaller size of trees than is usual in primary dipterocarp forests in Sarawak, suggests that the podzolized, chemically poor soils have affected forest development. The waterlogged, peaty areas found in this region, and the dark-stained acidic rivers are also characteristic of *kerangas* areas and testify to the poverty of the soils (Janzen 1974:69).

Since a small core group of settlers has been felling and farming near the longhouse site at Sungai Pelai for about ten years, undisturbed forest is now mostly to be found at some distance from the house. An area of several acres of primary forest has, however, been preserved a mere fifteen minutes' walk from the longhouse by agreement of the residents. The plot of high forest is used as a source of timbers for building, and of firewood. Most high forest was, in 1975, about thirty to forty-five minutes' walk away from the longhouse.

Several years of farming have produced a considerable area of secondary growth, its height and species composition varying greatly with its age, but with none of the well-drained second-growth stands having any significant herbaceous components. Other large areas of secondary growth are to be found across the Ensebang River (on its true left bank), the fallow fields of residents of other longhouses. The residents of houses, also Iban, are the descendants of much earlier migrations into the upper Sadong basin; some are Balau Iban, others early twentieth century emigrants from the Second Division, and all are legally located outside the boundaries of the Protected Forest.

The third type of land to be found near the longhouse site at Sungai Pelai comprises the areas of poorly-drained swampy land. While some of these areas are, as mentioned above, very highly acidic and unsuitable for the cultivation of rice, others have been successfully cropped many times, and constitute some of the most desirable farming lands in the area. The swampy areas which have been cropped are mostly very small, rarely larger than two acres (0.8 hectare), and are in very limited supply. Whether any extensive areas of suitable swampy land will be found in previously unfelled

tracts is unknown. The plots which have been used are mostly covered in grasses and sedges, some low and some high with thorny bushes and trees often present.

While I have far less first-hand experience of the physical and biotic environments of the Kemena and Baleh River regions than of the two sites described above, a few generalizations about the two other areas may be stated, based on my own brief observations and information in the literature.

The part of the Kemena catchment area where the sample houses are located is in climate not unlike the longhouse sites described above, with high and relatively unvarying rainfall, humidity, and temperature. The areas studied are topographically rather low and rolling, watered by slow-moving (but not stained) streams. Most of the longhouses, although not all, have access to some swampy land suitable for swamp *padi* production, and all, in varying amounts, had, at the time of my field work, within their territories some areas of previously uncut forest which they expected to be able to farm. The greater part of the entire region is under secondary forest of varying ages. The soils underlying these forests have been found by development planners of the Miri-Bintulu region to be rather shallow, moderately leached and requiring special treatment and managerial practices such as the application of fertilizers and erosion control. Thus, although not as poor as those found in the Ensebang region, Bintulu soils are not distinguished by high fertility.

While the Bintulu area, in topography and drainage somewhat resembles the First Division site, Freeman's research sites on the lower Baleh and its tributaries are more similar to the Engkari. Both are areas of very broken relief, very steep slopes, and fast-flowing, rapid-filled rivers. Neither has any significant low-lying level areas which could be used for the cultivation of wet rice. Climatically and pedologically the regions differ little, although the shorter history of agricultural exploitation of the Baleh has probably left the soils of the region – mostly red-yellow podzolics – richer in nutrients and better structurally than those of the highland areas of the Second Division.

The most notable difference between the two areas lies in the types of vegetation to be found. While the Engkari landscape is almost totally devoid of primary forest, tracts of high forest were still accessible from all the longhouses studied by Freeman. During 1949-50, the several decades of shifting cultivation to which the area had been subjected were evident in the considerable expanses of secondary forest to be found.

In concluding this very brief discussion of the physical and biotic characteristics of the environments of the Iban populations which were studied, I

shall summarize the more important differences and similarities between the various sites.

While weather differences between the areas under study may be very pronounced in specific years – some rivers experiencing floods while others suffer from droughts – there are no notable differences in average climate. All have a pattern of high temperature, humidity, and rainfall, and in all areas while some months are on the average less rainy than others, dry seasons are actually only “less wet” seasons, and are quite unpredictable in any year.

As no accurate assessments of the agricultural potential of soils were made in the field, only very general descriptions are available and only very general differences can be noted. The most important of these is the greater infertility of the soils around the Ensebang River compared to those of the other research sites. The very old soils of the region probably could not have supported successfully the many cropping cycles to which the soils of the Engkari have been subjected. However, with the addition of the nutrients stored in vegetation and released by cutting and burning, the Ensebang soils, farmed as yet only a few times, have often given good harvests.

It is in topography, drainage, and vegetative cover that the various areas differ most obviously and most importantly. The two regions having highly dissected relief – the Engkari and Baleh rivers – are also well-drained, and have no significant naturally swampy areas nor flat lands which could easily be flooded for the cultivation of wet rice. In the two flatter, lower areas, the swamp rice plots, although not extensive in area, are very important, especially during years when droughts can wipe out a hill rice crop. The higher productivity per cropped area of swamp rice land as well as its shorter fallowing time also serve to make plots of fertile, swampy land far more important than their areal extent might suggest. (A further discussion of the techniques as well as the benefits of Iban swamp rice cultivation will be found in Chapter 4.)

Whether any notable arable swampy areas are to be found under primary forest in the parts of the Ensebang or Kemena drainages that are claimed by the sample longhouses, is uncertain. Therefore, only the known areas, farmed previously, have been discussed.

In discussing well-drained land reserves, I have considered the type of forest cover the most important variable. Three of the Iban areas from which data will be presented (i.e. all but the Engkari River valley) still have tracts of primary forest, and in all four, areas of secondary growth are found. Further distinctions must be made, however, since in both the Kemena and Baleh, land under primary forest within the territories of the sample longhouses, is very limited and at a premium, while in the Ensebang area, it is virtually unlimited. Secondary forest is, on the other hand, plentiful in all the areas which have been settled for a few decades, while in the

Sungai Pelai region it is quite scarce.

It should also be mentioned that it is somewhat misleading to speak of secondary growth as if it constituted one specific vegetation type. The designation, of course, includes a wide range of growth, from rather old forest to stands of grass. However, most tracts of secondary growth, except perhaps the two extremes mentioned above, share characteristics which in large measure determine the agricultural techniques used to effectively exploit them, their legal (tenure) status, and to some extent, the labor required in farming them and the yields obtained. While the limitations of subsuming all the divergent vegetative forms under one classification are recognized, in this section no further distinctions have been made.

Because of differing topographical and hydrological conditions, and different histories of agricultural exploitation, the various areas being discussed offer different possibilities to shifting cultivators. The Bintulu and Sungai Pelai settlers appear to have the greatest number of options, as all three of the principal types of land are available in their areas, although not all in sufficient supply. A shortage of secondary growth, which obtains in the First Division site, must, however, be treated differently from a shortage of primary forest, found in all other sites, as secondary forest is easily and constantly created.

The two areas with no swampy land offer fewer options, with the Engkari, an area of only well-drained land under secondary growth, apparently offering the least diversity. I wish to emphasize again, however, that secondary growth comprises many, greatly differing forms of vegetative cover, and thus even the Engkari is an area of considerable variation.

## 2. *Research sites: Land tenure patterns*

While topography, drainage, soils, climate, and previous use determine the types of arable areas available in a region, the individual Iban household's access to any of the areas may be further limited by the rules of land tenure.

The principles of land tenure operative among Iban of the Baleh, which also generally hold for the Iban groups which I studied, have been described and discussed by Freeman (1970:143–51). According to these rules, each longhouse community claims rights to a certain territory or *menoa*, a tract of land to which member households have access. In the case of any previously uncut forest within that territory, all resident members have equal rights to its first felling, as against members of all other longhouses. The shape and areal extent of a *menoa* which includes primary forest, can be and has been decided in many ways. During the final reoccupation of the Baleh, for instance, each longhouse had a tract of land apportioned to it by Brooke government authorities; in the Bintulu region some government setting of boundaries was also carried out, but the greater task of land apportionment

was, according to present residents of the area, accomplished at a general meeting of the headmen and other important members of the longhouses concerned. Such meetings to determine land boundaries are also alleged by informants to have taken place during the settlement of other areas, among them the Tatau and Undup river systems. Richards, in a compendium of customary and government land law in Sarawak, includes a principle of Iban law that a longhouse's territory includes "besides farms and gardens, the water that runs through it and the forest round about it to the extent of half a day's journey" (1961:24). Such a law was not mentioned to me in any of the study areas, and it was observed that *menoa*, like longhouses, differed greatly in size. Moreover, it would appear that since the location of a longhouse within its *menoa* often shifts, and since the distance of "half a day's journey" must be very variable, such a principle would be exceedingly difficult to apply in land apportionment.

Although the sizes and shapes of longhouse *menoa* vary widely, they usually follow the boundaries of catchment areas of streams. Houses holding the uppermost position on a stream (*pala menoa*) lay claim to the entire, often very extensive area drained by the headwaters of that stream.

Whereas the exact demarcation of territorial boundaries in previously uncut forest is a matter of great importance in areas where primary forest is present but limited, such as the lower Baleh and Kemena drainages, it is not an important issue either on the lower Engkari nor, at present, on the upper Ensebang. In the Second Division area no significant tracts of uncut forest remain, and in the Balai Ringin Protected Forest, no other longhouses are to be found close enough to the settlement at Sungai Pelai to cause concern.

While all member households of a longhouse have rights of access to any land under primary forest within that longhouse's territory, once a tract of forest is felled, rights of access to that land are limited to the household (*bilik* or *bilek*) whose members first felled it. The right to farm that land is then held by the household as long as it remains in the area, and that right is inherited by all who are or become members of the household. Upon partition of the *bilik*, both sections retain the right to use all land that was acquired prior to the split. However, upon marrying out, all rights to land owned by the household are lost by the person leaving, including rights to use tracts that that person may have felled.

In an area like the lower Baleh (in 1950), where forested land is available to any longhouse resident who wishes to clear it, following the basic land tenure rules outlined above, should not result in serious problems of access to arable land. The perpetuity of Iban land rights could, however, lead to great inequities in land holdings in long-settled areas where all arable land has been claimed. Differential longhouse and household growth could result in gross inequalities between families in land available per person, as well as lead to a situation such as that which Dixon describes wherein "a segment



of the community less well endowed with land rights than other segments [would be] forced to cultivate its land far too frequently, yields [would] decline and the entire community [would be] in jeopardy” (Dixon 1974:14). That a very serious situation of inequality in actual access to land does not apparently obtain in the Engkari, a long-settled area, is largely the effect of two elaborations of the land tenure rules summarized above, both of which Freeman notes, but which probably were far less important in his research sites than they are in mine. The first of these is that tracts of previously farmed land may be borrowed by one household from another without effecting any permanent change in their tenure. The second is that rights to land under secondary growth felled by a household, Iban or other, which has permanently left the area, are forfeited by the emigrants.

While Freeman gives no precise data concerning the frequency of refelling of unowned secondary growth or of borrowing of land, the use of land first cleared by someone other than a member of one’s household is, in the lower Baleh as it is in the Bintulu region, probably rather exceptional. In both the Engkari and Sungai Pelai areas, on the other hand, while the general rules are usually acknowledged to be substantially the same as those outlined in Freeman’s report, the actual operation of the land tenure systems differs, with households in those two sites, almost as often as not, farming land which does not belong to them.

In order to understand the differences in the land tenure situation between the Bintulu and Baleh regions, and the Engkari and Ensebang areas, we must keep in mind several factors outlined in the previous chapter concerning the histories of the research sites. In regard to the Second Division area, it is important to remember that at least parts of the area constituting the *menoa* of the longhouse at Nanga Jela were initially cleared of forest about 300 years ago. It is understandable, therefore, that the names of the first pioneer farmers are largely forgotten, and that land claims may be vague and open to dispute. It is also significant that while the Engkari has experienced a long history of movement out of the region as well as migration within the area, emigration has been rather difficult since at least the turn of the century, and the supply of arable land is definitely limited. Several centuries of differing birth and death rates as well as household fission and fusion have resulted in differences in the amounts of land owned by the various doors at Nanga Jela.

Both the lower Baleh river and the Kemena, which have seen Iban settlement for a shorter time than the Second Division, still have tracts of unclaimed, uncut forest left for pioneering, and so, it might be expected, inequalities between households in land owned per capita, should be smaller in these regions. Probably the greatest differences in land ownership in the Bintulu areas exist between those households that were members or descendants of the original Iban migrations into the area, and those few families

which had come into the area within the last few decades. Inequality in land ownership due to differing times of arrival is not, however, nearly as important in determining the patterns of land tenure in Bintulu, as in the First Division site. As was mentioned in the previous chapter, the majority of the residents of the village at Sungai Pelai have only recently arrived, while a small minority settled in the area several years ago. The nearby areas across the Ensebang River, on the other hand, have been farmed and settled since at least the beginning of the century. While a large tract of uncut forest assures each household access to a supply of arable land, all land other than that under primary forest is very unequally distributed among the households of the several longhouses at Sungai Pelai.

In order to make any more precise statements concerning the relative inequities in land distribution at the various sites, I would need to have precise data on the acreages of each type of land owned by each household. In all but the Sungai Pelai site, where all the new immigrants owned either no land or only one plot of secondary growth, the gathering of such data was deemed too difficult, as respondents did not know the size of their holdings, and no cadastral surveys had ever been made of the areas. Hence only the residents' impressionistic assessments of the land situation and the arguments mentioned above as to what should obtain in each area, considering its history, can be offered.

In the case of the Engkari River, historical data would suggest that considerable inequality in land holdings should be found, with severe over-utilization of some plots by those poor in land as a result. That land is unequally distributed is acknowledged by the residents of the Second Division region, but the predicted dire effects of this situation are not generally to be found. It is apparent on the lower Engkari that actual access to land is far less restricted than land ownership and that borrowing is probably the most important mechanism by which land is more equitably distributed.

Freeman mentions borrowing of land in the Baleh, but cites no frequencies. On the Lemanak River, an area more similar to the Engkari, Jensen states that "it was common to borrow land for a season" (1974:42), but again does not give precise figures.

In 1973, in the thirty-eight door longhouse at Nanga Jela, a total of eighteen households or 47% farmed fields that they had borrowed for the year's cropping from other households. The following year, fifteen households or 39% used borrowed land. In only one case, in 1973, was a plot of farmland borrowed from a household in another longhouse, all others were intra-house loans. Freeman failed to find in the Baleh (1970:47) and I in the Engkari or Ensebang any instances of payments made as rent for borrowed land.

The lending and borrowing of land reflects not only disparities in the

amount of land owned by member households at Nanga Jela, it is also to some extent a result of the frequent desire of certain households to farm in closely neighboring areas. This preference affects the frequency of borrowing, as even households with abundant land resources are not apt to have extensive tracts in all areas where the kinsmen with whom they may wish to share company and labor during the cropping season also have sufficient land. However, since in 1973 and 1974 most people at Nanga Jela farmed in different sectors of the longhouse's *menoa*, the fact that ten households or 56% of those who borrowed in 1974 also borrowed in 1973 does suggest that inequality in total amount of land owned, may be considered to be the major reason for borrowing in the Engkari area.

While the plot which was borrowed in 1974 was in every case but one the only land on which rice was planted that year by the household receiving the loan at Nanga Jela (only three of 38 households farmed more than one plot), the situation at Sungai Pelai was far different. In that pioneering area, every one of the 64 households (of 65 at the site) that were interviewed, cut a section of virgin forest in 1975, and so farmed its own land; however, 35 of the households or 55% also borrowed some land, in a few cases more than one plot. During the previous year, 1974, when only 43 households farmed in the area, an even higher 65% borrowed at least one tract of land.

The very high rate of borrowing among households at Sungai Pelai reflects neither absolute lack of land nor lack of land in particular areas; it is, rather, an effect of the apparent desire of the settlers to farm more than one type of land in one year, and of the very unequal distribution of any land other than that under primary forest. Of the 44 plots of land borrowed by residents of the longhouses at Sungai Pelai in 1975, only two or 5% of the total belonged to other households in the village; the rest were borrowed from members of longhouses outside the Balai Ringin Protected Forest.

Table 1.

	Households borrowing land	Households borrowing land (%)	Total Households
Nanga Jela (Engkari)			
1973/74	18/15	47/39	38
Sungai Pelai (Ensebang)			
1974/75	28/35	65/55	43/64
Sungai Labang (Bintulu)			
1974	3	9	35

Although the data presented in Table 1 for the Engkari and Ensebang areas do not differ greatly, they represent the effects of very different situations.

The figures for a thirty-five-door longhouse in the Labang stream near Bintulu are far lower and presumably reflect a condition of far lesser disparities between households in amounts and types of land owned and a resulting pattern of little borrowing. It would be reasonable to assume that the rates of borrowing on the Baleh more closely resembled those in Bintulu than the high rates of the other research sites, and it further appears probable that the situation at Sungai Pelai will come to resemble that at Bintulu, once the newly immigrant households have had a chance to create a supply of secondary forest.

While the borrowing of land is, in most years, probably the most effective mechanism by which those without sufficient land obtain access to property legally owned by households with rights to much land, other methods of acquiring more or less permanent rights to plots first cleared by others have doubtless been important throughout the history of an area such as the Engkari. Among these is the use of lands previously farmed by households which subsequently left the area. In regard to the disposal of the land holdings of emigrants in the Baleh, Freeman notes that rights to land under secondary forest are held "only for as long as the family remains a member of the longhouse community in whose territory its holdings lie" and that land abandoned by emigrants "is treated as though it were primary forest" (1970:148). Although these rules cited by Freeman (which are also the law of the land [Richards 1961:48; 1963:8]) are not strictly followed by the residents of Nanga Jela, those poor in land have certainly often benefitted from the abandonment of Engkari area land by emigrants.

While on the lower Engkari merely leaving a particular longhouse community would not be cause for extinction of land rights, Nanga Jela Iban agreed that migrating beyond a distance from which one could reasonably return to farm one's land would entail forfeiture of land holdings. However, no precise distance or traveling time could be agreed upon as reasonable. Four households at Nanga Jela were, at the time of my field work, using lands which actually lay within the territory of a neighboring longhouse, from which they had emigrated four years previously. With the extension of the use of motorized transport, a "reasonable" distance may become difficult indeed to define. For instance, the migrants from the Batang Ai and Engkari to the Ensebang were many miles removed from their old longhouses but most of them could, given ideal traveling conditions reach those houses and their old land holdings in one day. Upon being specifically told by their *penghulu* (a government appointed regional leader) – probably on the urging of the District Officer who hoped to stop the migration – that with their leaving they would lose rights to their ancestral lands, the migrants voiced considerable disagreement with and questioning of the decision. Such disagreement may actually have little to do with modern transportation as disputes over land, involving even distant moves to other

major river systems, have been frequently mentioned in the literature (see Richards 1961:48; Deshon in Roth 1968 (I):240; Gomes 1911:94). Brooke Law actually asserts that the principle of forfeiture of land upon emigration is a recent change in Iban land law:

Tenure has been modified within late years in view of the increasing demand for accommodation, and it is now generally understood that when the proprietor chooses to leave the district and remove into a distant country he forfeits, by so doing, all title to the ground (in Roth 1968 (I):420).

Despite the disagreements mentioned above, and the imprecision in definition and application of the law, abandoned land has apparently been re-farmed innumerable times in the Engkari region, and no rent has ever been exacted by departed landholders.

In the matter of the acquisition of temporary or permanent rights to land left behind by emigrants, the residents of the Engkari follow rules which differ little from those of the Iban of the Baleh. While from statements of informants at Nanga Jela, it appears that close kin of emigrants may often be considered to have stronger rights to reuse land left behind than do other longhouse residents, in practice, most such land is probably taken over by whichever resident household wishes to reclear it.

At Nanga Jela, two households in 1973 and one in 1974 farmed plots of land that they did not own and for the use of which they had petitioned no one. All these sections of secondary forest had previously belonged to families which had left for the Fourth and First Divisions. Several people at the longhouse asserted that in the case of one of these "free" plots used in 1973, the land could rightfully be claimed by a household closely related to the emigrants. However, possibly because this *bilik* was rich in land, no claim was formally made.

When entire longhouses emigrate, it appears that the whole *menoa* is divided and taken over by member households of neighboring longhouses or by new settlers (Freeman 1970:149). Since none of the new immigrants to Sungai Pelai had, during my period of research, completely abandoned their old longhouses (each house still had a few residents remaining, although some were expected to empty completely), the process of taking over and division of their territories was not observed.

In 1974 the only other use of purportedly unowned land at Nanga Jela involved the farming of a plot of secondary growth that had belonged to a *bilik* whose last member had died. Although the household that recleared it insisted that it was indeed free land, several longhouse residents, well versed in *adat*, asserted that the plot of land could probably have been legally claimed by the household which had sheltered and cared for the last owner, an old woman, just before she died. In this case again, the possible claimants, wealthy in land, chose not to insist on their rights.

I believe that both this case and the one involving emigrants' kinsmen

cited above, wherein claims to land, albeit rather weak ones, were allowed to lapse, illustrate ways in which tenure can actually change and land be redistributed to those with less than they need. While both these cases involve somewhat extraordinary methods of acquiring land rights, other factors have probably also led to gradual shifts in land tenure. Among these are the geographical position of plots; land on the edge of a longhouse's *menoa*, especially if far from the site of the longhouse itself, is purportedly often farmed by members of other longhouses. Nanga Jela residents accused members of three neighboring longhouses of having farmed border plots in recent years, and in 1974 members of the longhouse had disputes with three other houses over rights to land on *menoa* boundaries. An eventual change in rights appears also to be likely if land is lent to others, as in numerous litigations over land both parties admit that each has farmed the plot in question, the matter in dispute is who originally was the lender and who the borrower. And, as knowledge of rights and boundaries in the Engkari has never been recorded on paper, forgetting undoubtedly plays a role in changes of tenure. Spencer, in reviewing the land tenure patterns of all Southeast Asian shifting cultivators, has suggested that "group memory concerning tenure rights is effective for only about four generations" (1966:91).

Despite the existence of practices and rules which allow for rather equitable access to land, it cannot be denied that the Iban land tenure system, even as it operates at Nanga Jela does restrict some individual households' access to the kinds and amounts of land they might wish to farm. I heard complaints, although relatively infrequently, both at Nanga Jela and at Sungai Pelai from households which had petitioned others for land and had been refused. Land tenure rules developed by some other Bornean groups such as the Rungus (Appell 1971) or those allegedly followed by some Iban of the Saribas basin (where according to Philipps [in Richards 1963] much land is unowned and annually partitioned by the headman) probably result in more equal per capita land distribution. It does appear remarkable, however, that virtually the same rules of land tenure which serve in a pioneering area such as the Baleh are flexible enough, so that in long-settled areas where arable land has been limited for a long time, the great inequities and ecological damage that might have resulted have been avoided. Other factors can doubtless also be credited with the maintenance of reasonable per capita land ratios, among them, of course, emigration, fertility limitation and ambilocal residence rules.

Thus, although land tenure cannot be dismissed as irrelevant to an understanding of why Iban households choose to farm the types of land that they farm, I believe that it is not as crucial a determinant as might have been expected. The practices described above, particularly borrowing, have made

access to land far less restricted than the ownership of land, and in the longhouse I observed, allowed each household to farm at least one potentially productive piece of land every year.

### 3. *Research sites: Land use patterns*

In the initial section of this chapter, a summary was presented of the types of land among which the residents of the Iban-settled areas under study could choose in selecting the site for a farm; in the second, the suggestion was made that in the research areas, land tenure rules are sufficiently flexible so as not to constitute major determinants of a household's choice of type of land. In this final section, I shall present and discuss the actual choices that were made by Iban farmers in three of the research sites: Nanga Jela in the agricultural seasons of 1973-74 and 1974-75, Sungai Pelai in 1974-75 and 1975-76, and Rumah Nyala in the lower Baleh basin in 1949-50.

The data which will be presented for the Engkari and Ensebang sites were collected in the course of interviews with the head or other responsible adult in each household of the sample longhouses. The information gathered included the type of vegetation found on the household's plot before it was farmed, its drainage conditions, and its previous history of use, particularly the length in years of its last fallow. Most of the plots at both Nanga Jela and Sungai Pelai were also visited. All the Baleh data are taken from Freeman's monographs (1955 and 1970). (Because none of the Bintulu farming areas were closely observed, and because of other gaps in the data, similar information collected at Bintulu longhouses will not be included.)

Before the data are presented, some mention should be made of the limitations and defects of these data, and I believe, of the information collected by most researchers in areas of shifting cultivation. The first problem is that the age of the forest on each of the plots discussed is merely an estimate, as the informants could rarely be sure of the exact length of fallows. This ignorance of a fallow's duration in years reflects the Iban practice of choosing to farm a certain plot by examining the species composition and size of the growth covering it, rather than by counting the number of years it has lain unused. The wisdom of such a method for judging the suitability of a tract for reuse is obvious in a topographically dissected and long-settled area such as the Engkari, where steepness and slope position are highly determinative of the speed of jungle regrowth, and where long past histories of cropping and fallow cannot be ignored. Ten years' regrowth, following one year's cropping on virgin land is totally unlike ten years' fallow following several crop-fallow episodes. Description of secondary growth was given by informants mostly in terms of the size of the larger trees found in it, compared to parts of the human body; thus, tracts

were described as having trees as big around as a fore-arm, calf, thigh, or head, or occasionally as large as a biscuit tin (over one meter in circumference). While it was often possible to determine with reasonable accuracy the length of most recent fallows (by correlating last use with the year of the birth of a child or other event), it was almost always impossible to elicit a reliable longer history of use of particular plots. Frequent lending of land, unauthorized farming of land near territorial borders, and change of tenure due to emigration or other factors, all contributed to making land owners uncertain of when and how many times their farms had previously been cleared and used. It is certainly a serious shortcoming of the discussion of the land use history of the Engkari area, that long-term cropping-fallow histories could not be obtained.

Another factor which added to the above difficulties and which may often be important in areas of shifting cultivation was the inconstancy of boundaries around particular plots, and the resulting unevenness in the ages of the growth on the entire plot. If a single household owns contiguous areas, or if a household owning an adjacent plot will consent to loan a strip of its land, fields often run over into plots younger or older than the main tract (see Freeman 1970:147, for mention of this practice in the Baleh area). If the size of a household has grown or diminished since the last farming of a plot, or if the land is considered to have become more or less productive since its last use, the farmer is apt to clear a larger or smaller area than previously, and the age of the growth becomes uneven.

Uncontrolled fires can also contribute to the creation of a complex vegetative mosaic, although these are quite infrequent in the very wet areas of Iban settlement.

Except in the few instances in the surveyed areas, where the differences in the age, size and type of growth between different sections of a single farm were quite pronounced (e.g. when one section was high forest and the other a few months' growth, as apparently was common in Freeman's sites), the variation in the ages of growth was not accurately noted, but instead, an average of the ages appears in the data. This inaccuracy was found to be necessary, as some slight differences in the appearance of the vegetative cover were due to edaphic conditions, some to variations in use, and some to a combination of the two.

I also wish to note that in the following discussion of cropping-fallow practices I shall not use the system of nomenclature for various use patterns employed by Freeman (1970:281). Although clear, elegant, and convenient in describing farming practices in an area where the use history of each plot is short and therefore known, most of the Iban terms used by Freeman were difficult to apply and little used in the areas I surveyed. Several terms that were employed were actually defined differently at Nanga Jela and Sungai Pelai than in the Baleh area. Thus, *kampong* referred to rather mature



forest, of at least 25 to 30 years' growth, but not necessarily primary forest; *krukoh* referred to very young secondary growth which appears in a field which was felled and then neither burned nor farmed due to some unfavorable condition, *kakah* referred to what Baleh residents called *krukoh*, that is, the several months' secondary growth springing up after a field has been cleared, burned, and farmed; *damun* referred to most secondary growth over about a year in age. These differences in terminology would make the use of Freeman's system of names extremely confusing.

Table 2 shows the estimated length of the last fallow period of the plots farmed by each of the thirty-nine households of the longhouse at Nanga Jela in 1973-74 and 1974-75. In the case of a household's having more than one rice field or there being a significant difference in the ages of growth in different sections of one field, a value of one-half was assigned to each different field or section.

Table 2.

Duration (in years) of last fallow	Number of farms (N = 39)	
	1973-74	1974-75
Less than 1	½	0
1	0	0
2	0	0
3	0	0
4	4½	2
5	4	5½
6	6	5½
7	5	4
8-10	7½	5
11-15	6	7
16+	5½	10

While it is difficult to compare directly the data presented above with those given by Freeman for the Baleh because of differences in their collection and presentation, several general comments can be made.

The cropping-fallow pattern which Freeman comments on at greatest length in discussing land use and which he particularly condemns as prodigal is the Baleh "custom of cultivating land two or three years in succession or several times within a span of five or six years" (1970:305). Indeed, very young growth, that is, growth three or fewer years in age, constituted a very high 22.5% of the total acreage cleared for rice farms around Rumah Nyala, one of Freeman's research sites in 1949-50 (1970:291). Even when all instances of the farming or early rearing of primary forest are eliminated,

so as to make the situation more comparable with that at Nanga Jela where primary forest is absent, 17% of the acreage cleared in 1949-50 was very young growth.

Although I found it impossible to make a reasonable estimate of the size of all the farms at Nanga Jela in any year, and therefore unfortunately cannot cite any percentages of total acreage, the one-half of a farm made in growth of three or less than three years' age in 1973-74, constitutes an obviously negligible portion of the total land farmed in the two cropping seasons that were observed. That one small parcel which was not followed before being farmed again was the second cropping of what had formerly been one of the few really very old pieces of forest near Nanga Jela. While no one would state that the tract had been primary forest, its owner, a man nearing 60 in age, insisted that he could not remember its ever being farmed previous to his clearing it in 1972.

This difference between Engkari and Baleh forms of land use is quite dramatic and appears important as well, since it is the Baleh Iban's too short fallows which earned them the epithet *mangeurs de bois* (Freeman 1970:286). The custom of refarming fields immediately or very shortly after cropping them is not only, according to Freeman, "a principal feature of Iban land usage in pioneer regions" (1970:289), but is also the most important agricultural pattern which Freeman takes into account in making recommendations to the Colonial Administration for changing the farming behavior of Baleh Iban (1955:137-41).

That Engkari farmers do tend to fallow their fields after each year's cropping for at least four, and often many more years, appears highly significant as it suggests that the Second Division Iban have developed a sound adjustment to a situation of far more limited supplies of arable land than are found in the Baleh. Conclusions drawn from the comparative data on fallows would of course be stronger and more trustworthy, however, if they were based not on a comparison of the duration of fallows, but rather on a direct examination of species composition and size of growth in selected fields, a task which was beyond my capabilities. The great contrasts in the length of past cropping histories of plots in the Second and Seventh Divisions is extremely important; few Baleh and Engkari fallows of equal age are probably comparable in appearance. Since Iban farmers select a tract for farming by its appearance rather than by the chronological age of its vegetative cover, the differences in the fallowing patterns of Nanga Jela and Rumah Nyala may be somewhat less significant than the data suggest.

By far the most obvious difference in agricultural activities along the Baleh and the Engkari is less determined by custom or preference, and more by the length of settlement of each area by farmers. In 1949-50 Baleh residents cut 23½% of their fields in primary forest; Engkari Iban, of course, cut no primary forest as none was available to them. However, in 1973-74,

one and one-half farms or 4% of the total, and in 1974-75, four farms or 10% of the 39 farms made that year at Nanga Jela, were cut in what the residents called *kampong*, all forest at least 25 years in age. (Forest of comparable age along the lower Baleh would be referred to as *damun* or possibly *pengerang*, *kampong*, according to Freeman, being reserved for primeval forest [1970:279].)

Further comparisons of cropping-fallow cycles in Freeman's research sites and Nanga Jela are difficult and will not be made since, in the system of nomenclature used for the Baleh data, all secondary growth at least five years in age is combined under one term, *damun*, and no further distinctions in age are made. It should, however, be noted that while Engkari farmers appear not to share the Baleh Iban's worst fallowing habits, they do not follow a regime that both Freeman (1970:305) and Smythies (1949) suggest as ideal for the Baleh: one year of cropping followed by twelve to fifteen years of fallow. The farmers at Nanga Jela, in both years of my research, cleared land which had lain unused for only a median period of seven to eight years.

Differing conditions and categories also make it difficult to compare precisely the Baleh and Engkari data, with the choices made by settlers on the Ensebang River around Sungai Pelai. In assessing those choices as well as the categories under which I have arranged them, it must be recalled that while the Sungai Pelai pioneers had access to virtually unlimited tracts of primary forest, secondary growth was quite scarce among them. However, among the types of secondary growth that could be borrowed and that some of the earlier arrivals had acquired were areas of flat, naturally swampy land, a type totally absent in the two regions discussed above. As both the farming techniques and the fallowing regimes employed in the agricultural use of swampy (*paya*) areas are generally very different from those employed in well-drained areas, these wetlands are considered a category separate from "dry" secondary growth.

As was mentioned in the previous section, 41 of the 43 households which farmed near Sungai Pelai in 1974-75, and each one of the 64 which farmed in 1975-76, cleared at least one tract of primary forest; but of these, only seven households in 1974-75 and 18 in 1975-76, failed to also make another field in a different type of land. The combinations which were farmed in 1974 and 1975 at Sungai Pelai are presented in Table 3.

The well-drained secondary growth plots that were farmed, mostly belonged to residents of several longhouses outside the Balai Ringin Protected Forest. The borrowers did not know the ages of the stands, and I did not succeed in contacting all the owners. I can only state generally that only one plot (part of a primary forest/secondary growth combination) was cut on the site of a previous year's farm during my two years of research, and that all the remaining "dry" secondary growth that was used had been fallowed for at

Table 3.

Types of land farmed	Number of households	
	1974-75	1975-76
Primary forest only	7	18
Primary forest/secondary growth	9	15*
Primary forest/swamp	16	27
Primary forest/secondary growth/swamp	9	4
Secondary growth/swamp	2	0
	N=43	N=64

\*  $\frac{1}{2}$  fallowed less than 1 year

least three or four years, and that none was notably old growth.

Although many of the swampy (*paya*) areas which were farmed had been slashed in growth only a year or two in age, this type of farming pattern cannot be equated in labor techniques or total labor input, in crop output or in environmental effects, with the short-fallow farming that Freeman describes in the Baleh. Both nutrient and regrowth (weed) patterns of wet areas are very different from those of well-drained areas and cropping-fallow regimes can be and usually also are considerably different. Andriess notes that even under annual cropping some wet areas in Sarawak show no decline in yields (1972:98). (For further discussion of swamp land cultivation, see Chapter 4.)

The most notable feature of the land use patterns summarized in Table 3 is the marked tendency of Sungai Pelai residents to farm more than one type of land. This pattern was followed in 1974-75 by 84% of the households, and in 1975-76 by a somewhat lower but still considerable 72%. Of the several combinations of land types, the farming of one plot of primary forest and one of *paya* was the most frequent choice; 37% of the total number of households made this choice in 1974-75, and 42% in 1975-76, with an additional 21% choosing to farm all three types in 1974-75 and 6% the following year.

An examination of the combinations chosen by those settlers who had arrived earliest and therefore had rights to more kinds of land, also points to the Primary forest/Swamp pattern as the most desirable; in 1974-75 eight of the nine longest-resident households of Sungai Pelai farmed this combination of land types, with the ninth farming all three types.

A tendency to farm more than one type of land in any one year is also noted by Freeman as common among the Iban of the Baleh. He states that: Of particular interest . . . was the high proportion of farms containing more than one type of growth. In 1949-50, there were six farms of mixed type

(i.e. 23 per cent of the total number of farms); and in 1950-51 the proportion rose to 62 per cent, when there were 16 farms of mixed composition (1970:292).

While Freeman does mention this pattern he does not stress it; he finds of much greater interest and significance the fact that one of the land types frequently included in Baleh Iban's combined farms was a plot being cropped for the second consecutive year. The Ensebang data, which include only one minor instance of the use of unfallowed dry land, together with a number of examples of the farming of older secondary growth and swamp land, emphasize a perhaps more general desire of Iban in pioneering areas to diversify the types of land they farm, rather than a tendency to reform last year's fields.

The farming of more than one type of land, be it areas differing in drainage characteristics, in altitudinal position, or in vegetative cover is very common among shifting cultivators throughout the world. As farmers, however, often significantly vary what they plant in different kinds of fields, the different crop assemblages are noted and emphasized by ethnographers, the varying characteristics of the fields themselves are not. Thus the Sema Naga reportedly farm one field in older secondary growth and one in very young growth each year (Hutton 1921a:62), but the differences that are more apparent between the fields is that one is planted to millet, the other to *padi*. Similar patterns can be found among the Yukpa of Colombia and Venezuela (Ruddle 1974), many African groups including the Lala of the Serenje Plateau (Allan 1965), and numerous groups of cultivators in mainland and insular Southeast Asia who crop both wet and dry lands (e.g. the Land Dayak or Bidayuh [Geddes 1954], and the Kalinga [Lawless 1977]) and very many others.

The advantages of farming more than one field type in one year vary with the particular situations and the specific differences between the fields. In explaining the Baleh Iban's predilection for the clearing of different types of growth, Freeman first cites reasons for their farming of primary forest: the fertility of virgin soils, the desire to extend landholdings, and the wish to acquire products of the old forests for food and other uses (1970:282-83). He then goes on to suggest some reasons why Baleh residents tend to combine their high forest farms with at least a small strip of the previous year's farm. A number of the advantages of farming young growth – less labor required in clearing forest, easier burning – will be discussed in the next chapter on agricultural practices and yields. Others mentioned by Freeman include the ability of the slash from young growth to dry more quickly, insuring that in a year with a dry period insufficient in length or intensity to allow the timbers of primary forest to burn, at least a small plot can be burned over and seeded. The farming of young growth is often also done, Freeman asserts, by households whose adult men have left to seek wage

labor, and are therefore unavailable to cut the huge trees of the high tropical rain forest. Perhaps most important, according to Freeman, in explaining this “prodigal” pattern is the Baleh Iban view of land resources – endless and thus to be quickly plundered. “The impulse of the Iban was to extract all the wealth they could from the nearest virgin land, and then move on to fresh fields” (1970:286).

While the arguments repeated above are made only to explain the Baleh Iban practice of farming some plots for at least two consecutive years, they also in part explain any patterns of combined primary/secondary growth cropping. The problem of getting a good burn is admitted to be a crucial one on the Ensebang as on the Baleh, and probably, indeed in all pioneering areas of Iban settlement. The different labor demands, both quantitative and qualitative of different field types are also an important factor, but will be discussed in the next chapter. The argument that households with insufficient male labor tend to farm very young growth is, however, not borne out at either the First or Second Division sites. At Sungai Pelai, the three households with no adult males, all farmed primary forest, relying on men from other households in their labor sharing groups. At Nanga Jela, there was no apparent tendency of households with fewer men to farm younger growth. Not only is male labor obtained through participation in labor sharing, but some Iban women are also quite adept at wielding an axe and cutting rather large secondary growth trees.

Since much of the secondary growth farmed at Sungai Pelai is on naturally swampy land, a field type not found in Freeman’s research areas, another advantage of mixing field types must be added. When dry land crops are threatened with dessication because of an unusually long dry spell, wet land *padi* can provide the only harvestable crop.

While many of the reasons which Freeman cites for the Baleh residents’ farming of *krukoh*, or land covered by only several months’ growth, appear to apply to the Sungai Pelai residents’ pattern of farming some secondary growth, in fact the First Division Iban very seldom farm even a part of a dry land plot for two years in succession. A number of Sungai Pelai residents actually insisted that several months growth is insufficient in volume to burn well and steadily; several years’ growth they found better. Others also stated that they preferred the task of slashing older, thicker, but less densely overgrown vegetation.

While differing pedological and vegetative conditions in the Baleh and Ensebang might, to some degree, explain the apparent differences in cropping-fallow patterns, another possible explanation can be offered to explain why Baleh Iban tend to farm parts of fields twice in two years while those of the Ensebang do not. I wish to suggest that the Baleh practice reflects a desire of the Seventh Division Iban to make their entire farms in one piece, if possible, or at least to have all parts of their farm close together. Con-

tiguity of cropped areas is especially useful for watching fields and effectively protecting them from animal pests in areas, like the Baleh, where wildlife is plentiful. As farming at least a small plot of secondary growth each year is desirable, and contiguity of plots is also desirable, the secondary growth farmed is apt to be a portion of the neighboring field, usually the previous year's farm.

The Ensebang area is, on the other hand, distinguished by the paucity of large wildlife to be found there, and Sungai Pelai residents, rarely, if ever, spend days or nights in the field huts guarding their crops from the depredations of pigs, deer and other animals. Engkari residents likewise rarely stay at their fields when not weeding or performing other necessary tasks.

Although the Baleh situation, wherein the farming of contiguous plots is particularly advantageous may indeed be very common in pioneering areas of Sarawak, the Ensebang data, at the least, suggest that the cropping-fallow patterns typical of the Baleh region are not universal among Iban pioneers. The pattern found in both pioneering areas point out a feature of Iban land use in virgin territories, more inclusive and general than that emphasized by Freeman, the marked tendency of each household to farm one plot of primary forest together with at least one plot of land under considerably younger growth during each cropping season. And while the Engkari data summarized in Table 2 suggested that Iban in long-settled areas are not especially prodigal in their use of forested land, the Ensebang data question the often repeated description of Iban pioneers as wasteful; Ensebang settlers appear to be largely innocent of the worst prodigalities that Freeman found among Baleh groups.

## CHAPTER 4

### AGRICULTURAL METHODS, LABOR AND YIELDS

The view that shifting cultivation is a “peculiar type of . . . agriculture which exhibits only minor variations throughout the world” (Bartlett 1956:693), has been largely discredited by the many studies of varying tropical farming systems. Rather than dwelling on pan-tropical similarities, scholars tend now to emphasize the variability of techniques, tools and crops, labor and land use practices, and patterns affecting long-term environmental change that characterize particular shifting cultivation systems (see Allan 1965; Conklin 1961; Miracle 1967; and many others).

Discussion of the last-mentioned set of variables, that is of the practices which may affect the rate of regeneration of secondary forest in previously farmed areas, and which therefore in great measure may determine the long-term capability of an area to support shifting cultivation, has largely been confined to comparisons of cropping-fallow cycles. Indeed, in the previous chapter, I asserted that the cropping-fallow time ratio appears to be the behavioral variable in shifting cultivation systems most important in determining vegetative regrowth patterns. Differences in the specific practices employed in the carrying out of many of the tasks integral to such systems may, however, also be effective in hastening or slowing the regeneration of woody growth. Examples of such practices have been reported and discussed in general terms by Conklin (1959:60–62), Pelzer (1945:30–32) and more recently by Clarke (1976:248–50), and have been mentioned in many ethnographies of particular groups of shifting cultivators. Among the practices (other than cropping-fallow cycles) which have been identified as intentionally or unintentionally encouraging the growth of forests are clearing techniques such as pollarding rather than cutting of large trees (Hutton 1921b:76, Mills 1922:46, Conklin 1959:62–63) and the preservation of uncut areas along ridgetops and the banks of watercourses as well as around the perimeters of fields, and of small stands of timbers within clearings (Clarke 1971:66, Seavoy 1973b:522). Dispersion of fields under cultivation may also be important, as this pattern aids the reseeding of fields by neighboring tree species and, together with other practices, may help in limiting the accidental spread of fires which encourage the growth of certain grasses. Patterns of heavy intercropping and of selective weeding (i.e. sparing woody



species while pulling out grasses) have also been pointed out as "conservative" practices (Clarke 1976:250). Finally, instances of the actual replanting of trees have been reported from a number of widely scattered shifting cultivator groups (Clarke 1976:250).

Studies of pioneering Iban agriculture, that is principally Freeman's monographs, make no mention of the use of any of the above techniques by Iban shifting cultivators, nor of the Iban's use of any other specific techniques whereby the growth of forests might be encouraged and that of grasslands discouraged. On the contrary, such decidedly unconservative practices as the making of many fields contiguously, the cutting of very large fields, and the farming of extremely steep, slip-prone slopes are reported for Baleh Iban groups.

In planning a program of comparative research on land use patterns in pioneering and non-pioneering areas of Iban settlement, I explicitly hypothesized that differences in the agricultural techniques employed by different communities of Iban would be detected in the field, and that among the techniques found in longer-settled areas, but not in the newly settled, would be some, like those outlined above, that would serve to enhance the rate of reforestation of abandoned rice farms. Other closely related hypotheses suggested that differences in agricultural patterns between new and old Iban settlement areas would include cropping practices that would raise the per area productivity of farms in the more heavily settled older areas, and that such more intensive land use would allow for the farming, in the nonpioneering zones, of less acreage per capita of population. This last assumption was based on suggestive data from several studies of rather similar groups of shifting cultivators of hill rice. The pioneering Iban family of five members, Freeman reports, clears on the average four acres (1.6 hectares) of land per year, while the non-pioneering Lamet of Laos clear three and one-half acres (1.4 hectares) for five people (Izikowitz 1951:285), the Kachin of Burma clear two and one-half acres (Leach 1949:27), the Hanunoo of Mindoro about two and one-half (1 hectare) (Conklin 1957:146) and the Land Dayak of Sarawak three and one-half acres (1.4 hectares) (Geddes 1954:69).

However, in the course of extensive observation of agricultural practices in the several research sites, while very important differences in cropping-fallow regimes were found (see previous chapter), no significant differences in the techniques used to accomplish the important tasks of dryland rice cultivation in the Engkari, Ensebang and Baleh regions were identified. It should of course be understood that some differences in agricultural practices were detected; the cutting of primary forest found in the Ensebang and Baleh sites, and not along the Engkari, is a very different task from the clearing of soft secondary species in the Second Division area, and the weeding of the often-used fields along the Engkari requires far more time

and occasionally different tools than the same task performed at the other two sites. However, the techniques used in each site were not judged to vary significantly; the much greater differences found in agricultural patterns concerned the amount of labor required in the different tasks, and not the form that labor took. And no techniques encouraging the regrowth of forest were identified at the Engkari site that were not also seen or believed to exist at the other research sites. My hypotheses concerning differences in techniques were therefore, unconfirmed. However, of considerable interest was the unexpected finding that some apparently conservative patterns, similar to those mentioned above, are found in the repertoire of possibly all Iban groups, whether pioneering or not. All of these patterns went unmentioned and unemphasized in Freeman's work, and some perhaps unnoticed by Freeman in the Baleh.

Thus, I did not find the farming practices, other than fallowing schedules, of the long-settled Iban significantly more environmentally conservative than those of their pioneering counterparts. I did, however, find the patterns of all the Iban cultivators I studied, including some alleged pioneering *mangeurs de bois*, to include elements that have previously been pointed out in studies of other groups, as particularly non-destructive. This finding suggests that the reputation of Iban as notably wasteful farmers may be undeserved.

My other hypotheses, mentioned above, likewise were not confirmed. Productivity per cropped area was not apparently significantly higher in the long-settled area, and, while per capita acreages in pioneering and non-pioneering areas did indeed differ considerably, the differences found were the opposite of those I had predicted. The pioneers farmed smaller fields, the non-pioneers, larger ones.

As Freeman's descriptions of the methods of cultivating hill rice in the Baleh basin are largely also accurate descriptions of Iban farming along the Engkari and Ensebang, in this chapter I shall review only very schematically the principal features of Iban dry-land shifting cultivation, emphasizing the "conservative" farming practices unmentioned in Freeman's monographs.

The second part of this chapter shall be given to a more complete description of the Iban system of swamp rice (or *padi paya*) cultivation. This rather unusual method of farming, which may represent, as Pringle suggests (1970:26), an historically important intermediate stage between extensive shifting cultivation and the intensive wet rice farming patterns of the densely settled areas of Southeast Asia, has heretofore been little described. As it was a significant type of land use encountered in the Ensebang research site, a somewhat detailed, though brief, outline of swamp rice cultivation will be presented.

The chapter will conclude with a summary and comparison of the sizes of cropped areas in the various researched communities, of the amounts of

labor expended on agricultural tasks in fields made in several kinds of land at the research sites, together with a discussion of the predictability and size of the rice harvests obtained. The variations in agricultural labor inputs and crop outputs will be presented and discussed not merely to illustrate the extent to which the forms of Iban agriculture may vary, nor primarily to address the questions of intensity of land use and labor requirements raised by Clarke (1966), Boserup (1965) and others. But rather, since it was suggested in the concluding pages of the previous chapter that the observed fallow patterns and the field site choices in the research sites could in part be understood by considering the varying types and amounts of labor required in the agricultural exploitation of specific land or vegetation types, the discussions shall serve to further explain the particular resource use patterns of the Engkari, Ensebang, and Baleh Iban. The discussion of expected yields will also be directed toward clarifying land use choices and patterns.

### 1. *Agricultural methods: Dry land cultivation*

The agricultural year of Iban shifting cultivators commences, accompanied by the seeking of auspicious omens and the propitiation of spirits, at the beginning of June, a relatively dry part of the year.

A bushknife (*duku*) made by the men of each household is used to slash (*nebas*) the undergrowth in the area selected for the year's farming. The *duku* is a tool handled well by women and adolescents who do much of the slashing. The cutting of larger trees (*nebang*), usually done with a purchased or Iban-forged axe is done after the undergrowth has been cut, and is a task usually performed only by men, although some women do manage to handle an axe very effectively in the felling of the larger trees in secondary forest.

A new tool now available to some Iban households, the gasoline-driven chainsaw, is being used in a few areas to fell primary forest. The use of the chainsaw is learned by many young Iban men while working in the timber camps of Sabah or Kalimantan, and the cost of owning a powered saw can be earned there. Although few of the households in the research areas employed a chainsaw, their use is certainly growing among shifting cultivators in Sarawak. Unfortunately I did not obtain any accurate measurement of the lessened labor effort and added monetary expense that the use of the saw requires. However, I was able to note that the sexual division of labor was not affected by its use, as only men handle chainsaws, and that the choice and size of fields cleared also seemed unaffected by the tool. At Sungai Pelai, in 1975-76, all but one of the users of chainsaws made at least one field in secondary growth, in addition to a field in primary forest; only that one household, among the 18 who made only primary forest farms, had access to a powered saw.

Detailed descriptions of the Iban operations of slashing and felling of primary and mature secondary forest are given in Freeman's works (1970:173–77, 1955:41–43), and are not unlike descriptions of the same tasks among other groups (Conklin 1957:51–61; Ruddle 1974:69–72; and others). The one type of clearing activity that Freeman does not describe is the clearing of land under very young growth, that is vegetation less than seven or eight years in age. Such clearing includes only the activity of *nebas*, that is, of slashing growth with a bushknife, as no large trees are present. Although the entire task of clearing can be accomplished by women and adolescents, it is not an un strenuous task. The brush tends to be very tangled, full of thorns and creepers, and is very dense. Adding to the difficulty is the heat of the equatorial sun, not screened out by taller trees as is the case in older growth.

All written reports and my own observations of Iban farming have never produced evidence of any use by Iban of the possibly conservative technique of pollarding, nor do any Iban groups appear to expend much effort in cutting up felled trees or in evenly spreading the slash, practices which might assure a better burn or even layer of ash, and therefore, higher per area crop yields.

However, one Iban clearing pattern that deserves to be mentioned, as it probably hastens reforestation and inhibits grass infestation, is the custom of preserving numerous small areas of high forest between and within cropped fields. Among areas allowed to remain under forest and never cleared for farms are the following: abandoned longhouse sites (*temawai*), graveyards (*penam*), stands of forest commemorating the death of an important individual (*tanah ulit*) or the occurrence of an important event (*tanah pesaka*). Also left uncut are areas which have been the sites of many accidents or heinous crimes and which are therefore considered the abodes of malevolent spirits, and the crests of hills and banks of major watercourses. Mature trees are also left uncut so that they may serve as firebreaks around valuable fruit, resin and wild rubber sources, and small areas infested with noxious grasses (especially *lalang*, *Imperata spp.*) or ferns (especially *resam* or *denam*, *Gleichenia spp.*) are often protected from repeated burnings by firebreaks. Narrow belts of forest left between felled areas and marking boundaries are not common, but are encountered in the Engkari area.

All the types of preserved forest are mentioned above, some "sacred groves", some not, together make up an insignificant total area. However, their role as sources of seed of rain-forest species (see Clarke 1976:66), erosion controls and barriers to the spread of grasses may be very important. At least one instance of a forest belt separating one field badly infested with *lalang* from another grass-free area was seen near Nanga Jela, and illustrated the conservative effect of small, but strategically located forested areas.

While all areas of Iban settlement include such plots of preserved forest, there are more of them in long-settled areas than in pioneering zones. Over the years of settlement, the number of old house sites, graveyards, “dangerous” places, etc., increases; these preserved stands become important as the supply of uncut forest in an area dwindles.

Having been cut, the vegetation is allowed to dry, and is then set on fire. Obtaining a good burn is a more difficult matter in fields where slow-drying primary forest was cut, than in areas such as the Engkari where the slash dries quickly and usually burns well.

Directly after the burn, the fields are seeded with rice and numerous subsidiary crops. The methods of dibbling and sowing, and the spacing of dibble holds (averaging about fourteen per square meter) are virtually identical in the Engkari and Ensebang as in the Baleh as described by Freeman (1970:183). Considerably different from Freeman’s account, however, were my observations at the Engkari, Ensebang and Bintulu sites of the number of subsidiary or catch crops grown by Iban. While the number and types of catch crops planted in each of my research areas did not vary significantly, the Baleh list is much shorter. The discrepancy is probably a matter of incomplete reporting by Freeman, rather than a true indication of behavioral differences between Baleh residents and other Iban. Freeman indicates that Baleh Iban cultivate “a wide range of catch crops interspersed in the same land as the padi” (1970:191), but then he goes on to name only nine such crops. While Freeman may have just decided not to list all Baleh catch crops as many of them are planted in indeed small quantities, this omission is important as the Iban’s alleged small crop inventory has been pointed out as an indicator of the poor development and wastefulness of their agricultural system (Adams 1959:144), and extensive intercropping has been singled out as a cropping method that both discourages invasion by grasses and sedges (Conklin 1959:63) and raises food production per acre of land (Edwards 1961).

Table 4 lists the catch crops found planted interspersed with *padi* and on the edges of rice fields in my three research areas, with their common English names, if any. It should be noted that many of these crops are, like rice, represented by several varieties in each field, and that the crops listed in Table 4 do not exhaust the Iban repertoire of cultigens. Many fruits and other tree crops, medicinal and ornamental plants and important cash crops are grown in places other than annual rice fields. Some households cultivate subsidiary vegetable gardens (*redas*) to supplement the supply of greens available in the rice farms.

While the number of Iban subsidiary crops, recorded in Table 4 does not approach the far larger assemblage found among the Hanunoo (Conklin 1957:78–84), it is a rather substantial list and does suggest that Iban farming is more developed and perhaps more “conservative” than had previously

Table 4.

Name (Iban)	Name (English/Latin)
rampo	cucumber
genok (labu)	gourd
ensabi	mustard
entikai	pumpkin
lingkau	maize
lingkau lesit	Job's tears
retak	long (green) bean
terong	eggplant (brinjal)
liah	ginger
kuchai	green onion ( <i>Allium tuberosum</i> )
subong	taro
jawa	Italian millet ( <i>Setaria italica</i> )
lenga	sesame
empasa	manioc
tebu	sugar cane
empusut	loufa ( <i>Luffa</i> spp.)
changkok	<i>Sauropus albicans</i>
kachang lendir	okra
abok	sweet potato
semakau	tobacco
nanas	pineapple
akar tubai*	tuba ( <i>Derris</i> spp.)
jampu*	<i>Amaranthus gangeticus</i>
pisang*	banana

\* Mentioned as rice field crops only in Bintulu region.

been thought. However, a rise in the number of species intercropped with increasing length of settlement and population density, which was reported, among shifting cultivators in Africa (Waldock et al. 1951:51) and which I hypothesized would be found in Iban fields, was not detected.

Very soon after the planting of most crops is done, weeding, especially of farms made in young growth, commences and continues for well over two months. While methods used in weeding differ little among the research sites, the amount of labor put into the task of weeding, usually by women, varies very greatly and will be discussed in the third section of this chapter. No instances of selective weeding were detected in any of the sites; all grasses, sedges, herbs, and ferns, along with young shrubs and tree seedlings and coppice shoots are plucked equally. The only possible "conservative"

aspect of Iban weeding patterns is the fact that weeding is often done in a rather perfunctory fashion, and fields are never weeded more than once per cropping season. Since tree seedlings and coppice shoots are destroyed only once, and not twice as might happen with more diligent groups of shifting cultivators, eventual reforestation may indeed be favored.

The building of a farm hut, and the setting up of traps and alarms and scarecrows are jobs that are undertaken at the time when weeding begins. Once the huts are built and the rice has begun to produce fruit, the farms, if necessary, are guarded from the deprivations of predators. As was mentioned in the previous chapter, the scarcity of wildlife in the Engkari and Ensebang areas made the guarding of the ripening crop virtually unknown in these two regions, while in the Baleh it was, according to Freeman, a task of considerable importance, and required both active patrolling at night and residence in farm huts for a month or more (1970:199–201).

The maturation times of the various strains of rice vary; the earliest ripening varieties are ready for harvest about 150 days after planting, and these are harvested first. Depending on labor availability and size of field and crop, reaping continues for a month to two months. The harvesting method in each area observed was quite the same: each panicle of rice is plucked separately using a small knife held in the hand. This method, though laborious, is very precise and results in little loss of grain, which is especially important toward the end of the harvest when many rice stalks have been bent over and are lying on the ground.

The harvest is followed by the arduous task of carrying the *padi* back to the longhouse, frequently over a long and tortuous path. And in the house the *padi* is threshed, winnowed, dried in the sun, and finally stored away in large bark bins, usually placed in the loft of each longhouse apartment.

This section has been largely a presentation of the negative results of a search for significant differences in agricultural techniques used by residents in new and old areas of Iban settlement. However, while pioneering and non-pioneering Iban groups do not, except in the matter of cropping-fallow regimes, appear to engage in significantly more or less wasteful farming practices, some of the evidence reported above, points to the possibility that the agricultural patterns of all Iban groups include practices that are decidedly more conservative than has been noted before. In view of the reputation of Iban shifting cultivators as prodigal farmers, these patterns though few and perhaps of somewhat questionable conservation value, are worthy of emphasis.

## 2. *Agricultural methods: Swamp padi cultivation*

I have stressed that the methods of land clearing and crop production in the

various areas of Iban settlement that were studied, including Freeman's Baleh region, differ little. An exception to this generalization is found when naturally flooded or swampy areas are farmed. The type of rice culture found in such regions is known as *padi paya*, and should not be confused with the far more sophisticated, land and labor intensive forms of wet rice production found in the densely populated delta regions of Southeast Asia, and characterized by the precise control of water levels, considerable soil preparation and often by terracing. While some Iban today may indeed be planting wet rice in irrigated, banded fields (Pringle 1970:27n), they, I believe are quite few, whereas *paya* cultivators are numerous in many downriver areas of Iban settlement.

Neither Freeman nor Jensen, who have both discussed Iban shifting cultivation, describe the techniques of *padi paya* cultivation, as neither worked in an area where the terrain afforded an opportunity for wet rice growing. Pringle mentions it as an important type of rice culture among Iban of the downriver parts of the Second Division, and he presents a brief sketch of the main features of *padi paya* farming (Pringle 1970:26) as also do Howell and Bailey in an appendix to their dictionary (1900:App. III). It has also been mentioned by other scholars, many of whom have alleged that swamp rice farming is viewed unfavorably by Iban cultivators. Morgan, for instance, states that Iban believe "swamps are unhealthy and dirty to live in, your legs get muddy and people commonly say that most hill rice . . . is more tasty" (Morgan 1968:154). Leach asserts that "most Dayak [presumably Iban] peasants considered that where land was reasonably plentiful normal dry rice *ladang* (swidden) gave a better return on labor effort than swamp paddy" (Leach 1950:22). The data gathered at Sungai Pelai near the Ensebang, as well as in conversation with Iban farmers near Bintulu and in other areas where swamp land was available for cultivation, supported neither the assertion that Iban necessarily don't like *paya* cultivation nor that they considered it less productive than dry field farming per hour of labor expended. I did find agreement, however, with Leach's statement that "the general wet paddy technique is an adaptation of that of dry land shifting cultivation" (1950:88).

The description of *paya* cultivation that will be presented should not be understood to be accurate for all instances of Iban swamp rice cultivation. The methods described were observed only at the research site near the Ensebang. My principal field assistant, Patricia Limau anak Pantau, a resident of a longhouse located just downriver from the town of Lubok Antu, confirmed that the observed set of techniques was also employed in her native area. As some migrants at Sungai Pelai stated that they had learned the wet *padi* farming methods from Iban settled downriver from them on the Ensebang (outside the Balai Ringin Protected Forest), it can also be assumed that the broad outline adequately describes the cultivation



techniques used by earlier Iban arrivals to the First/Second Division border area.

Cultivation of a *paya* area begins, as it does in a dry area with the cutting of the natural cover. Since all the areas of swamp land used at Sungai Pelai in my years of research were plots which had been farmed previously and fallowed for a very short time, the natural growth in each case was a thick and tangled mass of high grasses, herbs, creepers, small, often thorny, trees and vines. Clearing is done with the same type of bushknife used in the clearing of older growth. Slashing of swampy areas is undertaken well after the older growth in dry fields has been cleared, since the young growth requires little drying time. When the slash is judged to be sufficiently dry, it is fired. The growth, however, often does not burn well as the ground on which it has lain is usually damp if not flooded.

Following the burn, in contrast to dry land patterns, the ground is prepared for planting. The operation of land preparation or tillage (*mepat*) is carried out with a bushknife usually used for cutting wood. In this case the knife or *duku* is used to chop at unburnt tufts of grass or hillocks of earth. The chopping breaks up and loosens clumps of vegetation or soil which are then trampled with the feet to create a relatively even and soft soil surface. At the same time unburnt grasses are pulled out of the muck and piled up; when they have dried these piles of vegetation are fired. It should not be assumed, however, that these methods produce a *paya* field that is perfectly flat, or evenly covered by water. Old large tree stumps are often not removed from fields, and some differences in elevation remain unleveled.

If the *padi paya* is to be transplanted, as was done in almost all of the wet fields in 1975-76 at Sungai Pelai, and in all of those that I observed, a small area, usually a damper section of the field which will serve as a seedbed, is cleared and tilled first and broadcast with *padi*. If the planting of the entire field is to be done by broadcasting, the preparation of a seedbed is obviously unnecessary.

The varieties of *padi* planted in naturally swampy areas near the Ensebang were considered to be special types suitable for the wet area, and had been acquired from Iban living in the older communities outside the Protected Forest. At the time of the research many households planted several different varieties in their *paya* fields.

Distinguishing the *paya* methods from the more elaborated forms of wet rice cultivation found in more densely populated regions of Southeast Asia, is the almost total lack of water control. The cultivators at Sungai Pelai built no bunds or irrigation works; only a few haphazard attempts at temporary water flow diversion with rather flimsy dams were made. The level of water in any field essentially rose and fell with the rains and the water level of neighboring streams.

Usually a little over a month after the seedbed was sown, and almost as

soon as the *mepat* of the whole field is completed, the rice seedlings are pulled up, their roots and tops trimmed, and then transplanted in clumps about twelve inches (30 centimeters) from each other in the prepared field. The entire operation of transplanting can be done by one person, either male or female. The heavy long stick used in the dibbling of dry fields, and almost invariably handled by a man, is replaced by a shorter one. A hole is made with one hand, and before the mud and standing water close over, a clump of young rice is plunged into it. The task, although it does not require the arm strength of dry field planting, is possibly more arduous, as it demands constant bending over.

After planting the rice, some interplanting of subsidiary crops is often done, usually along the edges of the swampy fields. The only crops that I saw interplanted were taro, both the stalks and corms of which are occasionally eaten (although more often they are fed to pigs), and *kangkong* (*Ipomoea aquatica*), a leafy green vegetable which is eaten with rice.

As the *padi* seedlings are transplanted into a virtually weedless field, the young rice shoots have a considerable head start on other vegetation. Transplanted fields are usually weeded only once prior to harvest; fields into which rice seeds were broadcast (*betabur*) tend to be more seriously infested with weeds. (Weeding of wet *padi* was the only farming operation which I did not witness and I can only describe it from farmers' reports.)

Reaping is done, as with dry land *padi*, with a small knife; each ear is cut off the stem separately. Threshing, winnowing, drying, and storing complete the annual wet *padi* cycle.

The operations involved in the cultivation of *padi paya* are in large measure the same as those employed in the farming of dry land: clearing, burning, weeding and reaping are done in approximately the same way, using the same tools. It is only in the operations of *mepat* (tilling) and *betambak* (transplanting) that swamp rice cultivation departs from dry, although the tools – a *duku* for *mepat* and a smaller dibble stick for transplanting – are hardly different, and in the case of the bushknife appear poorly suited for the task.

The cycle of wet rice cultivation differs considerably from hill farming in the cropping-fallow regimes that are followed. Many of the *paya* plots used during my period of research had not been fallowed for two, three and more years. This situation may not, however, be entirely usual, since a very large influx of new settlers had occurred just prior to my arrival, and swampy areas, very limited in number and size, were probably being used far more frequently than before. Older settlers in the region reported that three years' cropping followed by three years of natural fallow was a reasonable regime, although they suggested that annual cropping might possibly be supported by the land.

Several possible reasons for the differences in cropping-fallow patterns

between wet and dry cultivation systems suggest themselves. The worst weed of nearby dry land fields – *Imperata cylindrica* – does not stand inundation; the grasses and sedges that are common in *paya* fields (notably *Sceleria bacana* and *Fuirena umbellata*) are cut and burned and their growth is quite successfully attenuated by *mepat* just prior to transplanting. The other problems which arise when inadequate fallow periods are allowed: lowering of soil fertility and destruction of soil structure, are far less serious and important in inundated fields than in dry fields (see Grist 1965:17).

The method of cultivating swamp rice described above is reportedly much the same as the method used by some of Sarawak's Malay and Melanau (Pringle 1970:26–27) and some residents of Central Kalimantan (Seavoy 1973a); it differs from the practices of the Land Dayak of the Sadong basin (Geddes 1954) as well as those of the buffalo-owning Kelabit and Murut. The *padi paya* farming system does combine some intensive wet rice farming techniques with practices usually found among shifting cultivators, and does question some of the categorizations of rice cultivation systems that have been offered (e.g. Hanks 1972).

### 3. *Agricultural methods: Input and output*

The first part of this chapter was largely devoted to a presentation of negative findings: the apparent absence of significant differences in dry field farming techniques used by farmers in the pioneering and non-pioneering research sites. The comparison of labor inputs per cropped area, which is another aspect of shifting cultivation known to vary considerably (see Clarke 1966; Boserup 1965, etc.), could in the Iban case also be expected to show no consequential differences. Freeman in comparing labor input in fields made in primary and secondary forest found that, on the average, there was less than a ten per cent difference in the number of man-days of labor expended, with primary forest usually demanding the greater effort. However, according to Freeman, the range of man-days of labor performed on each type of field was such that equal amounts of labor were done on some fields of differing type. Moreover, the total labor estimates, varying from an absolute minimum for secondary forest fields of fifty man-days per acre to a maximum of seventy-one for primary forest (Freeman 1970:245), are all so low that labor input hardly seems a crucial variable in the agricultural system. Devoting much time to the study and discussion of agricultural input and output in Iban areas would almost make one vulnerable to an accusation of being “calorifically obsessed” (Vayda and McCay 1975:295) in a situation where calories are apparently easily obtained.

Perhaps surprisingly, the measures of agricultural labor that were collected in the various research sites did uncover more interesting and significant differences between the sites than had been expected. Since, in addition to

primary and old secondary field types, the labor input in very young growth (a field type important in the Baleh but for which labor requirements were not recorded by Freeman) was measured, the differences between field types in labor inputs are more substantial than those previously presented. However, more significant than the total input differences are the large variations detected in seasonal labor needs. While total labor performed on all types of Iban fields is, in comparison with other cropping systems, still low, the labor needed to weed a field made in young secondary growth is, considering the available labor, indeed very high, and could be considered an extremely important factor in choosing field types and perhaps in limiting the amount of such land that certain households can farm. A study of the seasonal distribution of dry land agricultural work, as well as of swamp *padi* work, together with the measures of crop size and predictability under different crop-fallow regimes, serves to make the patterns of land use in new and old settlement areas, discussed in the previous chapter, more intelligible.

Table 5 summarizes the numbers of man-days of labor usually expended in performing three of the important agricultural tasks on one acre of dry land along the Ensebang, the Engkari and, taken from Freeman's work (1970:245), along the Baleh. Data concerning labor expenditure in specific tasks per unit of area farmed were gathered in measures of land area worked (slashed, weeded, etc.) in one day, as well as by counting man-days of labor required to complete a specific task on an entire farm. To obtain the former estimate only the area worked during one day was measured and the number of the day's workers counted. Estimates of crop yield per unit of land were also obtained by such a double method of measurement. The area and yield of one day's harvesting activity were determined; data on the rice yield and areal extent of the entire farm were also collected. In the estimates of labor input, the work of all adults was considered equal. Adolescents who obviously did not equal an adult in tasks such as the felling of high forest, were considered one-half or three-fourths of an adult, depending on my observations and informed guess of their contribution to the total area worked. Only data concerning the labor expended in slashing and felling of vegetation and in weeding are presented, as the work input in these three tasks varied significantly with field type; other kinds of work either hardly varied, or were found to vary slightly with the distance of the field to the house (e.g. work done in transporting *padi*) or with field topography (e.g. dibbling, sowing) rather than with field type. (In order to obtain a measure of total labor input per acre, comparable to those given by Freeman and others, add thirty-one man-days to each total.)

A number of observations can be made concerning the data presented in Table 5. The first, easily explained and certainly expectable, is that there are very large differences in labor required in the clearing of primary forest as compared to all other vegetation types; and the cost of clearing declines

Table 5.

Type of field/Site	Labor expended in man-days per acre			
	Slashing	Felling	Weeding	Total
<i>Virgin forest</i>				
Ensebang	5-7	14-16	0	19-23
Baleh	6	12-14	12-16	20-36
<i>Mature secondary forest (older than 25 years)</i>				
Engkari	7-8	3-4	11-19.5	21-31.5
Baleh	5-6	4-5	15-20	24-31
<i>Young secondary forest (7-15 years)</i>				
Engkari	8.5-10	2-2.5	20-30	30.5-42.5
<i>Very young growth (3-5 years)</i>				
Engkari	9-13	0	25-39	34-52

steadily with declining age of vegetation until the tangled, very dense growth of a recently abandoned farm is encountered.

Far more striking, however, is the rapid rise in the amount of time required to weed a field with decreasing age of the original growth, with no weeding at all done on farms made in primary forest (my data), and up to thirty-nine man-days per acre on fields made in very young growth. (The discrepancy between my data which show that a field made in virgin growth requires no weeding and Freeman's observation of a significant amount of weeding of such fields, is probably best explained by the fact that Freeman's year of research, 1949-50, was one of exceptionally wet weather and of a very poor burn. Inadequately burned fields tend to become weed-infested even if made in old growth. The complete or almost complete lack of weeding of farms made in tall forest is reported by Ruddle [1974:122] and by Carter [1969:135] among others.)

The pattern of high labor requirements in clearing (most in felling done by men) and low weeding requirements for fields made in old growth, and the opposite, low clearing inputs and high weeding inputs (mostly done by women), suggests that a desire to spread out agricultural work among members of a household and throughout the agricultural year may be a reason for the pattern frequently seen among pioneering Iban of farming more than one type of land in any one year. (It should of course be noted

that the young growth that is cleared in places such as the Baleh, may differ somewhat from the young growth farmed along the Engkari. The plots in the former area have often been cleared from high forest only one year previously, are surrounded by high forest, and may therefore require less weeding than the often farmed large Engkari fields.)

A desire to space agricultural work throughout the year may also be a reason to adopt a year's cropping pattern of combining a plot of virgin forest with one in a naturally swampy area covered with young growth, although as Table 6 shows, the scheduling of work is somewhat different than in dry fields cleared from similar vegetative cover. All the data presented in Table 6 were gathered in fields made by residents of the long-houses at Sungai Pelai near the Ensebang River.

Table 6.

Activity	Labor expended in man-days per acre
Slashing	14–15
Tilling ( <i>mepat</i> ) and reburning	11–17
Transplanting	22–23
Weeding	23–31
Reaping	12–14
Total	82–100

The pattern of labor expenditure in the farming of swampy areas covered with young growth differs from that of well-drained young growth in that, in the former case a large amount of labor must be expended in the first few tasks of the cycle: slashing, tilling, and transplanting, whereas most of the work in the latter case is done in weeding. It might appear that the labor required in preparing and planting *paya* fields might conflict with the very high labor input in the cutting of forest on virgin forest plots and that therefore the combination of *paya* and primary forest fields would be difficult to manage. However, both sexual and temporal division of tasks solve this problem and make this combination not only possible, but also, as reported in the previous chapter, apparently desirable. The cutting of high timbers usually begins in early June and is completed by late July or early August. The operations of slashing of growth, of tilling and transplanting were not done at Sungai Pelai until September through November, a time when the lack of weeding gave the farmers of primary forest a considerable amount of free time. Moreover, the heavy work of felling is normally done

by men, the work on wet fields can be and often is done by women.

I would like to again point out and emphasize the very great amount of weeding required in dry fields made in young jungle, as is illustrated in Table 5, since this factor may indeed be a limiting one in the farming of young growth, and may be the chief reason why longer fallows are usual (see Nye and Greenland 1960:76; Clarke 1976:248). Weeding is a task which must be done within a limited period of time – about three months – if it is to be at all effective. And the labor force of each Iban household, the basic farming unit, is often small. In the longhouse at Nanga Jela along the Engkari, 47% of all households had only two or fewer active agricultural workers, an additional 31% had three. A household short of labor for a specific task such as felling or weeding might be successful in getting some help through the labor-exchange (*bedurok*) system. Although the system operates on a principle of strict reciprocity – a day's labor always exchanged for another day's labor – some degree of trading of one kind of work for another is possible. However, extra help in the hot, back-breaking and unexciting work of weeding is not easy to get. At the Engkari site no agricultural work within the longhouse was done for wages or other forms of direct payment. The unusual situation at the Ensebang site, where very poor new migrants arrived, having virtually no stores of food, their cash and valuables spent on the move and little time left for them to slash and burn large fields, resulted in some of them working for foodstuffs. The cases I encountered were women who helped weed the fields of some earlier arrivals at Sungai Pelai; in payment they received some rice and/or large quantities of manioc. The extra laborers hired to weed the fields were probably not really necessary; those who hired the workers were acknowledged by others to be performing a charitable act. No satisfaction was ever expressed by the longer established residents over the existence of a pool of cheap labor, and no one expressed the hope that such a situation would continue to exist. When it seemed probable that the newest migrants would remain exceedingly poor for another year because their rice fields looked unpromising, the older residents expressed the hope that the unfortunates would migrate elsewhere.

Freeman felt that the size of farms at Rumah Nyala along the Baleh was probably limited by the acreage that each household's workers could effectively weed. He guessed that the maximum area which one worker could weed (he did not distinguish the different weeding costs of different kinds of fields) was about two acres. The extremely high weeding requirements for fields made in very young secondary growth given in Table 5, together with the estimates of field acreages in Table 7 below, suggest that Freeman underestimated the diligence of Iban households in weeding, or perhaps that Engkari Iban are far more willing to weed when necessary than are their Baleh counterparts.

The data collected concerning the sizes of rice fields are summarized in Table 7. The difficulty of obtaining these data, which resulted in relatively few measurements being taken, and the possible inaccuracies of the findings deserve some mention. The attempt to accurately measure field sizes and inclination with a compass, a steel tape and an Abney hand level proved to be physically by far the most taxing part of my research. Freeman recounts his difficulties with ritual prohibitions on the surveying of fields in the Baleh (1970:156–58), which resulted in his having to resort to surreptitious measuring of Iban fields. Also faced with ritual constraints, I was able to measure entire fields only after each farm's rice had been harvested. At the time of survey, therefore, many farms were thickly overgrown with entangling secondary growth, compounding the problems inherent in trying to measure, in the Engkari, large, irregularly shaped fields made in extremely broken terrain, and in the Ensebang, fields littered with huge, half-burned tree trunks and thorn-infested swamp. My attempts to estimate total annual farm acreages of particular households at Sungai Pelai were made additionally onerous by the pattern, discussed in the previous chapter, of farming several types of land in one year. Thus, although a total of twenty-seven fields of varying types was measured at Sungai Pelai, the total farm acreages of a sample of only eight households were obtained. At Nanga Jela fourteen entire holdings were measured.

Table 7 presents the per capita of population and per worker acreages cleared for rice farms at the three research sites. In his discussion of the size of farms along the Baleh Freeman distinguishes between the extent of areas felled and of areas actually planted to *padi*; he finds that about 20% of land cleared was never sown (1970:247). He mentions, however, that his data were collected in a year when the Baleh region experienced exceptionally unfavorable weather and a resultant very poor burn. In my measurement of fields both in the Engkari and Ensebang drainages, no large discrepancies between areas cleared and areas planted were apparent. The measurements presented in Table 7 are of the areas cleared and burned; in most fields I estimate that the size of the cleared areas did not exceed the size of the cropped areas by more than 5%

Table 7.

Site	Average size of area cleared (in acres)	
	Per capita	Per worker
Engkari	1.21	1.83
Ensebang	0.91	1.4
Baleh	0.8	1.3



The actual per capita acreages in the Engkari region ranged from 0.5 to 2.11 acres, and per worker from 1.3 to 2.8; the comparable sizes on the Ensebang were 0.56 to 1.2, and 0.85 to 1.9 acres.

In the case of the Engkari acreages, all the land measured had been cleared from secondary forest varying from six to about twenty years in age. The Ensebang data include the many different types of land included in the complete farm holdings of eight families, including one large household that had cleared four plots: 5 acres of virgin forest, 3.8 of secondary growth, and 2 tracts of swamp land, one 1.2 acres and one 0.23 acres in extent. The values for the clearing of virgin growth only (from a sample of 11 households) was 0.62 per head of population, and one acre per worker. When the sample was broken down to those who used a chainsaw to fell the timber ( $n = 4$ ) and those who used an axe ( $n = 7$ ), little difference was found. The former group felled an average of 1.1 acres per head, the latter 0.94.

Consideration of the per worker acreages measured in the Engkari region, together with the weeding requirements of farms made in the young growth frequently encountered there, illustrates the point made previously, that while total agricultural labor input in any of the research areas is not notably great, the labor demands of weeding can be indeed taxing, and may be a factor determining in large part, the length of fallow periods since fields made in older growth require less weeding. Some of the recorded weeding efforts of households at Nanga Jela were quite prodigious for shifting cultivators. For instance, one family with three able-bodied workers made a huge field of 8.4 acres (this was per worker and per capita the largest clearing measured) in growth mostly of about ten years in age. Over a period of somewhat under three months, each of the workers put in about 75 long days of weeding. This family of three included a man in young middle age, a group whose members, in the Baleh, have "a very strong antipathy to anything to do with weeding" (Freeman 1970:195).

The high labor requirements in such tasks as tilling, transplanting and weeding of *paya* fields near the Ensebang are less of a problem than the considerable weeding costs of dry Engkari fields, since the acreages of swamp farmed per household are very small; the largest *paya* plot measured at Sungai Pelai, and probably the largest one farmed, was 1.43 acres in size and was farmed by a family with seven workers.

The Iban of the Engkari valley, a long-settled area, have access to little but young secondary growth, and therefore, as a group, they must weed longer and put more time into agricultural labor per acre of their farms than do the Iban of the Baleh or the Ensebang, and yet they make considerably larger farms. Since neither rice nor other rice field crops are specifically planted for sale and the rice consumption requirements of the various Iban communities do not differ, the apparent reason for the making of larger farms is the necessity in the Engkari to compensate for usually lower per area

productivity. Jensen, in explaining the making of very large fields in the Lemanak basin, just west of the Engkari, also suggests low productivity as the reason (1966:23).

The above assumption that rice production per acre is usually lower in the Engkari than in the Ensebang or Baleh, and, by extension, that productivity in pioneering areas tends to be higher than in long-settled zones was not, however, confirmed by data gathered in the field in 1975 at Sungai Pelai and Nanga Jela. That year proved to be an extremely favorable one on the Engkari, where thirty of thirty-eight households harvested enough rice to last them the year; at Sungai Pelai the year was exceptionally poor, with only eleven of sixty-four households reaping a sufficient supply of rice. The yields of rice obtained by individual households were very variable. Deficits in rice were made up with manioc, taro and sago (the traditional "famine food" [Low 1848:40; Freeman 1970:267]). All these crops are planted to be fed to pigs in good years, to people in poor years. Those who had available cash bought rice in the market. Table 8 lists the rather unusual yields of 1975, both averages and ranges, together with the values given by Freeman for yields obtained in a rather unfavorable year in the Baleh.

Table 8.

Site	Yields in <i>gantang</i> (gallons)/acre		Sample size
	Average	Range	
Engkari	97.2	47–188	14
Ensebang (primary forest only)	66	17–119	12
Ensebang ( <i>padi paya</i> only)	168.2	128–224	6
Baleh	118	?–192	—

Informants' accounts of the harvests of other years support my contention that the 1975 rice yields were unusual. And historical records confirm my assertion that the productivity of pioneering areas similar to the Ensebang tends to exceed that of long-settled zones.

In 1973, twenty-six of thirty-eight households at Nanga Jela did not obtain their necessary quotas of rice, and in 1974, nineteen or 50% lacked sufficient rice. In contrast, in the ten years previous to 1975, the residents at Sungai Pelai insist that they rarely, if ever, suffered a significant shortage of rice and often had a surplus.

The historical records that are available also point out that pioneering areas have tended to have more successful rice harvests. In the years between 1908 and 1950, comments on the success of the rice harvest in the

Engkari region appeared in government reports twenty-six times, and on the harvests of the Bintulu area, twenty-three times. In the Engkari, thirteen or 50% of those recorded harvests were termed poor or very poor; of the twenty-three records for the Bintulu region, only four or 17% were called poor (all in *Sarawak Gazette*).

Lacking comparative data, I cannot judge whether the *padi paya* yields in 1975 were equal to those of previous years; the farmers at Sungai Pelai seemed satisfied although hardly surprised by them. The results of my measurements do not support Seavoy's contention that *padi paya* cultivation tends to yield two or three times as much rice per acre as dry land farming (1973a:122). However, at least in 1975, the apparently less variable and moderately high yield of swamp *padi* did make up for its higher labor requirement; for some farmers it provided almost the only rice harvested.

In summary, while the particular techniques, tools and crop assemblages of Iban pioneer and non-pioneer farmers differ little in all but the special case of swamp rice or *paya* cultivation, the amount and the scheduling of the work that they do, vary considerably. Consideration, particularly of the temporal and sexual distribution of labor in the exploitation of land under differing fallow regimes suggests both why expansion into virgin areas is desirable to Iban, and why the particular cropping-fallow ratios and field choices discussed in Chapter 4 are preferred. The diversification of field types, possible in pioneering regions, allows for both a more even scheduling of work, and a more predictable harvest, than do the agricultural patterns prevalent in long-settled regions. That the total agricultural work in the generally less frequently cropped Ensebang and Baleh regions tends to be smaller than that done by Engkari farmers may be of some importance to Iban cultivators, and is in agreement with the hypotheses presented by Boserup (1965) and supported by Clarke (1966). That very intense seasonal differences in labor demand, and very great annual crop fluctuations can be somewhat smoothed out in pioneering areas, may actually be of greater importance.

## CHAPTER 5

### HUMAN FERTILITY AND POPULATION GROWTH

The most dramatic aspect of Iban demographic behavior, and that most frequently discussed in the anthropological and historical literature, is the history of their migrations across Sarawak. Mention of other factors influencing the demographic structure of Iban populations, such as their rates of fertility and mortality, has not been totally lacking, but especially in earlier writings it is mostly limited to very general comments which are quite adequately summarized by Noakes (1950:39) as “[Iban] have always been regarded as a virile and healthy race”. A notable exception to such cursory statements are Charles Brooke’s more informative comments concerning Iban fertility and population growth:

If allowances be made for their not having the advantage of medical skill, there would, I believe, be found almost as great a longevity and fruitfulness as in England . . . four generations are often alive at the same time. (1866 (I):58.)

And:

There is far from being any appearance of decay among the principal Dyak tribes, whose fecundity on an average produces four or five births to every married woman. The barren females are not over one in five among the Sakarang and Saribus Dyaks . . . As a proof of the increase of the Dyak population we have only to make inquiry into the localities where they live, both past and present, and the result shows that populations have migrated to rivers farther and farther removed from their original abode, which remains at the same time as thickly populated as the land will permit. (1866 (II):235.)

In a later work, Gomes (1911:104) estimates the fertility of Iban women (probably of the lower Batang Lupar and the Saribas rivers) to be somewhat lower: “It is not often that one meets a family of over three or four children”. Although it may be assumed that Gomes does not believe the population of Iban to be decreasing, he does insist that, due to the infertility of the women, it is not growing as quickly as might be expected.

Information found in sources such as the two cited above is valuable since it comes from observers who were long and intimately acquainted with the Iban population. Since numerical values are given for what Brooke and

Gomes mean by high or low fertility, their data appear more precise than those cited in most early writings. These estimates must, however, be treated with great caution as they were derived not from systematic and precise enumeration and survey, but rather from possibly inaccurate impressions. Similar caution must also be used in dealing with data such as Brooke's population estimates cited in Chapter 2.

Other sources, including Brooke government District Officers' reports occasionally do mention estimates of the population of their districts (e.g. *Sarawak Gazette* 31, 15 Dec. 1871; 257, 1 June 1887), estimates of the number of tax-paying households (e.g. *Sarawak Gazette* 361, 1 Feb. 1896), or at least of the number of longhouses in some region (*Sarawak Gazette* 473, 1 June 1905). These data tend, however, to be both inaccurate and incomplete, and, since information on the number of migrants into and out of upriver areas is largely missing, data on population changes of particular districts are very difficult to interpret.

More recently, a number of investigators of Iban history and migration, among them Pringle (1970), Vayda (1961, 1976), Sandin (1957), Leach (1950), and Wagner (1972), have noted the growth of the Iban population, and have suggested population increase in specific areas as at least a partial explanation of some migrations.

However, perhaps because the earlier writers suggested and the censuses confirmed, that Iban populations were neither declining, as was the case with some other indigenous groups, nor were they growing as rapidly as other groups, even such non-migratory ones as Sarawak's Land Dayak (Jones 1966), little interest in the demographic features of the Iban population and the causes of those features was shown by recent scholars of Iban life. Even Freeman includes only a very brief and incomplete note on the age structure of the longhouse populations which he studied in the Baleh (1970:11).

I do not wish to imply that recent studies do not contain data of demographic value. For instance, it might be possible to use information such as the rate of formation of new households (*bilik*) and amalgamation of previously separate ones (Freeman 1970:42–43), together with Freeman's data on the average size of Iban *bilik* to compute an approximate rate of increase of the Baleh population. Such calculations would, however, be difficult and possibly highly inaccurate.

We must conclude that the only precise information on such variables as Iban fertility, age, and sex structure is to be found in the tables and discussions contained in the several census reports (Food Control Dept. 1940; Noakes 1950; Jones 1962; Chander 1976), and in Jones' *The Population of Borneo* (1966), a monograph largely based on those reports.

Although prior to 1939 no systematic count of the population of the entire area of present-day Sarawak was made, Noakes (1950:3–8), using all

available estimates and guesses, has determined the approximate size of Sarawak's population in 1850. For the Iban or Sea Dayak, he arrived at an estimate of 120,000 persons, which, compared with the number of Iban counted in 1947, yields a very moderate growth rate of 59% in one hundred years. Noakes comments that this increase is smaller than might have been expected, but does not speculate as to whether low fertility or high mortality should be regarded as its chief cause.

More reliable enumeration of the population of Sarawak began with the count carried out by the Food Control Department in 1939. The completeness and accuracy of that census and the two subsequent ones – 1947 and 1960 – are evaluated and discussed by Jones (1966:ch. 2). But, apart from any shortcomings in enumeration, the census reports are of limited value in studying changes in the population size of specific districts as the volume of inter-district migration is not measured and thus relative growth of regions is difficult to interpret. The reports do, however, provide valuable information concerning changes in Sarawak's entire Iban population. Table 9 summarizes these changes since the 1939 count.

*Table 9.*

Year	Total Iban Population	Annual Rate of Increase Per Cent	Comments
1939	167,700	—	Probable undercount (Noakes 1950:39)
1947	190,326	1.6	Probable undercount (Jones 1962:36)
1960	237,741	1.7	—
1970	273,889	1.4	—

Most notable in Table 9 is the apparent very steady rate of population growth. If the 1939 and 1947 censuses did indeed somewhat undercount Iban, as Jones and Noakes allege, the rate of increase may be still more remarkably even.

One problem encountered in attempting to use the census reports for comparing smaller localized populations – that of distinguishing between migration and other causes of demographic growth or decline – has already been mentioned. Still other difficulties arise in using the reports for an even more specific purpose: that of comparing the demographic characteristics of the populations of the Second and Fourth Division research sites. In both the 1947 and the 1960 reports, all data are presented by census district, but the districts “Lubok Antu” and “Bintulu” include areas and groups whose environmental and technological characteristics differ importantly from

those of the populations which were studied in the field. That is, each district includes, apart from shifting cultivators of hill rice, Iban who are predominantly wet rice cultivators, some groups largely dependent on market foodstuffs and earnings from cash cropping, as well as at least a few non-farming town residents. In the 1970 census the only data presented by census district are age and sex breakdowns. All other information collected is classified according to the size of locality (gazetted or not gazetted area) and not by geographical district. Thus the most recent census is even more difficult to use for comparing areas of Iban settlement.

Other problems that might be mentioned concern the accuracy of census data, principally information on age and fertility. Since upriver illiterate Iban do not keep track of their ages, nor do they remember the calendar dates of the births of even their very young children, ascertaining age is a difficult and tedious task, which cannot possibly be accurately accomplished in a few hours by a census taker. Recording the births of children who died is another area of difficulty, since mothers are often reluctant to mention their deceased offspring and such births, especially of children who died before being given a name, are frequently forgotten.

### *1. Demographic characteristics of censused populations*

In order to obtain accurate data on the specific populations whose histories were outlined in Chapter 2, demographic censuses were collected in each of the three research sites. The problem of determining the chronological ages of those censused was approached by using a calendar of local events which included such happenings as: for the very oldest residents, Brooke punitive expeditions (especially the Great Cholera Expedition of 1902) and the migration to Bintulu, and for the younger individuals, the years of office of particular Brooke government District Officers, the beginning and end of the Japanese occupation, the end of British rule, etc. In addition, siblings and other relatives and friends were "aged" relative to each other. Very young children's ages were determined by eliciting the time of the agricultural year during which they were born.

The size of the populations which were censused is indeed very small: 1,050 persons in the Engkari, 871 in the Bintulu area, and only 392 at Sungai Pelai. These populations may appear excessively small for any statement to be made concerning their demographic structures, but it should be pointed out that at least the Engkari and Bintulu groups are equal in size or larger than many "anthropological populations" that have previously been demographically described (e.g. Carrier and Koblenzer 1960; Macfarlane 1976; Howell 1973).

The population data collected in the censuses are supplemented by fertility histories of most of the women included in the census, and histories

of marriage and divorce of all the adults censused. Some of the information which I attempted to elicit, specifically that dealing with numbers of divorces, and, as has already been mentioned, numbers of deceased children, proved to be matters of some sensitivity, which informants were at least initially reluctant to discuss. That some of these data dealing with age, fertility and marriage are inaccurate and/or incomplete is a virtual certainty, although it is hoped that the extensive rechecking of data that was done in the field has helped to make the information substantially accurate.

The reproductive histories which were gathered yielded some estimate of infant and childhood mortality; however, no attempt was made to collect comprehensive data on mortality. The principal reason for the making of this decision was that the probability of getting accurate and complete information on the age at death of a substantial number of adults was judged to be very slight.

The data collected in the censuses were compiled and broken down to show, in Figure 1, the age and sex structures of the Engkari and Bintulu populations. It should be noted that included in these populations are all individuals recognized as members of a household in the censused longhouses, including, in the case of the Engkari area, a large number of young men who were engaged in wage labor and absent from the longhouse at the time when the counts were actually conducted.

Examining first the relative number of individuals of each sex, Figure 1 indicates that there is a slight preponderance of males in both populations: men comprise 54% of the Bintulu group and 53% of the Engkari. Only in old age (65+) do women substantially outnumber men. I can offer no explanation for the slightly imbalanced sex ratios, if indeed one is indicated, considering the small sizes of the populations being compared. If some significance can be attributed to the sex ratios, it should probably also be noted that both censuses show approximately equal imbalances, distributed in similar patterns.

While sex patterns in the two populations are largely the same, age structure does differ noticeably. Although neither group exhibits the characteristic extremely broadbased, sharply tapering shape of an age pyramid of a rapidly expanding population, nor the straight-sided barrel shape of an aging population, the two pyramids are visibly different. The wider base indicates that the Bintulu population is a substantially younger one, a fact that the percentages presented in Table 10 confirm.

In Table 10 the proportions of the two study populations in fifteen-year age categories are compared with those of other groups. The data for the Sarawak Chinese population in 1960 is included to provide an example of a very young, rapidly expanding group, while that for 1970 Sweden is presented to give a dramatic example of the age distributions in an aging population.



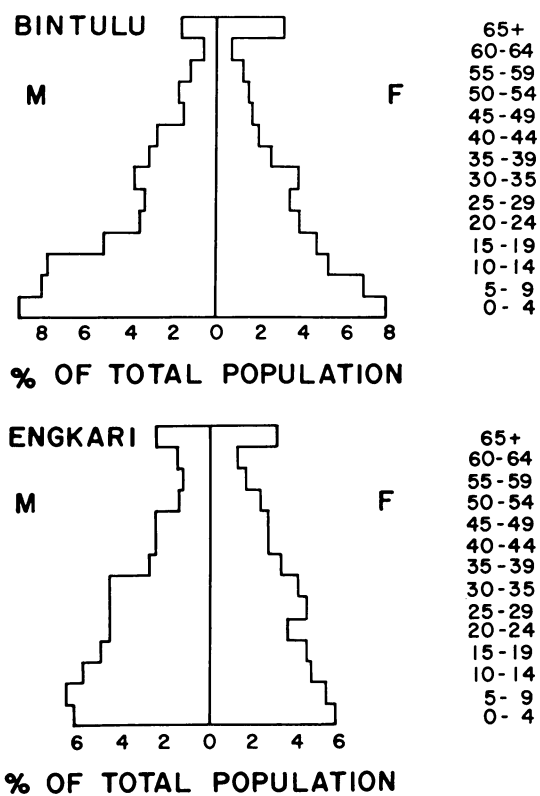


Figure 1

Table 10.

Population	0-14	15-29	30-44	45-59	60+
Engkari	34%	26%	20%	12%	8%
Bintulu	44	24	18	8	6
Total Iban (1970)	45	23	16	11	5
Sarawak Chinese (1960)*	50	35	—	10	4
Sweden (1970)**	21	23	17	19	20

\* Taken from Jones (1966:119)

\*\* Taken from United Nations Demographic Yearbook (1973:198)

In comparing the two study populations with the others, it appears that the Engkari population is a moderately growing one, while the Bintulu group, which in age structure is almost identical to the entire Iban population censused in 1970, apparently more closely approximates a vigorously growing population. Although it cannot be denied that both fertility and mortality levels (and migration which will be discussed below) affect the age structure of a population, demographers have recognized and emphasized the preponderant importance of past fertility levels in determining the shape of an age pyramid (Kiser 1972; United Nations 1954). Further, as there is no reason to assume that any great differences in patterns of mortality or life expectancy exist between the Engkari and Bintulu populations, it may be inferred from a comparison of the two pyramids, that Bintulu Iban are a population that is growing more rapidly and is more fertile than its Engkari counterpart.

Since the Engkari River was presented in Chapter 2 as an area that has, almost since the time of its initial settlement by Iban until the present, been sending out migrants to other parts of Sarawak and Kalimantan, the possible effects of emigration on the age structure should be considered. Migrants are alleged in many works to differ in important demographic characteristics from non-migrating groups (Shryock et. al. 1976:36; Kiser 1972:368; Macfarlane 1976:291). Isaiah Bowman summarizes the usual age characteristics of migrants as: "Pioneers are all sorts of people . . . but they are principally young folks with children" (1931:1).

In order to test whether the above statement does accurately describe Iban migrants and whether therefore the Engkari age structure might indeed be skewed by outmigration, the newly arrived migrants at Sungai Pelai were censused. It must be stressed that this population is considerably smaller than the two discussed above, being composed of only 392 persons, and thus may be more affected by purely random variation. Figure 2 presents graphically the findings of the Sungai Pelai census, superimposed on the Engkari pyramid. Upon examination, it can be seen that the Engkari case does not agree with the descriptions of pioneers mentioned above; although not identical with it, the Sungai Pelai population does rather closely resemble the non-migrants of the Engkari. The most notable difference between the two is perhaps the least expected: a preponderance of older Iban among the pioneers, an anomaly for which I can give no explanation other than the small size of the sample.

The perhaps surprising similarity between the age structure of migrants and non-migrants can be partially accounted for by the fact that the Iban surveyed tended to migrate in whole households, and often in entire or nearly entire longhouse groups. The system of labor sharing among households mentioned in Chapter 4 allows households with no adult males to migrate to and exploit areas of high forest where male labor in felling trees



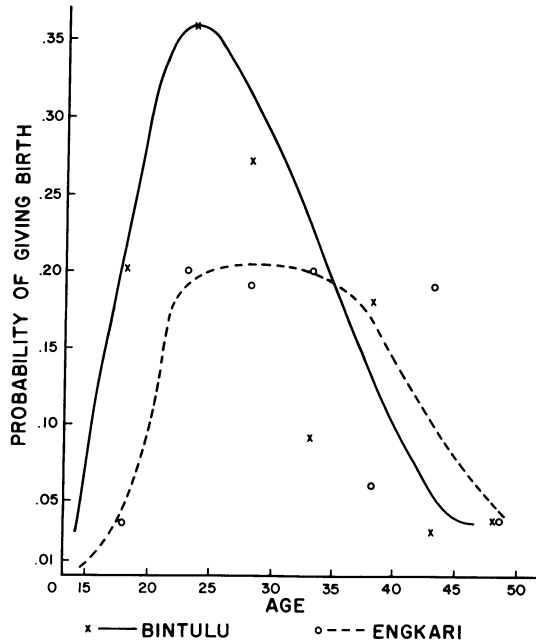
Having reviewed the available data, and found no readily apparent direct effect of emigration on age structure, I shall return to the suggestion made previously that the women in the Bintulu population are more fertile than those of the Engkari, and present further support for that allegation, using data derived from the fertility histories collected in the field.

Age specific fertility rates were determined for Bintulu and Engkari women by classifying all births of the previous three years by the approximate age of the mother at the time of the birth. (A three-year period was used, as the sample was too small to allow use of only one year's births, and the data for the last three years were considered substantially accurate.) The sizes of the populations of women used were again quite small: 152 women experiencing 124 births in the Engkari group, and 137 women and 154 births in Bintulu.

Figure 3 presents the age specific fertility rates for women aged fifteen to forty-five years in the two populations, with age shown along one axis, and the approximate yearly probability of giving birth along the other. It should be noted that the paths of the curves depart somewhat from several of the age specific fertility rates marked as points in Figure 3. The curves have been drawn so as to both reflect the specific rates and to be generally consistent with the shapes of the age specific fertility curves of all the populations discussed by Barclay (1958:173). The area beneath the curve of the age specific fertility rates shows the average total fertility of the women in the two populations, which is the average total number of live births for a woman living through her reproductive years.

Examination of Figure 3 reveals two principal differences between the fertility patterns of Iban women in the two study areas. First, it is evident that the total fertility of Bintulu women is higher than that of Engkari women. Summing up the age specific rates yields total fertility rates of 6.3 live births for Bintulu and only 4.6 for the Engkari, indicating that Bintulu women have considerably more children than their Second Division counterparts. The second readily apparent difference is in the two populations' age patterns of fertility: the Bintulu group is highly fertile at a much younger age than are the women of the Engkari. Members of the group aged fifteen to nineteen years in Bintulu have a twenty percent chance of giving birth in a given year, as compared to a barely significant three percent chance among Engkari women. Further, differences may be noted in the shape of the curves: the fertility of the Bintulu group peaks sharply between the ages of twenty and twenty-four, and then rather quickly declines, while the fertility of Engkari women aged between twenty and forty appears rather constant. (I can offer no explanation for the somewhat anomalous rates of thirty-five to forty-five year old Engkari women and thirty to thirty-five year old Bintulu women, except the very small size of the sample.)

Using the age specific fertility rates, overall mean ages of the fertility



*Figure 3*

schedule were calculated for each of the two samples. (The method used is outlined in United Nations 1967:65). The different age patterns yielded a mean age of childbearing of 31.8 years for the Engkari and 27.2 for Bintulu. While both of these values fall well within a normal range (Howell 1973:254), they appear sufficiently unlike to indicate that the two groups may have somewhat different average lengths of generation. As is discussed by Coale and Tye (1961), independent of total fertility, shorter lengths of generation, at least in high fertility populations, will lead to a more rapid rate of population growth. Thus, the lower mean age of fertility among the Bintulu women, as well as their higher total fertility rate point to a faster increase of the Fourth Division Iban.

The differences in age structure and in the fertility indices presented above are supported by other demographic measures in indicating the more rapid growth of the Bintulu group. Among such indicators is the Crude Birth Rate (CBR), which was computed as an average annual rate from a three-year period. For the Engkari population the CBR was found to be thirty births per one thousand persons per year (30/1,000), while for the Bintulu population it was 38/1,000. These rates place the Engkari group at about the midpoint in the world range of Crude Birth Rates for national populations, which varied in 1960 from an average of about 48/1,000 for African countries to 18/1,000 in Western and Central Europe (United

Nations 1963:186), while Bintulu's rate can be considered a somewhat higher than medium-fertility value.

Another index which showed similar differences was the Gross Reproduction Rate, a measure of the average number of daughters a woman would give birth to if she succeeded in completing her reproductive period. These rates for the study populations again were derived from the count of all births occurring in the three years prior to the census (following computation methods outlined in Barclay 1958:53-55). The values found for the Bintulu and Engkari populations were 2.8 and 2.2 respectively, again confirming the higher fertility and presumably faster growth of the Fourth Division group.

It may be noted here that, as in age structure, the population of Bintulu more closely resembles the total censused Iban population (in this case using the 1960 census) in fertility rates than does the Engkari. Jones computed, using the census materials, the Total Fertility Rate of all of Sarawak's Iban to be 5.8 and the Gross Reproduction Rate to be 2.8 (1966:95).

The values of all the fertility indices discussed above for each of the two populations are summarized in Table 12.

*Table 12.*

	Crude Birth Rate	Total Fertility	Gross Reproduction Rate	Mean Age
Bintulu	38	6.3	2.8	27.2
Engkari	30	4.6	2.2	31.8

The data presented in Table 12, as well as those shown in Figure 1, consistently point out a difference in fertility and population growth rates between the two groups, with Bintulu having the higher values. In order to gain some idea of the possible magnitude of differences in rates of growth, an attempt was made to match the study populations with a variety of Model Stable Populations which were similar to them in age structure, Gross Reproduction Rates and mean ages of the fertility schedule. The small size of the censused populations and the lack of data on mortality precluded the exact matching of actual and model populations and the determination of rates of population growth with any accuracy and certainty. However, when "West" Model Stable Populations were consulted (United Nations 1967:Appendix 2), under a wide range of estimates of female mortality (life expectancies at birth from 30 to 50 years), assuming that mortality is approximately the same in both censused populations, differences in estimated rates of growth remained constant at one percent. Again, it must

be repeated that no absolute rate could be determined as no value for life expectancy could be derived from the demographic data collected in the field. All that can be stated is that age distributions and other indices describing the Bintulu and Engkari populations most closely correspond to measures describing model populations growing at rates differing by one per cent per annum, with Bintulu having the higher rate.

The significance of a possible one per cent difference in rates of population increase becomes evident when one realizes that a population growing at 0.5 per cent annually doubles every 138 years, while one growing at 1.5 per cent doubles in forty-six years.

As it has been demonstrated that the Bintulu group resembles the entire Sarawak Iban population in many of the indices described above, and since, according to the data presented in Table 9, the whole censused Iban population has been growing at an annual rate close to 1.5 per cent for several decades, it may not be unreasonable to suggest that the annual rates of growth of 1.5 per cent and 0.5 per cent may indeed characterize the Bintulu and Engkari populations respectively.

## *2. Behavioral patterns affecting fertility*

Many observers of Sarawak's populations, particularly the commentators on the censuses, have, in discussing the difficulty of classifying some indigenous groups, emphasized the homogeneity of Iban culture throughout Sarawak (Noakes 1950:31; Jones 1962:51). In the above discussions, however, differences in fertility rates between Iban groups have been stressed, and in the remainder of this chapter, an attempt will be made to account for those differing fertility rates by presenting and describing a number of differences in behavioral practices between the populations.

In arranging data dealing with those cultural practices that appear to significantly affect Iban fertility, the "analytic framework" outlined by Davis and Blake (1956), and used in other anthropological discussions (e.g. Nag 1962; Macfarlane 1976), will generally be followed.

The first set of cultural factors, or Davis and Blake's "intermediate variables" which affect fertility are those influencing the exposure of members of the study populations to sexual intercourse. This group of variables is further divided into "those governing the formation and dissolution of unions" and "those governing the exposure to intercourse within unions".

The subject of the age of entrance into sexual unions, and particularly the age at marriage, the first of the "intermediate variables" to be considered, will, in the following discussion, be shown to be among the most important factors in producing the observed differential fertility rates. The exact age of Iban at first sexual union is a topic difficult to explore, partially because

of the usual reticence of women to discuss the subject, but mostly because of the impossibility of determining precise chronological ages. It is probable that among women in the Engkari region, courtship commences at about sixteen or seventeen years of age, while among men a somewhat later age, of eighteen or nineteen, is indicated. I have found no reason to assume that ages at which courtship begins in Bintulu are different. Whether there has been any change over time in the ages at which young Iban begin to court is uncertain. Several older women assured me that the age at first courting has declined, but there is no possible way of verifying this allegation.

The traditional Iban patterns of courtship (*ngayap*), which involve nocturnal visiting of women by men, are a topic mentioned frequently by earlier writers (Roth 1968 (I):109–11), among whom there is disagreement on the frequency or occurrence of sexual intercourse during the visiting. A more recent account of the practice (Beavitt 1967), and all informants I encountered, concurred that sexual relations take place often, although not always. It is reported that *ngayap* is now being replaced among some Iban groups, particularly those converted to Christianity, by other forms of courtship not involving sexual union (Beavitt 1967:409–10). However, the traditional form prevailed in all the communities that were studied during the period of field research.

Since, as will be discussed at greater length below, a very large proportion of the young males of the Engkari area spend a decade or more of their lives, between the ages of about eighteen and their early thirties, far away from their home longhouses, and indeed from all Iban communities, while their Bintulu counterparts spend most of those years at home, it would be expected that premarital pregnancies would contribute much more to the population of Bintulu communities than to those of the Engkari. It was found, however, that few illegitimate children are born in either area because, whereas premarital sexual relations are generally condoned, premarital conceptions are not, and such conceptions rarely result in a live birth. Induced abortions usually terminate premarital pregnancies, and infanticides, though infrequent, also do occur.

Because of the very sensitive nature of the subject, reliable quantitative data on frequency of abortions among unmarried Iban women could not be obtained. That induced abortions ended premarital pregnancies in both the Engkari and Bintulu areas was however attested to by numerous informants, and confirmed by physicians at both Bintulu and Simanggang General Hospitals, who monthly treat many cases of post-abortal sepsis as well as hemorrhage resulting from induced abortions. It is possible that the small number of illegitimate births occurring in Engkari longhouses is principally a function of a low frequency of premarital coitus because of the absence of most young men, as well as of a rather large number of abortions. (In the Engkari region it is not uncommon among unmarried women to have had



three successfully induced abortions.) In the Bintulu area, an apparently similar low incidence of illegitimate births may, on the other hand, be attributable to a much lower age at marriage; that is, women in this area do not remain unmarried for long and thus the risk of premarital pregnancies is reduced. It is also possible, although no data to the effect exist, that since in Bintulu young males tend to be present in the area's longhouses, many premaritally conceived children will be legitimized by marriage before their birth.

Since premarital sexual relations (as well as extramarital ones) appear to rarely result in children born out of wedlock, the more important variable to examine among the Iban population may not be age at entrance into sexual unions, but rather age at marriage. Again, because of the Iban's lack of a system of reckoning ages, no exact data on this variable can be presented. However, for the purposes of comparing the two populations under study, rather than to establish exact ages, the data on age-specific fertility shown in Figure 3 may be useful, as they reflect, in a general fashion, differences in age at marriage.

Table 13 compares the marital status of women aged fifteen to twenty-nine years in the two areas, and, like Figure 3, points to a large apparent difference in ages at first marriage.

Table 13.

Age	<i>Engkari</i>		<i>Bintulu</i>	
	Never Married	Married, Divorced or Widowed	Never Married	Married, Divorced or Widowed
	[#/%]	[#/%]	[#/%]	[#/%]
15–19	28/90	3/10	13/41	19/59
20–24	13/42	18/58	2/6	31/94
25–29	10/29	25/71	1/4	22/96

The differences indicated in Figure 3 and in Table 13 can most readily be attributed to the differing participation in the custom of *bejalai* by the young male populations in the two areas, and to a lesser extent, to unlike patterns in age differences between spouses. The practice of engaging in extended journeys, usually for material gain, or *bejalai*, has already been mentioned in Chapter 2 in connection with pioneering in virgin areas, and is discussed in Chapters 3 and 6 dealing with agricultural and economic patterns. Since *bejalai* appears to strongly affect a community's fertility not only by largely determining age at marriage, but also by influencing fertility within marriage, a rather extended description of *bejalai* journeys: their duration,

distance traveled, and extent of participation by men of the two areas under study will be presented in this chapter.

Traveling far beyond their longhouse's territory has been a preoccupation of young Iban men for a significant period of time, although it has taken different forms throughout history. Headhunting forays, coastal raids and service in Brooke Government levies cannot strictly be classed with modern, presumably more economically motivated journeys, although some patterns and effects of all these activities – extended absences of young men from their homes – may have similarly affected demographic variables. Several authors have, in fact, suggested that *bejalai* has functioned in modern times as a substitute for headhunting (Pringle 1970:23; Jensen 1974:51). The nineteenth and early twentieth century forms of present-day trips to work in the timber camps of Sabah and Kalimantan were journeys of Iban far from their homes to search for “jungle produce”, and, having acquired wealth from the sale of rattan, damar, gutta-percha and other natural products, they journeyed further in search of valuable ceramics and brassware, the collecting of which remains an Iban interest. At what period in history the hunting of jungle produce, especially at a distance from their home territories, became an important activity among Sarawak's Iban is uncertain. Boyle (1865:123) mentions a thriving trade in “Dyak”-collected gutta-percha and rattan in Muka in 1863, but far earlier journeys cannot be ruled out. It should be stressed that the materials subsumed under the term “jungle produce” almost invariably are products of high forest, not to be found in younger growth. Thus, at times and in areas where old forest was in abundance, extensive journeying in search of these materials was unnecessary. In most of the Second Division, however, accessible supplies of these products were exhausted before or around the turn of the century and journeys out of the Division were common. Among the more ambitious was a trip undertaken in 1889 and described in the *Sarawak Gazette*:

The Dyaks of Saribas, the great headhunters of former times, now give their attention to hunting for jungle produce as a means whereby they may become rich enough to acquire the old jars they so highly prize. A party of thirty-one of this tribe left here on the 1st June by the S.S. Normanby for Sumatra via Singapore. There they intend to look for gutta, and speak of Menang Kabau as the place from which to start . . . This tribe of Dyaks has been almost round the island of Borneo and has worked out the produce of the jungles, as far as they were able to penetrate . . . Should these [men] meet with success in their venture, some thousands of their fellow tribesmen are ready to make a rush for Sumatra. (*Sarawak Gazette* 282, 1 July 1889, p. 95.)

The supply of “jungle produce” may have held out somewhat longer in the upper Batang Ai and Engkari, but, by 1922, a Brooke government District Officer noted that:

A great number of Dyaks from Lubok Antu arrived during the month, asking to be allowed to go to Miri. I signed on fifty coolies only as requested by the Sarawak Oilfields, Ltd. The rest returned home, but only after a great deal of persuasion. There being hardly any jungle produce above Lubok Antu and no employment for Dyaks in this District, it is hard for them to find a means of earning money . . . (*Sarawak Gazette* 820, 3 Jan. 1922, p. 21).

The above passage mentions the replacement of jungle produce collecting by wage labor as the usual *bejalai* occupation of Second Division Iban. In 1950, Freeman found the Baleh Iban engaging in many different forms of employment while on *bejalai*, including the collecting of jungle produce and trading with interior groups, as well as employment as wage laborers on the coast (1970:222). Extensive journeys in search of wage labor are the only kind of *bejalai* expeditions undertaken by present-day Engkari Iban; of the twenty-four men on *bejalai* from Nanga Jela during the period of fieldwork in that area, nineteen were working in timber camps in the neighboring state of Sabah, with one similarly employed in Kalimantan, while two were working in building construction, one in Brunei and the other in Kuching.

The destinations of Engkari men on *bejalai* are mentioned because they give an indication of, and an explanation for, the duration of most journeys. The nineteen men in Sabah were all employed in the eastern part of the state, in the vicinity of Sandakan or Tawau, while the one working in Indonesia was employed in East Kalimantan. As might be expected, the fares to and from these areas (and Brunei as well) make a short *bejalai* episode unprofitable.

In the Bintulu area, by contrast, although some *bejalai* journeys are undertaken, the destinations of the travelers only occasionally entail leaving the state of Sarawak, and periods of continuous absence from the longhouse are rarely long.

Table 14 presents data comparing the length of individual expeditions completed by men of one longhouse on the Engkari, Nanga Jela, with the journeys of the men of Sungai Labang, a longhouse near Bintulu.

Table 14.

	1 year or less (%)	1-4 years (%)	4+ years (%)
Nanga Jela	40	50	10
Sungai Labang	68	23	9

The data presented above confirm the previously made statements that Engkari men tend to engage in longer journeys than their Bintulu counter-

parts. The Engkari case resembles quite closely similar data on *bejalai* by men of the Lemanak River collected by Jensen (1974:52). Although Freeman does not provide comparable data, his description of a "lengthy *bejalai*" journey as one involving three to six months' absence (1970:224), as well as his report that men frequently return to the house in order to assist in certain farming tasks, indicate that the duration of *bejalai* journeys undertaken by Baleh men in 1949-50 probably resembled more closely the Bintulu pattern than that of the Second Division.

Perhaps more informative than lengths of *bejalai* expeditions is a comparison of the proportion of men in the two areas actually making extensive trips. In again comparing Nanga Jela with Sungai Labang, two longhouses in which reliable data concerning *bejalai* were collected, we find that virtually all the men in the Second Division house went on *bejalai*; ninety-two per cent of men aged about eighteen years and above had made such trips, and the eight per cent, or six men, who had not, included three simpletons. Of the same age group at Sungai Labang a full sixty per cent had never been on a *bejalai* journey.

Further comparison of the two populations reveals similar contrasts. No man at Sungai Labang admitted to completing more than two *bejalai* journeys and none had spent more than a total of six years away performing wage labor. Among men in their middle thirties and forties at Nanga Jela, it is not uncommon for men to have made five expeditions and have spent well over ten years away from the longhouse. The most accomplished traveler at Nanga Jela — a man in his early fifties — had, in the course of nine expeditions, spent twenty-five years working in Sabah, Brunei, Kalimantan, and in several areas of Sarawak.

As in this section we are principally concerned with the effects of the custom of *bejalai* on age at marriage, it should be noted that each of the men in both populations — except for a barely significant two cases in the Labang population — made his first (and often only) journey as a bachelor. That is, about ninety-two per cent of the Engkari sample of adult men and about thirty-six per cent of the Bintulu sample had traveled for at least a few months prior to first marriage. It should also be mentioned that of the twenty-four men who were absent from Nanga Jela during at least part of the period of field research, twenty-two had never been married, a proportion that is probably unusually high.

Extended periods of time spent away from Iban longhouses by unmarried men might, however, have a minimal effect on Iban fertility if men consistently married women younger than themselves, a pattern that Freeman observed among the Baleh population (1970:25). As we have shown in Table 13, however, Engkari women do tend to marry at rather late ages, and large discrepancies in age between spouses were not found in the Engkari, even differences of five to ten years between husbands and wives appeared

very rare. The Bintulu population also did not offer many examples of much older men marrying younger women, although it may be noted that the two instances of large discrepancies in age that were observed – differences of about twenty years – both involved men from the Rejang River (of which the Baleh is a tributary) who had married and settled in a long-house on the Kemena River while on *bejalai* from the Seventh Division.

The role played by *bejalai* in influencing levels of fertility within marriage will be discussed below, and the motivations for journeying, as well as reasons for the differing participation by Engkari and Bintulu men in the practice, will be examined in later chapters.

Continuing to follow Davis and Blake's outline, the next variable to be discussed is the "proportion of women never entering sexual unions". Since, as it was stated above, premarital and extramarital pregnancies rarely result in live births, the factor we shall consider is, not the number of celibate women in the two populations, but rather, the number of Iban women who never marry.

Several observers of Iban groups have mentioned that only a very small percentage of Iban never marries (Gomes 1911:127; Noakes 1950:72; Jones 1962:65); and Freeman's Baleh group included no adult women who had never been married (1970:18). The fertility histories which were collected during the period of field work show that while the rate of permanent "non-marriage" is very low among both the Engkari and Bintulu populations, never-married women do exist. Of a sample of eighty-four women aged forty years and above in the Engkari population, seven women or eight per cent have never been married, while the same group in Bintulu comprises only two individuals or three per cent. It should be noted that while several of the adult women who never married are considered somewhat simple by their neighbors, no cases of imbecility were included in the sample.

The numbers presented above are indeed small, and the differences in rates of non-marriages between the two populations may appear to be hardly significant. However, the direction of the differences suggests that this factor may, in some small measure, account for the observed somewhat lower fertility among Engkari Iban.

Although few Iban women in either of the populations studied stay unmarried throughout their lives, a number spend only a brief part of their reproductive years in marriage. Divorce is of rather frequent occurrence, especially in the early months of a marriage. A large proportion of marriages contracted in each of the two areas ended within a period of a few weeks, often owing to the incompatibility of a new husband or wife with the members of the household with whom the couple took up residence. (Iban are ambilocal after marriage; see Freeman 1970.) Marriages lasting more than a year, especially those which already include children, are broken by

divorce far less frequently. This pattern has also been noted by other observers, among them Gomes (1911:69, 127) and Chalmers (quoted in Roth 1968 (I):127). There are no cases, in the two censuses, of divorce ending a marriage after the birth of two children.

The proportion of marriages terminated by divorce does not appear to be different in the two populations. An apparently significant difference does appear, however, when the numbers of women not remarrying after divorce are compared. At the time of the censuses, ten per cent of all Engkari women aged between fifteen and fifty years were divorced and remarried (it should be noted that this percentage includes both those women who had been married and divorced only once, as well as those who had undergone numerous marriages and divorces). In Bintulu a mere three per cent of women in the same age categories were not remarried following divorce. The time spent between marriages by those who do remarry is very difficult to assess, because the members of the studied populations do not mark calendar years.

Serious differences between a new spouse and the in-laws with whom he or she comes to live have been mentioned as a frequent cause of early divorces. Other reasons for divorce that are cited include incompatibility between husband and wife, adultery, bad dreams, and sterility. Termination of a marriage for this last reason might actually contribute to increased rather than decreased fertility of the group, if the divorcees remarry.

The loss of fertility due to breaking of unions because of the death of a spouse while a woman is still in her reproductive years appears among Iban to be minimal. Of women aged between fifteen and forty-five years, only three individuals of the Engkari group had been widowed and had failed to remarry at the time of the census; Bintulu women of the same status numbered only two. Thus, although a period of mourning during which remarriage is considered improper is observed for about a year, widowhood appears to contribute only slightly to a lowering of possible fertility, and no significant differences between the two populations were found.

Having discussed those factors which govern "the formation and dissolution of unions", I shall continue to follow Davis and Blake's outline and examine those variables which govern "the exposure to intercourse within unions".

Interviews with informants yielded no information concerning any significant periods of abstinence from sexual intercourse coinciding with particular phases of the agricultural year, nor during any stage of pregnancy nor after childbirth. The only factor which the data point to as an important determinant of the frequency of intercourse was the frequency and duration of *bejalai* journeys undertaken by married men. It was shown above that Engkari men, as a group, spend many more years away from their homes than do Bintulu men. Since only a very few Bintulu men have engaged in

more than one extensive expedition during their lifetimes, it would seem improbable that that journey would have been made after marriage. The data collected at Nanga Jela and at Sungai Labang confirm this supposition: a total of eighty-six per cent of the Engkari men who ever went on *bejalai* and were ever married made at least one trip while married, while only thirty-three per cent of Bintulu men in the same category undertook a *bejalai* journey while married. It should be stressed that the above percentages do not adequately reflect the differing periods of time the two groups of men were actually absent from their homes and wives. Engkari men, as is shown in Table 14, tend to take much longer *bejalai* trips; they also engage in a much larger number of journeys, and a far greater proportion of the Second Division men makes any extensive trip at all.

A rather recent variation in the pattern of *bejalai* should be noted as it may in the future have a significant effect on fertility rates. Some men from the Batang Ai region have now begun to take their wives and children with them to the timber camps which are their usual *bejalai* destinations. Although this practice was not reported for the Engkari or the Bintulu populations before the censuses were compiled, during the period of field research some young Engkari men did consider taking their wives to Sabah in the future. Traditionally, *bejalai* expeditions are undertaken only by groups of men.

The next variable in Davis and Blake's framework, "coital frequency (excluding periods of abstinence)", is one concerning which no reliable data were gathered.

All the factors influencing fertility levels considered thus far have been those that affect the chances of exposure to intercourse or "intercourse variables". The next factors to be discussed are those "affecting exposure to conception" (or "conception variables"), which include both "fecundity and infecundity as affected by voluntary or involuntary causes" and "the use or non-use of contraception".

As no medical examinations were carried out among the censused populations, little can be said with any degree of certainty about any involuntary causes of infecundity. Poor diet, prevalence of gonorrhoea, and of pelvic infections, which have been suggested as causes of the extremely low fecundity of other Bornean populations (Shircore 1937:30; Polunin 1958), have never been diagnosed as particularly important problems among any Iban populations. Although some cursory field examinations suggested that the nutritional intake of Engkari Iban may be less adequate than that of their Bintulu counterparts, both groups probably eat better than many populations having much higher fertility.

The differing participation in *bejalai* suggests that the better-traveled Engkari Iban may be more likely to contract venereal diseases which could lead to female sterility. However, information gathered from Sarawakian

medical practitioners does not concur with this suggestion; few cases of gonorrhoea or other venereal diseases are ever diagnosed among upriver Iban.

The difficult heavy work which women perform in agricultural and household tasks is suggested by Gomes (1911:104) to be a cause of their fecundity being lower than might be expected. That upriver Iban women do work hard, and that a task such as weeding of rice farms – largely done by women – is usually more onerous in the young growth of the Engkari area, is indisputable. I, however, was incapable of assessing whether any differences in fecundity between the two populations could be attributed to the heaviness of work performed. It might be mentioned that while women in both groups work hard, except for elderly ones, few women ever appeared to be or complained of being exhausted.

Another factor which has been suggested as one affecting fecundity is lactation (see Nag 1962:143; Jensen 1966-67:167). While no precise data concerning the duration of breast-feeding were collected, observations and opinions offered by Iban women suggested that the length of time varied greatly, but rarely would extend beyond two and one-half to three years. No differences in duration of breast-feeding were noticed or reported between the two censused populations.

The last of the variables which may affect fecundity to be discussed, and one on which I again have no precise information, is the use of the penis pin or *palang*. The use of the device, which is commonly made of bone, wood, or metal, and is inserted crosswise through the head of the penis, has been reported for several Bornean groups, including Iban (Harrison 1964; Appell 1968; Von Römer 1913). In the 1950's perforations for the *palang* were reported to be quite common among Iban men of the Rejang area, but rare among Second Division groups (Griffith 1955:327). Although women in the study areas did occasionally jokingly refer to the devices, I never succeeded in obtaining reliable information on their present-day use and assume that it was very uncommon if not totally unknown. Whether the use of penis pins ever indeed influenced the fertility of any Bornean group has yet to be determined.

Although many attempts were made to elicit data concerning the use of any effective contraceptive means or methods, none were ever obtained. I can only conclude, in the absence of any information to the contrary, that no traditional effective contraception was practiced, although magical means, such as holding a specific stone in the hand during intercourse, or drinking water in which such a stone had soaked (Jensen 1966-67:168), were reported.

The use of non-traditional means of contraception, condoms and contraceptive pills, is known in both populations that were studied. It is probable that condoms are familiar to most Iban men, because even those who do not undertake a lengthy *bejalai* expedition usually do travel to markets and



larger towns where such devices are available. What the incidence of condom use is among the men of either population is unknown, although I assume that it is very low. The use of contraceptive pills among the upriver populations studied did not begin until very recently. The necessity of undergoing a pelvic examination in order to receive such pills from the dispensaries operated by the Sarawak Medical Department made Engkari and Batang Ai women reluctant to obtain the contraceptives. However, during the period of field research on the Engkari, great interest in the pills was expressed by many women. Since my leaving the area, I have received information that several women at Nanga Jela have overcome their initial unwillingness to be examined and have obtained the pills. Of the other women in the populations studied, it can be said with reasonable certainty that only a few women in the Bintulu sample may have had access to the pills and may have begun using them only within the last year before the census was taken; only one woman in the Sungai Pelai group probably used any contraceptive pills prior to the census.

The almost negligible use of modern contraceptives among the Iban populations being discussed should not be considered to be characteristic of all Sarawak Iban. Many groups, especially those settled in the Rejang drainage basin, have made use of modern contraceptive methods more widely and for a longer time. The apparent eagerness of Iban women to control their fertility through the use of new methods if they are freely available is a matter which should be noted.

The last major class of factors which influence human fertility are those "affecting gestation and successful parturition" ("gestation variables") which subsume all variables influencing fetal mortality due to both involuntary and voluntary causes.

Fetal death due to involuntary causes will not be discussed as few accurate data were collected concerning miscarriages or stillbirths; from the information that was gathered, frequencies of occurrence of involuntary fetal deaths could not be established with any certainty.

Fetal mortality from voluntary causes or abortion has already been discussed in conjunction with age at marriage. As difficult as it was to obtain accurate data on the occurrence of abortion among unmarried women, it was even more difficult when married women were considered. Unmarried women are often reluctant to reveal the fact of their pregnancy until their condition becomes quite obvious, and thus the termination of such pregnancies is often a matter of wide knowledge. Married women can presumably obtain an abortion in relative secrecy as the fact of their pregnancy is not a matter of general interest. The difficulty of obtaining data on abortion among married women may also be a result of its being considered a crime to abort a legitimately conceived fetus. Ward (in Richards 1963:69) suggests that for a married woman to obtain an abortion "would entail severe

punishment". However, all the court cases brought against married women who had abortions with which I am familiar involved an angry husband who felt that the operation had been carried out without his consent. I was never able to establish whether abortion under any circumstances was traditionally punished. Although it was widely known that several abortions were induced while I was conducting field research, no fines were ever imposed nor were charges brought against anyone.

That married women do obtain abortions was, however, reported by many informants and was confirmed by hospital records. During a period of six days, five women were admitted to Simanggang General Hospital's surgery ward with post-abortal problems. All the women were Iban and reported that they were married; each had at least two living children.

While a variety of methods of performing abortions are attributed to Bornean groups (Devereux 1955:213, 217), the principal method used by both Engkari and Bintulu Iban involved the insertion of a pointed stick, sharp grass stem or fern midrib into the vagina. The pointed instrument is sometimes also used to introduce an irritant substance – crushed black pepper or pounded wild ginger roots. Alternately, a somewhat crushed piece of *Derris spp.* or *tuba* vine (a fish poison) may be used. This last method, which is said to be highly effective, is also considered to be excessively dangerous and was alleged to have been responsible for the deaths of several women in the Batang Ai area. Whatever instrument or substance is employed, the abortive effect is probably the same: the cervix is irritated and uterine contractions are induced. The fetus is reportedly usually aborted in about two days following the treatment; *Derris* was reported to act more quickly.

The only other method of inducing abortion which was mentioned required the massaging of the abdomen. This technique was considered only rarely effective. (Jensen mentions the massaging of the abdomen with a hot stone as another usually ineffective abortion method used in the Lemanak area [1966-67:168].) Several infants who were born very small and sickly were alleged to have been the victims of unsuccessful attempts at abortion by massage.

While abortion certainly regulates fertility by effecting the death of particular fetuses, it may also be a factor in permanently reducing the fecundity of some Iban women. According to informants, two weeks of fever and illness following an induced abortion are common. How often post-abortal sepsis results in permanent sterility among Iban women is unknown, although this effect should certainly not be ignored, as it is possibly an important factor.

Although infanticide is not strictly a factor influencing fertility, Davis and Blake do include a note dealing with it, since infanticide is "virtually a functional equivalent of abortion in controlling family size" (1956:211).

Several observers have mentioned the occurrence of infanticide among Iban but have usually indicated that it was carried out only in special cases of the mother's death in childbirth (Gomes 1911:100; Roth 1968:101), in the birth of a deformed child (Crossland in Roth 1968:101) or in the case of the birth of twins (Jones 1966:36). Among the populations studied, infanticide was reported to have occurred, although, except for one certain case, no reliable accounts were given. It is quite probable that infanticide is practiced in situations other than the special ones mentioned above. In the one accurately reported case, the newborn child of divorced parents was suffocated; the mother had quite openly admitted to not wanting the child and wishing to kill it, although she never admitted to the actual infanticide. No data which might suggest differing rates of infanticide between the two populations were gathered, and no information received would suggest that infanticide has been or is widely practiced by Iban.

In the discussion above, those behavioral patterns which, through the "intermediate variables", appear to influence fertility in the two Iban populations have been examined. Some indication of the cultural factors common to both populations which lead to the rather moderate fertility characteristic of both groups has been given, and a discussion of the behavioral differences between the two populations that may give rise to the observed differences in fertility, and further to unlike age structures and rates of population growth, has been presented.

Although I have suggested in the above discussion that "conception variables" and "gestation variables" may play an important role in determining Iban fertility patterns, it is the "intercourse variables" that we have most closely examined and concerning which the most accurate comparative data were collected. Of that set of variables, differences were shown to exist in age at marriage, number of women never marrying, frequency of remarriage after divorce, and abstinence from intercourse due to the absence of the husband. The first and last of these variables, we have argued, are largely determined by the frequency and duration of male labor migration or *bejalai*. Comparative data concerning such factors as fecundity, as well as the frequency of occurrence of abortion and infanticide, are admittedly either totally absent or highly sketchy and unreliable. While these factors cannot be ruled out as possibly highly significant determinants of differing fertility of the two populations, considering the data available, we are led to believe that the information concerning "intercourse variables", especially that indicating differences in *bejalai* participation, may be sufficient to account for the observed differences in fertility indices and, perhaps, the differences in age structure and rates of growth as well.

It is interesting to note that whereas practices similar to *bejalai*, i.e. temporary labor migration by males, are very widespread, few investigators have considered these practices as major influences on fertility. Many

researchers discussing the impact of labor migration on particular areas or groups have not commented on the effects on fertility rates. However, some who have come to the conclusion that little or no effect was discernible (e.g. Hance 1970:220; Nag 1962:86). While most of the groups discussed in these sources engage in forms of labor migration significantly different from *bejalai* (e.g. short periods of continuous absence, women accompanying or visiting men), the case presented by Macfarlane (1976) is interesting as it deals with Nepal's Gurung, a group whose males spend extended periods away from their homes, and yet, Macfarlane argues, their often long absences hardly affect fertility. Differences in such variables as age at marriage, frequency of abortion and infanticide can probably account for the differing effects of male absences on Gurung and Iban fertility indices.

Other studies of populations whose males engage in extensive travel and long absences, do, however, concur with the suggestion of a major effect of *bejalai* on fertility. Both Oceanian (Maher 1961:111) and African populations (Southall 1967:237; Ghansah and Aryee 1967:201), have been reported as showing similar effects of labor migration.

A further discussion of the practice of *bejalai*, the reasons for differing participation in it, as well as its economic and other consequences will be presented in the next chapter.

In conclusion, a very brief note concerning the history of the behavioral factors mentioned above will be included. A short overview of earlier forms of *bejalai* has already been presented, and further speculation as to the antiquity of the practice will be presented in Chapter 6. However, it should also be noted that Iban men, throughout their history in Sarawak, have been considered by their observers to be great travelers. (It has been suggested that the term "Iban" comes from a Kayan or Rejang Melanau word meaning wanderer [Pringle 1970:20].) The length of time spent on expeditions in the past is difficult to determine; it is possible that male absences in earlier times tended to be somewhat shorter than are modern *bejalai* journeys, and thus their effect on fertility may have been less marked.

Other behavioral practices discussed above may, however, have had a similar or even greater role in controlling Iban fertility in the past. Abortion, for example, was alleged by informants to be a practice that has always been known. Jensen suggests that "for as long as they can remember the Iban have always practiced various forms of birth control [presumably including abortion], references occur even in legends and myths" (1966-67:167). There is, likewise, no reason to believe that infanticide is not a practice of substantial antiquity.

While, in these remarks, I do not wish to imply that Iban fertility rates, rates of population growth, or the determinants of these indices have been unchanging throughout history, I do wish to argue that such directly antinatal practices as abortion and infanticide, as well as less obvious fer-

tility-limiting behaviors, such as absence, divorce, and non-marriage, are not modern additions to the culture of Sarawak's Iban populations. Students of Iban demography have previously discussed mortality as almost exclusively the determinant of Bornean population characteristics (Jones 1966:35), and certainly the smallpox and cholera epidemics that until about 1936 periodically killed off many Borneans left imprints on Iban groups. I hope that the information presented in this chapter has suggested that controls on fertility had an important, if not perhaps the determining, role in shaping the Iban population both at the present time and in the past. Such limitations on childbearing and on population growth rates may be interpreted as serving at times as at least partial alternatives to population movement.

## CHAPTER 6

### TRADE AND SOURCES OF INCOME

Throughout the preceding chapters outlining Iban history and land use, as well as agricultural and demographic behavior, mention has been made of objects and services which were not locally produced and were obviously purchased: chain-saws and gasoline to run them, outboard motors, steel for the forging of axes, ready-made axes, truck transportation and imported rice when a harvest has failed. Many other frequently used market items can be found in households at Sungai Pelai, at Nanga Jela, in longhouses along the Kemena River, and in houses along the Baleh even in 1950: purchased cloth for skirts, trousers and loincloths, iron cooking pots, kerosene for lamps, matches, salt, porcelain bowls, brass gongs, ceramic jars, silver and gold jewelry, as well as numerous other items.

Despite the fact that during my period of research many upriver Iban expressed pride at their ability to be, if necessary, almost completely self-sufficient – a boast that was most recently tested during the Japanese occupation of Sarawak (1941-45) when market trade almost stopped – the desire of even far upriver Iban for many non-locally made products is undisputable and their dependence on at least two market items extends as far back into the past as does oral Iban history. Iban have always needed to trade for iron for the making of agricultural tools, hunting, fishing and war apparatus. Freeman states that: “our earliest historical accounts of the Iban describe a highly developed material culture based on the use of iron tools” and suggests that “it is probable that for many centuries the Iban have maintained economic relationships with Chinese and Malay traders, with metal objects, ceramics and beads as their principal purchases” (1970:175). In addition to iron, the other imported necessity for Iban was salt, the trade of which has figured importantly in the past history of the Iban and indeed of all of Sarawak; through the regulation and restriction of the sale of salt to upriver Iban both the pre-1841 Brunei government and the later Brooke regime at times attempted to bring to heel groups of warring or recalcitrant Iban (Pringle 1970:64, 231).

Apart from iron and salt which were and still are necessary items, gongs and other brassware and Chinese ceramic jars are trade goods which have long been found in most Iban households. Heavier legal fines, imposed by

both the Brooke government and indigenous arbitrators were often expressed in weights of brassware (Pringle 1970:170n) and paid in brass vessels or gongs, Chinese jars or other ceramic ware (see Howell and Bailey 1900:app. 24–26). Even the earliest known Iban migration leaders are said to have settled debts or paid fines with brassware and precious jars (Sandin 1967a:9, 20).

By all accounts Iban were probably never taxed effectively by the Brunei government prior to Brooke rule (Pringle 1970:43). However Brooke government taxes although quite light and often not successfully collected (Pringle 1970:162) presented the Iban with some need for cash; today taxes and firearm license fees are still quite small, but do require some cash outlay.

The involvement of Iban, even far upriver communities, in trade, is therefore of long standing and although often small in actual volume or cost of goods exchanged, trade has been and is considered essential by all Iban. The desire for market products among Bornean groups even far more remotely situated than Sarawak's Iban is pronounced. Some groups of Apo Kayan Kenyah living in a hardly accessible region in East Kalimantan must travel months to reach supplies of desired products. Their trips to and from market sometimes take years (Conley 1976:113–4).

The level of use of market products by groups of Iban varies greatly throughout Sarawak and is of course continually changing. The Iban communities that constitute my research populations were all on the lower end of a scale of users of market products to be found among Sarawak Iban, although they probably consumed more trade items than Iban living in the Kapuas drainage of West Kalimantan.

The Iban of the Engkari rely on trade goods for clothing, long-distance transportation, lighting, hunting and fishing equipment, bedding and many luxury goods. They do not buy foodstuffs other than salt for everyday consumption. Foods bought include sugar, coffee, tea, biscuits, "orange squash", and perhaps some vegetable oil for use only in times of celebration or to honor important guests. Rice is bought solely when the harvest fails; every year's fields are made big enough so that, with luck, there will be no need for purchased rice; vegetables, fish and other items normally eaten with rice are never bought.

This pattern of rather minimal market consumption is largely the same in the communities in the Ensebang, Kemena (Bintulu) and Baleh (in 1950) drainages, with the possibility that Kemena area Iban regularly bought a little more in the market. This pattern would not, however, be considered the norm in all or even most Iban areas, particularly among Iban settled in the lower reaches of major rivers and near market towns. Urban and some cash-cropping Iban in the lower Rejang basin (see Sutlive 1978), the Saribas, Undup and lower Batang Lupar areas of the Second Division, as well as

some downriver parts of the Fourth Division (especially the residents of government development schemes near Miri) rely substantially, if not totally, on the market for their daily rice as well as for all the animal and vegetable foods eaten with rice.

Purchases of almost all non-local items are made from Chinese shopowners in market towns, or occasionally from traders who travel the rivers, stopping at upriver longhouses. In a very few areas, Malay and Iban run the shops where necessities and luxuries can be purchased. Inter-longhouse trade however is very rare and intra-longhouse rarer still. Occasionally Iban will sell rice to each other, when one household has a definite surplus and another a deficit (see Freeman 1970:272). However, in the Engkari and the Ensebang while I was there, surpluses of rice were not obtained. Occasionally, though again rarely, Iban in areas like the lower Engkari where old forest is scarce will buy products made of forest materials from their upriver neighbors who are richer in forest. I witnessed several sales of large rotan mats and of dugout canoes. These items are usually bought with cash, although in one observed case shotgun shells were the preferred medium of payment.

It is the variations in the methods by which the cash or other valuables exchanged for consumer goods and services are acquired, and the broader implications of those variations which will be the subject of the rest of this chapter.

The very earliest resident of the Batang Lupar above the town of Lubok Antu, Patih Ambau (who may also have led a migration into the Engkari, see Chapter 2) is mentioned by Benedict Sandin (1967a:7) as having relations with Malay traders. No mention is made, however, of the goods exchanged. Pringle suggests that the principal commodities traded by Malay and the early Iban residents of the territory of Sarawak were salted fish for Iban rice (1970:63). Whether the upriver areas of the Second Division, such as the Engkari River, ever produced significant surpluses of rice is uncertain, but if the Baleh country in favorable years produces considerable stores of rice above the normal Iban consumption (see Freeman 1970:254–55) there is no reason why in the early decades of settlement the topographically and pedologically similar Engkari area did not. Many “pioneering” Iban areas still quite regularly produce surplus rice harvests; among these, according to informants’ reports, are parts of the Kemena basin and the settlement at Sungai Pelai.

At what point in the history of the occupation of the Engkari valley the production of surpluses of rice ended – if indeed any were ever produced and marketed – is unknown; but it is safe to say that income for the purchase of trade items has not come from the sales of Engkari rice since Brooke officers have reported from the Lubok Antu area, or for at least a century.



As it is uncertain when the sales of surplus rice may have ended in the Engkari region, so also it is impossible to say when the collection and sale of wild "jungle produce" became important. Trade in some of the items subsumed under the term is believed to have occurred between Borneo and China and India as early as the 10th and 11th centuries (Harrison and O'Connor 1970:161–62). At what time Iban became active collectors, tappers and sellers of camphor, resin, wild rubber and gum and rattan is unknown. However, through all of the period of Brooke rule, jungle collecting was an Iban activity (Low 1848:42–47) and up to 1910 "jungle produce" made up a full third of Sarawak's exports (Pringle 1970:267n).

I have discussed journeying or *bejalai* as a factor strongly affecting Engkari demographic structure in Chapter 5 and have mentioned that prior to the Japanese occupation of Sarawak the productive activity most often engaged in by men on *bejalai* was jungle produce collecting. Post-World War II *bejalai* destinations have tended to include military and police work in West Malaysia and more recently 4th Division or Brunei oilfields, timber camps in Sabah or in the Indonesian province of East Kalimantan. In the period since about 1930 wage labor has almost completely replaced independent collecting as an activity of men on journeys. The change is due principally to a decline in the market for the "jungle produce" items; they have been replaced by cultivated products such as plantation rubber as well as by synthetic materials such as plastics. Rattan and damar are still sold to upriver shops but the volume of trade in these commodities now is quite small.

It was mentioned in Chapter 5 that "jungle produce" is found and collected in old forest, and therefore pioneering Iban can obtain these products close to their homes, while those in older settlements must travel to other districts. When the demand for minor forest products declined and men of the Second Division turned to wage labor as a *bejalai* activity, it might have been predicted that their pioneering counterparts, also deprived of a source of cash, would have joined them in large numbers in traveling to timber camps and other areas where wage labor was available. In fact, as the data given in Chapter 5, Table 6 indicate, at least in the pioneering area of the Kemena (Bintulu) basin, Iban men do not travel for periods as long as, nor in numbers as great as, the men of the Engkari River.

Male residents of the Bintulu region can stay home in part because of their households' lesser need for cash to buy rice in times of crop failure; as was discussed in Chapter 4, Bintulu harvests fail far less frequently than do harvests on the Engkari. Rice yields in the Bintulu area, especially in communities with considerable acreage of swamp land, are quite often abundant enough to allow the sale of considerable amounts of *padi*. Some income to buy market necessities and luxuries is obtained in this way.

Perhaps more important in most years as a cash source, however, is the collection and sale of one jungle product, the demand for which has

expanded, rather than declined. This marketable product is wood and wood products, particularly roof shingles and posts of Borneo ironwood or *belian* (Iban: *tebelian*; *Eusideroxylon zwageri*). While the bulk of Sarawak's export timber trade is in swamp species, *belian*, a dry land tree and one of the strongest, most durable and densest timbers known, is important in internal trade and is always in considerable demand. Especially valuable for its ability to withstand both climatic deterioration and insect attack, *belian* is the preferred building material and is particularly desired for the posts used to support black pepper vines. As the pepper growing industry has expanded in recent years, the demand for posts which can be cut from even small trees has been great and prices paid for it quite high. The cutting of *belian* and manufacture of small, easily transported items such as shingles and posts is a source of cash for other Bornean groups situated at the edge of unexploited forest, among these are some Ngadju Dayak communities of Central Kalimantan (Miles 1977).

At the longhouse at Nanga Engkasu, on the Kemena River upriver from the town of Bintulu, 17 of the 27 component households derived most of their cash income from the working of *belian* found in the longhouses' territory or *menoa*. Houses lower on the Kemena, with more swamp land, may in many years count *padi* sales more important than *belian*; but rice surpluses are less predictable than *belian* cutting and sale.

Men at Nanga Engkasu reported that a full day's work at *belian* cutting usually earned them M\$10, and many of them had sold M\$300 worth of *belian* in the year prior to my interviews; all stated that if it were necessary they could have cut more wood and earned more money (up to ten times as much, one man alleged).

Timber cutting also provides an income for some Iban men around Nanga Engkasu in the form of wages in a local sawmill. The M\$8 daily wage at the mill compares unfavorably with working *belian* oneself, but some young men do choose to work there.

It is evident that in large measure the cutting of hardwoods found only in old forest, whether independently or for a sawmill, has replaced the collection of resins, gums, rubbers and rattan as an income source. Trade in *belian*, like trade in jungle produce, has allowed the men of pioneering communities to obtain the cash income they require for the purchase of imported necessities and luxuries without traveling far from their homes. Men of long settled areas where old forest, the source of both "jungle produce" and valuable hardwoods has long vanished, must, on the other hand, still travel far to timber camps as they once did to sources of minor forest products.

The preceding discussion, concerning the former importance of minor jungle produce collecting and its replacement as an income-producing activity with hardwood cutting would be misleading if it suggested that

*bejalai* and *belian* working and the occasional selling of surplus *padi* were the only income sources of upriver Iban. The production of crops specifically planted for sale has yet to be discussed.

Earlier in this chapter it was mentioned that some Iban produce little or none of the rice they consume, relying on a cash income to buy market food. Many of such Iban longhouses are engaged in the cultivation of plantation rubber (*Hevea brasiliensis*) or of black pepper (*Piper nigrum*). Among the earliest and most successful of Iban cash croppers were residents of the Saribas basin in the Second Division. Planting extensive rubber gardens soon after the turn of the century, Saribas Iban commonly used local Malay and Iban from the Lubok Antu area as wage laborers or share-tappers (Pringle 1970:205, *Sarawak Gazette* 67, 1 Feb. 1937, p. 42). Today some Iban continue to earn substantial income from the sale of rubber sheets as well as through pepper cultivation and sale (Sutlive 1978). One Iban informant living not far from the market at Batu Lintang along the upper Undup River, stated in 1975 that he had not planted any *padi* for the previous five years; he found pepper farming far more profitable.

The communities in the several research areas, as well as in many other upriver districts, have not become as completely tied to cash cropping as the groups mentioned above, although almost every longhouse in the studied households, except the new immigrants at Sungai Pelai, possessed some acreage under a cash crop. Along the lower Engkari, virtually every household has at least a small grove of mature rubber trees: only a few have planted pepper vines and fewer still, only five households at Nanga Jela, have actually marketed the fruit. Along the Kemena, the situation is somewhat the same, although Iban-planted rubber is probably less abundant than it is along the Engkari and pepper is in most places just being planted. In Freeman's time almost all residents of Rumah Nyala in the Baleh basin had planted rubber, but pepper had made no inroads. At the settlement in the Balai Ringin Protected Forest, the older residents had planted and some had sold pepper; the new immigrants were planting pepper gardens; no one had any rubber.

Crops other than rubber and pepper have at times been planted by Iban, among them coffee (*Sarawak Gazette* 314, 1 Mar. 1892, p. 51) and cacao (*Sarawak Gazette* 362, 2 Mar. 1896, p. 41). But rubber and pepper are by far the most important at present. The reasons that these two very different crops are so widely grown are several. Rubber demands little cultivation, can be tapped whenever convenient, is easily stored and transported and has at times commanded a high price. The advantages of pepper, which requires considerable labor, are its usual high price for rather small weight and bulk, an important quality particularly in areas where transportation is very difficult. Peppercorns, once dried, can also be stored.

A third cash crop which is at times very important to upriver Iban is the

illipe nut (*engkabang*). The fruit of *Shorea spp.*, it contains an oil which has long been used as a food by Iban and was being shipped from Sarawak before 1850 to England for use as a lubricant for machinery and to Manila for candlemaking (Low 1848:46–47). The oil is still exported for many uses and when the *engkabang* trees fruit heavily, Iban households can each earn several hundred dollars by their sale. The harvests, however, occur very erratically; six years is considered the usual interval between fruiting seasons. Occasionally *engkabang* harvest times conflict with the *padi* harvest and if the trees are located far from the rice fields, the illipe nut crop is sacrificed. *Engkabang*, when it fruits, is an important cash source in each of the research areas. However in the more recently settled regions, most of the available trees are spontaneously occurring ones, while in the older areas most have been planted. Neither type is cultivated or tended in any way. Other fruit trees are also planted, but the fruits are rarely, if ever, marketed by residents of the longhouse communities studied. Perishability of other fruits and the difficulty of reaching markets are probably the principal reasons for their not being offered for sale.

The comment made above concerning the difficulties some households experience when the harvests of *padi* and *engkabang* coincide and the crops are far away from each other, points to a problem which has doubtless contributed to the relatively small size of land and time investments by the groups studied, in cash crop production. The shifting cultivation of hill rice requires, if great inconvenience and time loss in travel are to be avoided, occasional changes in residence, whether the actual moving of a longhouse or the building of subsidiary houses (*dampa*) to last for two or three years. Shifting from one part of the longhouse's territory to another often precludes the regular tapping of rubber trees during any busy agricultural season (Sutlive 1978:128). In fact from October 1974 to June 1975 almost half of the households at Nanga Jela – 18 of 38 – did not tap any rubber trees, although all had some available. All of those who did not tap cited the distance from the temporary farm house to the rubber garden and the unavailability of the members to tap, as the reasons for their inactivity. The other reason for a frequent lack of interest among Iban in tapping rubber is its fluctuating market price; from February to November 1974, the price of rubber fell by two-thirds. The depressed rubber value in early 1975 made it very difficult to earn M\$5 a day even if the weather was favorable for tapping. Had the price of rubber been higher, more rubber tapping would probably have occurred. Freeman records the effects of the great rise in rubber prices following the Japanese withdrawal; *bejalai* journeys were forgone in the Baleh and in some areas rice planting was temporarily abandoned in favor of the more lucrative activity of rubber tapping (1970:270).

Since rubber trees, even if only occasionally cared for and rarely tapped

will continue to be productive, upriver Iban have often treated their rubber gardens as a cash store or “bank”, to be tapped only when there is a pressing need or when they receive information that the price is exceptionally high. Such a pattern of only occasional tapping was also noted among communities of Land Dayak or Bidayuh by Geddes (1954:95) and has been decried by developers.

Pepper, which demands hoeing and weeding and occasional fertilizing, cannot be ignored for years as rubber can. It also fruits at particular times and although the dried berries can be stored, pepper vines cannot be treated as a passive store of cash. In the areas intensively studied its cultivation was only beginning. The effects of this crop on residence and cropping-fallow patterns in rice cultivation in areas like the Engkari are yet to be determined. Some of the environmental effects of the intensive cropping of pepper were already seen around Nanga Jela. The hoeing and clean weeding which the crop demands, combined with its planting on steep, inadequately terraced slopes, has caused extreme soil erosion and gulying in some areas. The sheet erosion observed is in places far more severe than any produced by the shifting-cultivation practices long condemned by agricultural experts.

In spite of the availability for a long time of rubber and more recently of pepper, cash cropping has failed to replace wage labor and forest product exploitation as a source of cash. In the case of *bejalai*, many observers of Iban would surely suggest that the continued interest in wage labor migration is due to the fact that journeying is primarily not an economically motivated pattern but rather an adventure, a replacement for headhunting forays, a manifestation of the “wandering instinct” (Lee 1970:87) of young Iban males. A Brooke resident of the Second Division complained in 1929 that “the Dyaks somehow will not take up the cultivation of rubber and depend on obtaining coolie work in Johore or Miri. They are a most restless tribe” (*Sarawak Gazette* 59, 1 June 1929, p.100), and a missionary, describing the motivations for *bejalai*, apparently found them to be much the same as those spurring modern tourism:

The Dyak is fond of travel, and, like other people loves to visit foreign countries and to return and relate his adventures to his stay-at-home friends (Gomes 1911:233).

That many Iban men like to travel is undeniable, as is the fact that in areas like the Engkari a *bejalai* trip is considered a mark of manhood. However, as the data in Chapter 5, Table 14 show, *bejalai* is not an activity necessarily undertaken by all Iban men, and the length and number of journeys made by Iban vary very widely. The economic function of *bejalai* is made clear not only by the Bintulu situation, where an alternate source of income – *belian*-cutting – makes *bejalai* unnecessary and only rarely undertaken, but also by data from the Baleh region. When rubber prices rose very high, *bejalai* plans were abandoned for tapping rubber (Freeman 1970:270).

The money that can be and occasionally is earned on *bejalai* is considerable: particularly lucrative is some work in timber camps. Wages are paid according to the number of trees cut or hauled, and if the weather is good and the equipment functions well, tree cutters and drivers of loghauling equipment can earn over M\$1,000 in a month; inexperienced workers employed at the relatively easy jobs of lopping off branches and debarking logs can earn M\$400 a month.

The wages earned on *bejalai* as well as those earned in cutting *belian* were considered by the Iban interviewed to be better than the very variable and in 1975 quite low income to be derived from tapping one's own rubber trees. Compounding this factor were the facts that rubber, pepper and other cash crops take up *padi* land, are incompatible with the occasional moves necessitated by *padi* farming techniques, and that the adventure of travel and/or the manly task of cutting trees are preferred particularly by the young men. All the above reasons make cash cropping relatively undesirable and still little developed in the upriver areas where the research was done.

While traveling to timber camps or wandering through virgin forests in search of jungle produce may be desirable to Iban youths and men in search of cash, these Iban temporary migrations have long been condemned by Brooke, British and Malaysian officials (see *Sarawak Gazette* 67, 1 Feb. 1937, p. 42; *Sarawak Gazette* 76, 11 Dec. 1950, p. 310; Lee 1970:87). It was feared that labor migrants, particularly in early post-headhunting days, might engage in some illegal activities, but more often the objection to *bejalai* was that upriver areas were left short of manpower, a situation which was thought to negatively affect agricultural production. In areas where primary forest is being cut, a shortage of adult men might indeed be a problem, as the cutting of giant hardwoods cannot be done by women or adolescents, but in the older settled areas, which are actually the source of most Iban labor migrants, an extra strong arm is usually not necessary. The fact that wage labor migration temporarily removes an additional consumer of local rice grown on the local scarce land may be a far more important and beneficial effect of the practice. Because of *bejalai*, the effective consumer population of areas such as the Engkari is often about 10% lower than the census indicates. And while not consuming the fruits of the land, many of the absent men send or bring home cash earned far beyond the longhouse territory. These inputs from outside also help maintain the longhouse population, particularly during hard times, at levels higher than might otherwise be supportable in the old areas.

In summary, the age old need or desire of upriver Iban to trade for a few market products, as well as for rice in bad harvest years, has in the past and present been financed by several different types of activities. In pioneering zones the sale of rice surpluses as well as of spontaneously occurring jungle products have been common income producers. Each of these activities

presents little need to travel long distances or leave the longhouse for extended periods. Longer settlement and increasing agricultural use of land lead to both a drop in farm productivity and exhaustion of nearby forest product sources, and make traveling to areas of abundant old forest and/or wage labor opportunities more profitable. Cash cropping, for several reasons discussed above, has not successfully substituted for forest exploitation and wage labor migration in hilly upriver areas. The demographic concomitants and effects of differing rates of wage labor migration which may have been of great importance in determining emigration rates in certain areas were discussed more fully in Chapter 5.

## CHAPTER 7

### SUMMARY AND CONCLUSIONS

In the concluding pages of *Iban Agriculture*, Derek Freeman prophesied that if and when Baleh Iban were constrained by the government from continuing their traditional patterns of migration and expansion, environmental degradation even greater than that which he had observed in the Baleh basin, indeed devastation of the land, would result (1955:137). As Freeman considered the shifting cultivators of the area "addicted" to their wasteful methods, he suggested that only through considerable education, together with changes of settlement patterns, and presumably with some coercion, would government authorities succeed in persuading the Iban to give up their wasteful ways, and to learn to live within a limited resource supply.

In this monograph I have argued that, while Freeman wondered about and almost despaired of finding ways to "stabilize" Baleh Iban shifting cultivation, across the watershed, in the upper Batang Lupar drainage basin, the shifting cultivators of areas like the Engkari River valley had come close to realizing that goal. Although not totally stabilized or in balance with their environment (as probably few shifting cultivators have ever been), the Iban of long-settled upland areas had, in the face of increasing difficulty in emigrating, adopted some apparently effective "alternatives" to a pattern of constant expansion.

These alternatives to migration I identified by comparing resource use and other practices prevalent in a number of contemporary Iban communities which differed most importantly in the length of time each had remained in its present location, in the presence or absence of unclaimed, previously unfarmed lands in the territory each occupied, and in the rates of emigration or expansion each community was experiencing. The differences found in behavioral patterns between the communities were therefore considered indicative of how these variables tend to change as the time an area has been settled increases and as migration opportunities decline. These changes, summarized in Table 15, constitute alternatives to migration for long-settled Iban groups.

I have avoided designating in the preceding discussion any of the above factors as more important than any others in allowing the Iban populations of long-settled areas to maintain themselves while sending out few



*Table 15.*

Variable	Change
Land use	Cropping periods shorter More conservative fallowing practices
Labor	Generally higher total input, with higher seasonal peaks Lower labor efficiency per crop and per area
Fertility rates	Decline from high moderate to low moderate
Population growth rates	Decline from high moderate to low moderate
Land tenure	More borrowing
Temporary wage labor migration	More frequent, longer journeys

permanent emigrants. Not only did I find it impossible to determine such priorities for any specific area at any particular time, but I also believe that the relative importance or effectiveness of these factors has fluctuated considerably throughout recent Iban history, and continues to change. Any fixed ranking of factors by importance would therefore be of little value. It is rather the large number of these factors, and the general flexibility of Iban resource use patterns that I wish to emphasize.

I also do not suggest that there are any rigid temporal priorities in the operation of these factors. Although I have in the previous chapters stated that the lower fertility rates and hence the slower population growth rates in the older Iban areas appear to be primarily dependent on the frequent participation of the men of these communities in temporary wage labor migrations, I have also noted that the Iban have long known techniques by which fertility can be quite directly controlled. That the number of children could have at other times been more frequently limited by abortion and infanticide, rather than by abstinence due to male absence, is certainly possible. Participation in wage labor migration, therefore, need not necessarily precede effective population limitation.

In previous works written about the Iban there is an apparent contradiction which this monograph may help resolve. On the one hand, the flexibility and resilience (Leach 1950:26), opportunism (Sutlive 1978:111) and changeability (Pringle 1970) of individual Iban and Iban groups have been emphasized; on the other, their attachment to prodigal forms of land use (Freeman 1955:137) and to constant migration (Morgan 1968:144) have been termed addictions, and the Iban's ability to change has been questioned. The data I have presented point to the fact that even in their notorious farming practices and movement patterns the Iban can indeed

respond effectively to differing conditions by varying their behavior in appropriate ways. When migration is no longer easily accomplished, the Iban manage to find alternatives to it. More broadly, this monograph serves to show that dynamism and flexibility, rather than changeless equilibrium, can be characteristic of patterns of resource use among “traditional” shifting cultivators.

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