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Primitive Money¹

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In a subject where there is no agreed procedure for knocking out errors, doctrines have a long life.

Joan Robinson

PRIMITIVE money is a complicated subject for several reasons. There is not in common use a set of analytical categories designed to reveal distinguishing characteristics of markedly different systems: economies without markets and machines still tend to be viewed through the theoretical spectacles designed for Western economy (Arensberg 1957:99). Second, francs, sterling, and dollars are only the most recent of a long series of foreign monies introduced into primitive economies. Earlier, Arabs, Portuguese, Dutch, English, and others introduced cowrie, manillas, beads, etc., with varying permeation and varying disruption of indigenous monetary systems. Only rarely do anthropologists succeed in disentangling the foreign from the indigenous in a way which reveals the nature of the old money and the consequences of the new.

Moreover, if one asks what is "primitive" about a particular money, one may come away with two answers: the money-stuff—woodpecker scalps, sea shells, goats, dog teeth—is primitive (i.e., different from our own); and the *uses* to which the money-stuff is sometimes put—mortuary payments, blood-wealth, bridewealth—are primitive (i.e., different from our own).

Primitive money performs some of the functions of our own money, but rarely all; the conditions under which supplies are forthcoming are usually different; primitive money is used in some ways ours is not; our money is impersonal and commercial, while primitive money frequently has pedigree and personality, sacred uses, or moral and emotional connotations. Our governmental authorities control the quantity of money, but rarely is this so in primitive economies.

Failure to understand the reasons for such differences leads to disputes about bridewealth versus brideprice, to arguments about whether cows, pig tusks, and potlatch coppers are "really" money, to the assumption that modern coinage merely "replaces" indigenous forms of money, and to disagreement of authorities over minimal definitions of money. In these disputes the characteristics of American or European money are too often used as a model.

Some of the most respected comparisons between primitive and Western money fail to go deeply enough into comparative economic and social structure. Even Malinowski and Firth do not explain that it is nationally-integrated market organization which accounts for those Western monetary traits they use as a model of "real" money: "The tokens of wealth [*vaygua*: ceremonial axe blades, necklaces of red shell discs, and arm bracelets of shells] have often been

called 'money.' It is at first sight evident that 'money' in our sense cannot exist among the Trobrianders. . . . Any article which can be classed as 'money' or 'currency' must fulfill certain essential conditions; it must function as a medium of exchange and as a common measure of value, it must be the instrument of condensing wealth, the means by which value can be accumulated. Money also, as a rule, serves as the standard of deferred payments. . . . we cannot think of *vaygua* in terms of 'money' " (Malinowski 1921:13-14).

Firth registers his agreement: "But according to precise terminology, such objects [strings of shell discs] can hardly be correctly described as currency or money. In any economic system, however primitive, an article can only be regarded as true money when it acts as a definite and common medium of exchange, as a convenient stepping stone in obtaining one type of goods for another. Moreover in so doing it serves as a measure of values. . . . Again, it is a standard of value . . . " (Firth 1929:881).

Malinowski and Firth use the bundle of attributes money has in Western market economy to comprise a model of *true* money. They then judge whether or not money-like stuff in primitive economies is really money by how closely the uses of the primitive stuff resemble our own—a strange procedure for anthropologists who would never use the bundle of attributes of the Western family, religion, or political organization in such a way. Quoting from Lienhardt—" . . . most anthropologists have ceased to take their bearings in the study of religion from any religion practiced in their own society" (1956:310). And Gluckman and Cunnison write, concerning political organizations: "One important discovery made in . . . [*African Political Systems*] was that the institutions through which a society organized politically need not necessarily look like the kinds of political institutions with which we have long been familiar in the Western world, and in the great nations of Asia" (1962:vi).

Dollars have that set of uses called medium of exchange, means of payment, standard of value, etc., precisely because our economy is commercially organized. Where economies are organized differently, non-commercial uses of monetary objects become important, and "money" takes on different characteristics. The question is not—as it is conventionally put—are shells, woodpecker scalps, cattle, goats, dog teeth, or *kula* valuables "really" "money?" It is, rather, how are the similarities and the differences between such items and dollars related to similarities and differences in socio-economic structure?

We shall show below the connections between Western money and economy, then go on to make some points about primitive money and economy, and finally will examine the case of Rossel Island money in detail.

CAPITALISM: MARKET INTEGRATION DETERMINES ALL MONEY USES

In the economies for which the English monetary vocabulary was created, there is one dominant transactional mode, market exchange, to which *all* money uses relate. By contrast, in many primitive economies before Western incursion, market exchange transactions are either absent (as with Nuer) or peripheral (as in the Trobriands), but non-commercial uses of money do exist.

Seeing non-commercial uses of money through the blinders of commercial money causes difficulty in understanding primitive monies. We must first be made aware of the blinders.

U. S. dollars may be called general purpose money (Polanyi 1957a; 1957b). They are a single monetary instrument to perform all the money uses. Moreover, the same dollars enter modes of transaction to be called redistribution and reciprocity, as enter into market exchange. These features of U. S. money are consequences of economy-wide market integration and require explanation in an anthropological context.

That U. S. economy is integrated by market exchange is explained by the wide range of natural resources, labor, goods, and services transacted by purchase and sale at market-determined prices, and by the extent to which people in our national economy depend for livelihood on wage, profit, interest, and rental income got from market sale. Natural resources and capital goods (land, labor, machines and buildings of all varieties), consumption goods (food, automobiles), personal and impersonal services (dentistry, electricity), are all purchasable "on the market." Goods and services which are ceremonial and religious, or which serve as prestige indicators, are purchasable in the same way and with the same money as subsistence goods. In market-integrated economy very different items and services are directly comparable, because all are available at prices stated in the same money. The subject of price determination of products and resources under varying conditions of supply and demand (price and distribution theory) is an important field of economics because market exchange is our dominant transactional mode.²

Commercial Uses of Money in a Market-Integrated National Economy

Except for economic historians, most economists and all economic theory were (until recently) concerned exclusively with European and American types of economy. Economists do not find it necessary to distinguish among the transactional modes of market exchange, reciprocity, and redistribution, because market exchange is so overwhelmingly important. For the same reason economists do not find it necessary to describe at length the different uses of money in our own economy: with only a few exceptions they all express market exchange transactions.

To make this point clear I will attach to each of the money uses an adjective describing the transactional mode, thereby pointing up how they all serve commercial transactions: medium of (commercial) exchange; means of (commercial) payment; unit of (commercial) account; standard for deferred (commercial) payment.

The medium of (commercial) exchange function of money in our economy is its dominant function, and all other commercial uses of money are dependently linked—derived from—the use of dollars as media of (commercial) exchange. For example, dollars are also used as a means of (commercial) payment of debt *arising from* market transactions. It is purchase and sale of resources, goods, and services which *create* the money functions of means of (commercial) pay-

ment and standard for deferred (commercial) payment.³ All the commercial uses of money are consequences of market integration, simply reflecting the highly organized credit and accounting arrangements that facilitate market purchases. This is why economists in writing about our economy need not attach the qualifier "commercial" to the money uses. Indeed, we in our market-integrated national economy sometimes regard the terms "money" and "medium of exchange" as interchangeable. But for primitive communities where market transactions are absent or infrequent, it would be distorting to identify money with medium of (commercial) exchange, as Einzig warns us: "Since, however, money has also other functions and since in many instances [of money used in primitive economies] those functions are more important than that of the medium of exchange, it seems to be unjustified to use the term as a mere synonym for 'medium of exchange' " (1948:321).

Non-Commercial Uses of Money

Dollars are also used as a means of non-commercial payment: traffic fines paid to local government and taxes to all levels of government. A structural characteristic of Western economy is that redistributive transactions—obligatory payments to political authority which uses the receipts to provide community services—are made with the same money used as medium of (commercial) exchange in private transactions. The consequences are important and far-reaching.

In all societies having specialized political authority, there must be some institutionalized arrangement for the governing authorities to acquire goods and services for their own maintenance and to provide social services (defense, justice) to the community. In this sense, we may regard the redistributive function (acquiring and disbursing such goods and services) as an "economic" component of political organization. Exactly how the arrangements vary for political authority to acquire and disburse goods and services is one way of differentiating between the organization of Soviet, American, and (say) Bantu economies.

In U. S. economy the government makes use of the market in the process of redistribution: medium of (commercial) exchange money earned as private income is used by households and firms as means of (redistributive) payment of politically incurred obligation (taxes). The government then buys on the market the services and products it requires—civil servants, guns, roads—to provide community services.

In our system, the same can be said for another mode of transaction, reciprocity, or gift-giving between kin and friends. The same money serves the different transactional modes: in purchasing a gift, the money paid is used as medium of (commercial) exchange; giving the gift is part of a reciprocal transaction (a material or service transfer induced by social obligation between the gift partners). If cash is given as a gift, it is means of (reciprocal) payment of the social obligation discharged by the gift-giving.

Here is yet another reason why economists in dealing with our own econ-

omy need not distinguish among transactional modes: redistribution and reciprocity make use of market exchange and make use of the same money used in market exchange. In Western economy, therefore, tax and gift transactions appear as simple variations from the private market norm—special types of expenditure or outlay—which present no theoretical difficulties.

American reliance upon market sale for livelihood and upon the price mechanism for allocating resources to production lines does the following: it makes the medium of (commercial) exchange use of money its dominant attribute, it makes other money uses serve market transactions, and it confers that peculiar *bundle* of traits on our general purpose money which mark off dollars from non-monetary objects. It is our market integration which makes it necessary to institutionalize all uses of money in the same money instrument. As with Malinowski and Firth, we thereby come to think of “money-ness” as this *set* of uses conferred on the single monetary object. And because ours is a market economy, we come to think of medium of (commercial) exchange as the single most important attribute of “money-ness.”

Limited-Purpose Monies

In primitive economies—i.e., small-scale economies not integrated by market exchange—different uses of money may be institutionalized separately in different monetary objects to carry out reciprocal and redistributive transactions. These money objects used in non-commercial ways are usually distinct from any that enter market place transactions. And the items which perform non-commercial money uses need not be full-time money, so to speak; they have uses and characteristics apart from their ability to serve as a special kind of money.

In U. S. economy, objects such as jewelry, stocks, and bonds are not thought of as money because (like cattle among the Bantu) these come into existence for reasons other than their “money-ness.” Each is capable of one or two money uses, but not the full range which distinguishes dollars, and particularly not the medium of (commercial) exchange use of dollars. It is worth examining these because, we shall argue, primitive monies used in reciprocal and redistributive transactions are the counterparts of these limited or special purpose monies, and not of dollars as media of (commercial) exchange; they resemble dollars only in non-commercial uses (paying taxes and fines, and gift-giving).

Dollars serve as a store of (commercial and non-commercial) value because dollars can be held idle for future use. But this is true also for jewelry, stocks and bonds, and other marketable assets. However, in U. S. economy jewelry is not a medium of (commercial) exchange because one cannot spend it directly, and it is not a means of (commercial or non-commercial) payment because it is not acceptable in payment of debt or taxes.⁴

As a measuring device (rather than as tangible objects) dollars are used as unit of account and standard for deferred payment of debts. Now consider the

accounting and payment procedures used by a baby-sitting cooperative in which a number of households club together to draw on each other for hours of baby-sitting time. Family A uses four hours of sitting time supplied by family B. Family A thereby incurs a debt of four hours it owes the co-op; family B acquires a credit of four hours that it may draw upon in future from some member of the co-op. Here, baby-sitting labor time is a unit of (reciprocal) account and a standard for deferred (reciprocal) payments—a limited purpose money in the sense that it performs two of the subsidiary uses of dollars. Other examples (trading stamps, blood banks) could be given. The point is that even where dollars perform all the money uses for all modes of transaction, there are situations in which a limited range of money uses are performed by objects not thought of as money. These limited purpose monies become important in small-scale communities without market integration and, therefore, without a general purpose money.

Control over the Quantity of Money; Absence of Status Requisites

In national market economies, governments deliberately control the quantity of general purpose money because dollars (francs, sterling) carry out market sales which the populace depends on for livelihood. Roughly speaking, if the authorities allow too much money to come into use as medium of (market) purchase, the result is inflation. If the authorities allow too little money to come into use, the result is deflation and unemployment (a contraction in the rate of market purchasing below the full employment capacity rate of production). The need to deliberately vary the quantity of money is a direct result of economy-wide market integration.

It has often been noted (e.g., Herskovits 1952:238) that in primitive societies there is seldom any conscious control by political authority over money objects. Such is not merely a difference between primitive *monetary* systems and our own, but one that reflects differences between their *economic* systems and ours. In economies not integrated by market exchange, non-commercial monetary transactions are only occasional events (e.g., bloodwealth, bride-wealth), and non-commercial money is not usually connected with production and daily livelihood. That the non-commercial money-stuff may be fixed in quantity for all time (Yap stones), or increase in quantity only through natural growth (cows, pig tusks) does not affect production and daily livelihood (as would be the case with us if dollars were fixed in quantity).

What is also true of our market economy based on contract rather than status, is that having the money price is a sufficient condition for buying most goods. Not only is Western money anonymous, so to speak, but money users are also anonymous: the market sells to whoever has the purchase price and only rarely imposes status prerequisites on the use of money as medium of (commercial) exchange.⁵ In contrast, there usually are status prerequisites in non-commercial uses of primitive money. For example, in the use of cattle as means of (reciprocal) payment of bridewealth, status requisites such as lineage,

age, rank of the persons, must be complied with. The money users are not anonymous, and a special kind of limited purpose money is necessary to the transaction.

PRIMITIVE MONEY AND SOCIO-ECONOMIC ORGANIZATION

Einzig (1948:323) points out that: "The overwhelming importance of unilateral non-commercial payments in primitive life as compared with payments arising from [commercial] trade is altogether overlooked by practically all definitions [of primitive money]. It is assumed that money must be essentially commercial in character and that any object which serves the purposes of non-commercial payments may safely be disregarded even if its use is of first-rate importance in the economic, political, and social life of primitive communities."

When anthropologists employ Western monetary terms to describe uses of money-stuff in non-commercial transactions, a crucial misunderstanding may result: when cattle or seashells perform some money uses in ways unrelated to market purchase and sale, they are not media of (commercial) exchange, or means of (commercial) payment.

The uncritical use of our general purpose money as the model of true money obscures the point that special purpose monies used for non-commercial transactions express salient features of underlying socio-economic structure. When we consider money in communities not integrated by market exchange—the Nuer, the Trobriands, the Tiv—it becomes essential to distinguish among the several transactional modes and among the several money uses: *primitive money-stuff does not have that bundle of related uses which in our economy is conferred on dollars by market integration and by the use of dollars in both commercial and non-commercial transactions*. The differences between cattle-money or shell-money and dollars are traceable to the differences in the transactional modes which call forth money uses. When Malinowski says that *kula* valuables are different from Western currency, he is really pointing out that reciprocal gift-giving is different from market purchase and sale (1922). Indeed, anthropologists use Western monetary terms ambiguously whenever they fail to distinguish between the market and the non-commercial modes of transaction. Reining, for example, states: "There seems to have been little exchange among households although iron tools and spears made from locally smelted ore had a limited application as a medium of exchange, being used primarily for marriage payments" (1959:39).

If Western monetary terms are to be used by anthropologists in the meanings they convey for our own economy, the unqualified phrase "medium of exchange" must mean medium of market (or commercial) exchange. Since brides are not acquired through impersonal market transactions by random buyers and sellers, the iron tools are not used as media of (market) exchange, but as media of (reciprocal) exchange: as part of a non-commercial transaction in which a man acquires a bundle of rights in a woman and her children in return for iron tools and other indemnification payments to her kin.

It seems useful to regard the bridewealth items as special purpose “money” because the iron tools and spears—or in other societies, cows or goats—are the *required* items, and because they carry out money uses which do have counterparts in our own society. Whether one calls them special purpose monies or highly ranked treasure items necessary to the transaction for which one may not substitute other items only matters when the subject of money uses in primitive compared to Western economies is raised. Then we can show that cows and armbands of shells do perform some of the uses of dollars but in non-commercial situations. The goal is always to state the role of bridewealth or kula items, or other limited purpose money, from the viewpoint of the analyst concerned with comparative economy, but without distorting the folk-meaning of the items and the transactions they enter.

Money Uses in Primitive and Peasant Economies

Because money and money uses in market-dominated economies differ sharply from money in other economies it is useful to classify economies in accordance with the importance of market exchange transactions (Bohannon and Dalton 1962).

Underdeveloped Communities		
Primitive (or Subsistence) Economies		Peasant Economies
Type I	Type II	Type III
<i>Marketless</i>	<i>Peripheral Markets Only</i>	<i>Market-Dominated</i>
Sonjo	Trobriand Islanders	Malay Fishermen
Nuer	Tiv	Jamaica
Lele	Rossel Islanders	Haiti
Arnhemlanders		Kipsigis
Bemba		Cantel
Kwakiutl (1840)		Panajachel } Guatemala
		Kwakiutl (1890)

Type I: Marketless

In marketless communities, land and labor are not transacted by purchase and sale but are allocated as expressions of kinship right or tribal affiliation. There are no formal market-place sites where indigenously produced items are bought and sold. These are “subsistence” economies in the sense that livelihood does not depend on production for sale. The transactional modes to allocate resources and labor as well as produced items and services are reciprocity and redistribution (Polanyi 1944: Chapter 4; 1957 b; Dalton 1962). In marketless economies, then, transactions of labor, resources, material goods, and services are of non-commercial sorts—obligatory gifts to kin and friends, obligatory payments to chiefs and priests, bridewealth, bloodwealth, fees for entering secret societies, corvée labor, mortuary payments, etc.—which imme-

diately marks off as different from our own any money-stuff used. Items such as cattle, goats, spears, Yap stones, and pig tusks, take on roles as special purpose money in non-commercial transactions: they become means of (reciprocal or redistributive) payment, as is the case with bloodwealth and mortuary payments; or media of (reciprocal) exchange, as is the case with bridewealth.

Type II: Peripheral Markets Only

Everything said above about marketless economies holds true for those with only peripheral markets, with one exception: market-place sites exist in which a narrow range of produce is bought and sold, either with some money-stuff used as medium of (commercial) exchange, or via barter in the economist's sense (moneyless market exchange). We call these market exchanges "peripheral" because land and labor are not bought and sold and because most people do not get the bulk of their income from market sales. In such small-scale subsistence economies market-place prices do not function—as they do in our national economy—as an integrative mechanism to allocate resources to production lines: labor and land use do not respond to changes in the prices of products transacted in peripheral market places. Malinowski's *gimwali* are peripheral market transactions of an occasional sort without the formal trap-pings found in African market places.

Type III: Market-Dominated (Peasant) Economies

Small-scale market-dominated communities share with our own nationally integrated market economy the following features: (i) a large proportion of land and labor as well as goods and services are transacted by market purchase and sale; (ii) most people depend upon market sale of labor or products for livelihood; (iii) market prices integrate production. Labor and land move into and out of different production lines in response to profit (and other income) alternatives, as indicated by market prices. In such economies, the medium of (commercial) exchange function of money is the most important; the other commercial uses of money facilitate market transactions, and the same money is used for non-commercial transactions.

Peasant economies (Firth 1946), differ from primitive (subsistence) economies in that peasant producers depend upon production for sale. However, both peasant and primitive communities differ from large-scale, developed, nationally integrated Western economies on two counts: modern machine technology is largely absent, and traditional social organization and cultural practices are largely retained (Dalton 1964).⁶

ROSSEL ISLAND MONEY

Rossel Island money is famous in anthropological literature because it has for so long been a puzzler. Although it was reported at an early date, and by an economist (Armstrong 1924; 1928) who was in the field for only two months, re-analysis in the light of points made earlier in this paper allows a different interpretation of Rossel Island money and economy.

Armstrong's Theoretical Presentation

Armstrong asserts that Rossel Island money is a rough equivalent of our own (1924:429): that it is a medium of exchange used to purchase a wide range of goods and services, and that it is a standard of value for stating prices. He uses Western monetary and economic terms throughout to describe the Rossel system—medium of exchange, standard of value, buy, sell, price (1928:59).

The Rossel Islanders use two types of shell money, *ndap* and *nko*.⁷ Ndap money consists of individual shells (Armstrong calls them coins), each of which belongs to one of 22 named classes or denominations, which Armstrong ranks from 1–22, a higher numbered class indicating a higher valued shell.

Armstrong's numbering system for classes of ndap shell money (1928:62)	Number of individual ndap shells in each class
22	7
21	10
20	10
19	10
18	20
17	7
16	7
15	10
14	30
13	30–40
Total in classes 13–22≅146	

Armstrong could not determine the number of ndap shells in each class below 13, but he guesses there are fewer than 1,000 in all (1928:63), which would mean 800 or so in classes 1–12.

Armstrong's theoretical concern is with the value relationships among the ranked shells. He tells us that (as in Western economy) all goods and services on Rossel bear a money price stated as a piece (coin) of a specific class (1–22) of ndap, so that a big house costs a No. 20 ndap shell, and a pig a No. 18 (1928:88). But the shells are not quite like dollar bills numbered 1–22 with a No. 20 (say), bearing twice the value of a No. 10, or an item priced at No. 20 purchasable with two shells of No. 10 variety. In Armstrong's view it is merely an aberration due to custom, and, perhaps, to unsystematic thinking (1924:426) that the Rossel Islanders insist that something priced at No. 20 must be paid for with a No. 20 shell, rather than with lower denomination pieces adding up to 20. He sees this as an inefficiency in their system as compared to ours—in which all bills and coins are directly convertible into each other. He therefore shows that the Rossel system requires elaborate borrowing to allow a person who does not happen to own a piece of No. 20 money to acquire an item "priced" at 20, and argues that it is the borrowing system that reveals the value relationships among the ranked coins (1924:425 and 423). This is a

cumbersome equivalent of our own system—a model T, so to speak—which does the same job as our own media of exchange, but with more work and fuss because one cannot substitute two \$10 bills for something priced at \$20. Armstrong writes: “. . . the necessity for continual loans is largely the result of the peculiar nature of the system. The same ‘amount’ of money, where the values are simply related and ‘change’ can always be given, could perform the same amount of real service (i.e., effect the same number of purchases) with perhaps a tenth or less of the amount of lending necessitated by the Rossel system” (1928:65).

If one borrows a No. 12 for a short time, he will have to repay a No. 13; but for a longer time he will have to repay a No. 14, 15, etc. Therefore, he says, the value relationships among the denominations 1–22 conform roughly to compound interest, which shows the relationship of an initial sum lent to its repayment equivalent, depending upon the rate of interest and the time the initial sum is outstanding. Theoretically, a No. 1 shell is related to any other number, 2–22, by the length of time a No. 1 loan is outstanding before repayment must be made in any higher number (Armstrong 1928:63, 64).

Armstrong’s analytical interpretation may be summarized: *ndap* shell money functions like dollars in that it is a medium of exchange, standard of value, standard for deferred payments, etc. Debts are calculated and goods and services priced in shells of stated denomination. The peculiar (different from our own) feature of the system is that the shell denominations are not freely convertible into one another, which makes necessary frequent borrowing at interest to acquire the exact denomination shell needed for a given purchase.

Contradictory Evidence

There are two faults in Armstrong’s analysis from which stem the subsidiary difficulties in his interpretation of the Rossel monetary system.

(1) He assumes all *ndap* shells function as media of (commercial) exchange. He does not distinguish among modes of transaction (reciprocity, redistribution, market exchange), but regards all transactions as commercial purchases (1924:427); brides cost a No. 18 shell, just as baskets costs a No. 4 shell. He writes: “. . . any commodity or service may be more or less directly priced in terms of them [*ndap* shells]” [1928:59]. Armstrong never doubts that Rossel Island money is essentially like our own media of (commercial) exchange. One could sum up his ethnocentric theorizing in a syllogism: *ndap* shells are “money”; money is a commercial instrument; therefore Rossel Island is a market economy.

(2) This market preconception leads him to do what the Rossel Islanders do *not* do: to number the *ndap* classes 1–22. By so doing he can assume that convertibility via borrowing and repayment is practiced throughout the *entire* range, so that one could start by lending a No. 1 shell, and by continual loans at interest, wind up eventually with a No. 22 shell. For example, “Any [*ndap* shell] value can thus be regarded as any lower value plus compound interest for the number of time units equal to the number of values by which the two are

separated, so that No. 22, for example, is No. 1 plus compound interest for 21 units of time" (Armstrong 1928:64).

By ranking them 1–22 Armstrong implies that the differences between ndap shell classes are cardinal differences: that a No. 22 is 22 times more *valuable* than a No. 1, in the sense that a \$20 bill is 20 times more valuable than a \$1 bill. There are no such cardinal differences among ndap shells. To number them 1–22 is to give a false impression of similarity between ndap shell classes and Western money denominations and a false impression about the commensurability or the "purchasing power" relationship between lower and higher numbered ndap shells.

The characteristics of monetary transactions on Rossel that lead us to doubt Armstrong's interpretation may be set out with the following provisos kept in mind: Rossel Island economy is not integrated by market exchange; ndap shells (except for the lowest few classes) are not media of (commercial) exchange; and convertibility throughout the entire range could not be practiced.

There are (on the basis of Armstrong's own data) at least three groups of ndap shells, the shells in each group being necessary for a different range of transactions, and convertibility via borrowing and repayment being possible *within* the lowest two groups, but not *within* the highest group, and not between groups.

The shells Armstrong classes 1–8 or 9 are the only ones capable of increase in quantity (1924:424; 1928:60). The individual shells in each of these classes do not bear separate names, and some of them, at least, enter low echelon transactions, casual market exchange between individuals. In one of the rare descriptions of how shells below class No. 18 are actually used, Armstrong tells us that one may buy a basket, a lime stick, or a lime pot with a No. 4 shell (1928:85).⁸ However, the question, "what goods and services will *each* shell class 1, 2, 3, . . . 22 'buy,' or what transactions does each enter?" is not answered except for ndap shells Nos. 4, 18, 20, and 21. What is clear, however, is that shell classes 18–22 are used for a very special range of important transactions which mark them off sharply from lower echelon shells, and that shells below No. 18 are not convertible into shells 18–22 by borrowing and repayment. One cannot start with a No. 1 or 17, and by lending, work it up to a No. 18–22.

Armstrong writes: "Nos. 18–22 seem to be in a somewhat different position from the lower values and one would imagine that they are not related to each other and the lower values in the precise manner set out in generalized form above [i.e., according to the compound interest formula linking the entire series, 1–22]" (1928:68). Convertibility via borrowing and repaying a higher class shell most certainly breaks down between Nos. 17 and 18. I suspect but cannot so readily document from the data that it does so, between Nos. 10 and 11 as well. If such is the case, convertibility is possible among Nos. 1–10, and among Nos. 11–17, but not between the two sets, and not among Nos. 18–22. It is very clear that the entire series is not linked because the uses to which

shells 18-22 are put are of an entirely different order from the uses of lower shells. "As a matter of fact, a peculiarity enters as soon as we reach No. 18, which is not, as a rule [when borrowed] repaid by a coin of higher value" (Armstrong 1928:66).

Nos. 18-22 (of which there are fewer than 60 shells in all), are obviously treasure items like especially venerated kula bracelets and potlatch coppers, items with individual names and histories, which must be used to validate important social events and transactions in the same sense that bridewealth items validate a marriage. The folk-view toward these shells helps to explain their role as limited purpose money in reciprocal and redistributive transactions. "Nos. 18-22 are peculiar in one other respect. They have a certain sacred character. No. 18, as it passes from person to person, is handled with great apparent reverence, and a crouching attitude is maintained. Nos. 19 to 22 are proportionately more sacred, are almost always kept enclosed, and are not supposed to see the light of day, and particularly the sun . . . I am inclined to think that there may be a real gap [in sacredness and prestige] . . . between Nos. 17 and 18 . . . [No. 22 shells] are said to be inherited in the male line and to be owned by the most powerful chiefs on the island" (Armstrong 1928:68).

To have regarded Nos. 18-22 as especially valuable media of (commercial) exchange—high denomination bills—with which to buy especially high-priced merchandise, is the most telling error Armstrong makes. Nos. 18-22 cannot be acquired by any amount of lower class shells, and there is no way of gauging how many times more valuable a No. 18 is compared to a No. 6 because they enter entirely different transactions.

Without exception, Nos. 18-22 enter non-commercial transactions exclusively: they are used as means of (reciprocal or redistributive) payment or exchange in transactions induced by social obligation. Payments of a No. 18 are a necessary part of ordinary bridewealth, as well as necessary payment for shared wives, and for sponsoring a pig or dog feast, or a feast initiating the use of a special kind of canoe. No. 20 is a necessary indemnity payment to the relatives of a man ritually murdered and eaten, a transaction which is part of mortuary rites for the death of a chief (Armstrong 1928:67, 1924:428). Moreover, there is a connection between shells 18-22 and lineage affiliation which Armstrong notes but makes nothing of. ". . . Nos. 18 to 22 are regarded as property peculiar to chiefs, though continually lent by the latter to their subjects" (1928:66).

The implication throughout is that there exists (as with us) an impersonal money market in which anyone may borrow from anyone else at the going interest rate (1924:426). This is doubtful. Unfortunately, Armstrong is silent on the question, "who may borrow from whom, and with what penalties for failure to repay?"

As with special purpose money for non-commercial transactions elsewhere, there are status requisites involved in the acquisition and use of the high echelon shells on Rossel. Just as marriage is not a market purchase of a wife by anyone who acquires a No. 18 ndap, but rather a reciprocal transaction between

two lineage groups (the ndap payment being one of the several necessary conditions within the social situation), so too with pig feasts on Rossel. Only persons of correct status may sponsor the feast and pay the ndap shell. In this case Armstrong notes that social requisites determine who may use upper ndap shells; but he does not see this as a symptomatic difference between Rossel and Western money, i.e., between non-commercial means of (redistributive) payment, and our Western media of impersonal (commercial) exchange. What Armstrong says of pig feasts is equally true of marriage, and all the other *social events* which require payment of high echelon ndap shells:

There are . . . complex social factors determining who shall have a pig to sell, [sic] and who shall be in a position to buy, [sic] and the buying and selling is not a simple economic occurrence, but a much more significant and complex social occurrence. We must suppose a complexity of social facts, which I am not in a position to define, that determine most of the general relations of a particular pig feast. . . . A particular individual provides a particular *ndap*. . . . A certain readjustment of social relations thus results from the holding of the feast . . . though we abandon the view that the monetary operations at a feast of this nature are to be regarded merely as a collective buying from a collective seller, it still remains that this is a useful way of describing these operations (1928: 82, 83).

It is about as useful to describe a pig feast on Rossel as buying a pig with a No. 18 ndap as it is to describe marriage in America as buying a wife with a wedding ring. To describe the pig feast as a market purchase one must ignore the social requirements of the transaction and the folk-view of the event, both of which differentiate this redistributive transaction from market exchange. Armstrong is forced to use market terms, purchase and sale, to describe pig feasts and bridewealth, because he regards ndap shells as media of (commercial) exchange in a market system.

One bizarre feature of the Rossel system, that a transaction requires a single shell of a specifically named class, and neither a shell from a higher class nor several from lower classes would do, may be examined in the light of what has been said above. "A man may have to borrow, even though he has money of a higher value in his possession than he requires at the moment. He may have Nos. 11 and 13, but not No. 12 which he requires at the moment. He cannot get change as a rule, for No. 13 is not a simple product of any lower value" (Armstrong 1928:64-65).

The higher values have nothing to do with commercial purchase and sale. One could not use five petty shells, like No. 4 (which buys a pot), to perform a transaction such as bloodwealth (which requires that special treasure Armstrong numbers 20), for much the same reasons that in the Trobriands, one cannot "buy" a renowned kula valuable with the pots bought from hawkers in a gimwali.

One final point. In comparing primitive money with our own, it is important that the writer describe the frequency of different kinds of monetary transactions. Only so can one gauge what role, if any, the money item(s) play in the production system. Armstrong concerns himself with social and ritual events—marriage, death, redistributive feasts, fines—and says almost nothing about production, subsistence goods, natural resource and labor transactions,

and all the other ordinary concerns of money and pricing in our own economy. That he nevertheless asserts that Rossel money is much like our own, should make one wary. Einzig is properly suspicious: "It is a pity that there is not enough evidence to show to what extent, if at all, *ndap* and *nko* are used as a medium of exchange in everyday transactions, apart from the purchase [sic] of pigs" (Einzig 1948:75).

If all the *ndap* shell transactions which Armstrong describes were abolished, subsistence livelihood of Rossel Islanders would remain unimpaired. It is a pity he did not hit upon that distinction which is useful to analyze economies not integrated by market exchange. DuBois (1936:50) writes concerning this: "... I should like to make a distinction between subsistence and prestige economy. By subsistence economy is meant the exploitation of the . . . natural resources available to any industrious individual. By prestige economy on the other hand, is meant a series of social prerogatives and status values. They include a large range of phenomena from wives to formulae for supernatural compulsion."

The upper values of *ndap* shells (and probably the middle values as well—Armstrong is silent here) enter prestige spheres in non-commercial uses. From the Westerner's viewpoint these transactions are outside the production system and subsistence livelihood. Despite Armstrong's assertion to the contrary, there is no evidence that one could opt out of the social and ritual games (through which upper *ndap* shells are paid and received) by converting upper shells into land, labor, or products, except perhaps as occasional events in emergency situations (Bohannon and Dalton 1962).

*Rossel Island Money: A Case of Red Herrings*⁹

"The study of economics in simple communities should properly speaking be a job for economists. But so far few economists have tackled it, and most of the investigation has perforce been done by anthropologists" (Royal Anthropological Institute 1949:158).

All social scientists are either Sherlock or Mycroft Holmes. Anthropologists are Sherlock: they go to the scene, observe minutely, gather their threads of evidence from what they observe, and—like Sherlock—sometimes reach Paddington before reaching conclusions. Economic theorists are Mycroft: they do not go to the scene to observe minutely. They have no equivalent to field work because economists are not concerned with social organization or human behavior, but rather with the behavior of prices, income determinants, capital-output ratios, and other impersonal matters relating to the performance of nationally-integrated, industrialized, market economies (for which fieldwork is unnecessary). Institutional matters, personal roles, and the social implications of economic organization have long since been consigned to the limbo of sociology. Neither the problems of interest nor the methods of analysis are the same in economics and economic anthropology.

Armstrong is an economist who played at anthropology. His mistake was to bring Mycroft's tools to Sherlock's subject (and without realizing he was doing

so). The result—to mix my metaphors—was to create a sort of Piltdown Economic Man, Melanesians with monetary denominations which fit the formula for compound interest. Armstrong's pioneer work is not a hoax, but a red herring; and the lesson to be learned is not analytical—what primitive money is all about—but methodological: how not to do anthropology.

CONCLUSIONS

The distinctions spelled out in this paper may be used to answer questions of interest to economic anthropology, comparative economy, and economic development.

(1) Anthropologists do not hesitate to contrive special terms for special actions and institutions when to use terms from their own society would be misleading. They do not talk about *the* family, but about nuclear, extended, and matrilineal families. The same should be done with economic matters.

Those aspects of primitive economy which are unrelated to market exchange can only be understood by employing socio-economic terms: ceremonial-prestige and subsistence goods; reciprocity and redistribution; spheres and conversions; limited purpose money. Such terms contain a social dimension and so allow us to relate economic matters to social organization, and to express the folk-view toward the items, services, persons, and situations involved. The economist dealing with monetary transactions in Western economy need not concern himself with personal roles and social situations because of the peculiarly impersonal nature of market exchange. The anthropologist dealing with marketless transactions cannot ignore personal roles and social situations and still make sense of what transpires.

Kula armbands, potlatch coppers, cows, pig tusks, Yap stones, etc., are variously described as money of renown, treasure items, wealth, valuables, and heirlooms. Malinowski says kula valuables are regarded like crown jewels or sports trophies in Western societies. Writers on East Africa say that cows are regarded like revered pets. Such treasures can take on special roles as non-commercial money: their acquisition and disposition are carefully structured and regarded as extremely important events; they change hands in specified ways, in transactions which have strong moral implications. Often they are used to create social relationships (marriage; entrance into secret societies), prevent a break in social relationships (bloodwealth, mortuary payments), or to keep or elevate one's social position (potlatch). Their "money-ness" consists in their being required means of (reciprocal or redistributive) payment.

(2) Subsidiary characteristics of Western money-stuff, such as portability and divisibility, are actually requirements for media of (commercial) exchange. In peasant and national economies integrated by market exchange, purchases of goods and services are a daily occurrence, and so money must be portable; market purchases are carried out at widely varying price, so the medium of (commercial) exchange must be finely divisible.

Yap stones, cows, kula armbands, and Rossel Island shells are not divisible, and some are not conveniently portable. But neither are they media of (com-

mercial) exchange; they are not used for daily purchases of varying amount. Their use as non-commercial money makes their lack of divisibility and portability unimportant. Here we see one way primitive money-stuff is related to primitive money *usage*. As means of (reciprocal or redistributive) payment used infrequently to discharge social obligations, it does not matter that the money-stuff lacks those characteristics required of a medium of (commercial) exchange.

(3) Economics textbooks (e.g., Samuelson 1961:54; Reynolds 1963:475) err in citing primitive monies *indiscriminately* as equivalents of Western media of (commercial) exchange, for the same reason that Armstrong errs in treating Rossel Island monies as a single type and as a crude equivalent of our own. By giving the impression that *all* primitive monies perform the same primary function as dollars, they quite wrongly imply that all primitive economies may be regarded as crude market systems.

Economists are correct in saying that some unusual money-stuffs have functioned as media of (commercial) exchange. They have in mind situations such as Colonial America (Quiggin 1949:316ff.) where "primitive money-stuffs" (commodity money such as tobacco and cotton) functioned just as dollars do today, or Prisoner of War camps where cigarettes (primitive money-stuff) became used as media of (market) exchange.

But to conclude that because some primitive money-stuffs do perform the primary function of dollars, *all* primitive monies may be regarded as crude media of (commercial) exchange, is an important error. As we have seen in the case of Rossel Island, this market preconception impedes our understanding of marketless economies and those with peripheral markets only. It implies that market exchange is the only transactional mode ever to exist, and so—as economists do in our own economy—one may ignore the social situations in which monetary transactions occur and the folk-view toward the persons, events, and items involved. It is precisely this sort of ethnocentrism that regards all "exchanges" as commercial transactions, and equates all money payments with market purchases, with the result that brides and murder are said to have a price, just as pots and yams in the market place have a price.

(4) A situation of special interest is one where cowrie (in times past), or sterling or francs (in recent times), acquired initially in external market exchange, became used internally for commercial and non-commercial transactions.¹⁰ Such cases of monetary incursion deserve examination for reasons which are of interest to students of community economic development as well as economic anthropology.

Cowrie inflation, wampum inflation, and bridewealth inflation are related cases. Cowrie and wampum became used as media of (commercial) exchange through external trade with Europeans in situations where the quantity of money-stuff was uncontrolled and increased rapidly in supply. Similarly, where bridewealth comes to be paid in sterling or francs, the sum increases when earnings of Western money through market sale of labor or produce increase faster than the number of marriageable females (Bohannon 1959; Mayer

1951:22). What might be called "potlatch copper inflation" is a similar case: when the Kwakiutl became increasingly enmeshed in Canadian market economy, they used their market earnings to increase the stakes in the potlatch. The limited number of coppers (like the limited number of brides, elsewhere) fetched a larger bundle of market-purchased goods. All such cases may be described as "upward conversions": newly expanded market earnings are used to acquire treasure items and brides which indigenously were not transacted through market exchange.¹¹

Western money does much more than merely displace primitive monies where the latter were not media of (commercial) exchange indigenously. It allows non-commercial payments and obligations of traditional sorts (such as bridewealth) to be discharged with general purpose money earned in market transactions—instead of with traditional items of special-purpose money. In economies which formerly were marketless or had peripheral markets only, a structural link—Western cash—now exists between spheres of exchange which formerly were separate. Western money therefore has inevitable repercussions on traditional social organization and cultural practices (Schapera 1928; Bohannan 1959; Gulliver 1962; Dalton 1964). In brief, market earnings can now be used for reciprocal and redistributive payments (just as in Western economy goods purchased on the market enter gift-giving, and money earnings are used to pay taxes and tithes).

(5) One source of ambiguity in the literature is the quest for a single, all-purpose definition of money that would include our own kind (and presumably Soviet money), as well as the welter of types in use in primitive and peasant economies widely differing in organization. Einzig writes: "It must be the ultimate goal of the study of primitive money to try to find the common denominator—in so far as it exists—in terms of which both the well-established rules of modern money and the apparently conflicting conclusions on primitive money can be explained" (1948:19).

To concentrate attention on what all monies have in common is to discard those clues—how monies differ—which are surface expressions of different social and economic organization. Money is not an isolated case. Much the same can be said for external trade and market places, which (like money) also are made use of in economies differing markedly in organization (say, the U. S., the Soviet, and the Tiv economies). Money traits differ where socio-economic organization differs. To concentrate attention on money traits independently of underlying organization leads writers to use the traits of Western money as a model of the real thing (while ignoring the structure of Western economy which accounts for the money traits). Then any primitive money which does not have all the traits of the Western model money is simply ruled out by definition—it is not money. This does not get us very far towards understanding primitive and peasant economies.

Two distinctions which allow us to contrast primitive and Western money are the distinctions between commercial and non-commercial uses of money, and between marketless economies, those with peripheral markets only, and

market-integrated economies. In sum, money has no definable essence apart from the uses money objects serve, and these depend upon the transactional modes that characterize each economy: as tangible item as well as abstract measure, "money is what money does" (Reynolds 1963:474).

NOTES

¹ M. L. Burstein, Robert Clower, Ronald Cohen, George Delehanty, Mitchell Harwitz, Sidney Mintz, and A. A. Walters made critical comments on an earlier draft. I am grateful to these anthropologists and economists, and to Heyward Ehrlich who suggested changes in style and presentation. I must acknowledge separately the kindness of Paul Bohannon and Karl Polanyi, both of whom read several drafts and insisted on improvement. Much of the paper is an elaboration of ideas contained in Polanyi's lectures and writings.

² For purposes of this paper we simply characterize the dominant transactional mode of Western economy as "market exchange." Price and distribution theory distinguish among many kinds of market exchange, pure competition, monopolistic competition, pure and differentiated oligopoly, etc. These distinctions do not concern us. Similarly, for our purposes we regard U. S. dollars as a single kind of money. For monetary problems in our own economy it is necessary to distinguish among currency, check deposits, and savings deposits, and sometimes between legal tender and money which is not legal tender; but for the matters of contrast that concern us, it is not necessary to make these distinctions. For a discussion of the fine points of money variations within Western economy, see Burstein (1963: Chapter 1).

³ We can generalize the point by showing how all the commercial uses of money are brought into play as the result of a single purchase: I buy a house for \$20,000 paying \$5,000 down and borrowing \$15,000 from a bank to be repaid in future installments:

(1) I acquire rights to a house; the former owner acquires \$20,000. The money is used as a medium of (commercial) exchange.

(2) Dollars here are used also as a measure or standard of (commercial) value, i.e., as a measuring device to compare the house with any other commodity priced in dollars.

(3) The bank uses dollars as a unit of (commercial) account in recording my indebtedness to it.

(4) My debt to the bank also means that dollars are used as a standard for deferred (commercial) payments, i.e., as a device to measure commercial debt.

(5) If I save money currently in anticipation of repaying debt, dollars are used as a store of (commercial) value or wealth.

(6) When I begin to repay the bank, dollars are then used as a means of (commercial) payment of indebtedness incurred by the past market purchase.

⁴ Common stocks may be used as a medium of (commercial) exchange or payment, as when a company is purchased for stock, but it is nevertheless dollars that are used as the (commercial) standard of value.

⁵ The qualifications necessary are not due to the structure of market economy, but to cultural practices which differ among market societies: in U. S. society (but not, say, in French) Negroes cannot buy housing at will (but they can buy automobiles); people under 18 cannot legally buy liquor; sale of some firearms is controlled by license. But for most people and for most goods and services, there are no status requisites imposed.

⁶ Marketless economies and those with peripheral markets only, refer to descriptions in the literature of situations before serious European incursion. The term "primitive economy" is downright misleading when it is used to include all three types. I prefer to use it to mean only types I and II (Dalton 1964). In type III, where market exchange dominates, economic structure differs markedly, and so too do the uses of money. Firth (1946) is right to call the market-dominated Malayan economies "peasant" rather than "primitive" to indicate that a distinction should be made. A useful distinction between peasant and primitive economies is the following: by a peasant economy we mean one in which, (i) most people depend upon market sale of resources or products for livelihood; (ii) modern machine technology is largely absent; (iii) traditional social organiza-

tion and cultural practices are retained in significant degree. A primitive economy differs primarily on the first point: most people do not depend on market sale of resources or products for livelihood. One might also say that the organizational component of community economic development consists in transforming economies of types I and II into type III.

Failure to distinguish among the three types is responsible for needless dispute in the literature, as when writers generalize from what is true in market-integrated economy, to all economies. Jones (1960) and Miracle (1962) argue the case for "economic man" in Africa: that Africans respond to material incentives and choose among economic alternatives just as we do. But note that *all* their examples come from type III economies, where Africans—like us—have come to depend for livelihood on market sale (of labor or cash crops). What is true for a Rhodesian copper miner is one thing; what is true for a Nuer or a Lele, is another.

⁷ Following Armstrong, our treatment will concern ndap shells only. He said too little about strings of nko shells to allow anything more than guesses about how they functioned.

⁸ Armstrong says that No. 4 ndap is the commonest on the island, there being at least 200 of them (1928:63). Note also that each ndap shell in classes 12–22, some 150 shells in all, had individual names, as did some at least, in classes 8–11 (1928:62).

⁹ Armstrong's short stay on Rossel, his inability to speak the language, his dependence upon informants rather than direct observation, together with his preconception that Rossel money must be essentially like our own media of (commercial) exchange, prevented him from relating those aspects of Rossel money which differed from our own to their different socio-economic structure. Armstrong does not give enough information to make complete sense of the system.

The unresolved problems are many. To understand the system fully we should have to know about the following: what transactions does each kind of ndap shell enter? What is the nko system all about: Why do certain transactions require a sorting of both ndap and nko? Armstrong tells us that there are really more than 22 classes of ndap shells because some of them are subdivided and given separate names, making about 40 distinctions in all; what are the shells in these subdivided classes used for? Who may borrow from whom, and with what penalties for failure to repay? How do rank and lineage affect borrowing and repayment? Are the high echelon ndap shells related to kinship or political organization, in some such fashion as potlatch coppers are? Who are the "brokers" who act as intermediaries between borrowers and lenders, and for what kinds of transactions and between whom do they intermediate? Specific ndap values are identified with specific parts of pigs and men (Armstrong 1928:79), a matter the people regard as important, but which remains unexplained. So too with the number ten, which appears repeatedly: several transactions require payment of a linked series of ten shells, e.g., one each of the ten ndap classes 20–11 is paid as compensation for ritual murder.

¹⁰ In Africa, at least, the impact of cowrie on indigenous economies and indigenous money, varied widely. In some instances, as with sterling and francs, cowrie came to be general purpose money which linked spheres of goods and services formerly kept separate, and which serviced several transactional modes within one society (see Vansina 1962:198); such was the case where cowrie came to be used in market-place exchanges as well as bridewealth. In other cases cowrie were incorporated as just another special purpose money with limited usage within the indigenous system (see Quiggin 1949: Chapter IV).

¹¹ The very early date at which Canadian market exchange permeated Kwakiutl life is important to understand how and why potlatches changed over time: before serious Canadian market incursion, potlatches were given infrequently, were the prerogative of nobles, and were necessary to affirm one's rank (Codere 1951). Having the traditional potlatch goods was not a sufficient condition for giving a potlatch because one had to have the rank as well. (As in many primitive societies, only those of high rank could accumulate the necessary goods.)

The nature of the potlatch changed radically with (i) the population decimation around 1840—the population fell from an estimated 23,000 in 1840 to fewer than 3,000 in 1880, and under 2,000 in 1890 (Codere 1951:52). Note that the 600 rank positions remained fixed. (ii) The second important change was the increasing use in the potlatch of items purchased on the Canadian market. Now the opportunity for upward conversions—the use of Canadian goods bought with cash to acquire internal rank and prestige positions—became unlimited. With a shrunken popula-

tion, practically everyone had one of the 600 rank positions, which was not the case earlier, and everyone had access to Canadian goods (by simply earning cash), which certainly was not the case earlier. Potlatches then came to be given frequently, by anyone (even women and children), and for all kinds of reasons; and, no doubt, even a commercial element entered.

The trouble with the literature is that even the early anthropologists (Boas first wrote in 1887) were describing Western market incursion well underway, without fully appreciating the radical difference it made to the potlatch when everyone had rank positions and access to purchased goods. Any generalization made about the nature of the potlatch should bear a date. See Drucker (1939:56, footnote 3, 63 footnote 22).

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Hunter-Gatherer/Farmer Exchange

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Hunter-Gatherer/Farmer Exchange

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A survey of reported cases of farmer and hunter-gatherer economic exchange indicates that more studies of such interactions might prove fruitful. Careful comparison of two such cases—the Mbuti-Bantu relationship of Africa (Turnbull 1965) and Agta-Palanan exchange on the northeast coast of the Philippines (J. Peterson 1974)—reveal significant theoretical and methodological implications of such studies. [hunter-gatherers, comparative economics, cultural ecology, Southeast Asia, interethnic relations]

WHILE ECONOMIC TIES between hunting-gathering peoples and indigenous farming or pastoral neighbors are not rare, and although interethnic relations in general (Barth 1969:9-10) and hunter-gatherer/sedentist relations in particular (Gardner 1972:417; Lee 1972b:141, 1972c:348-349) have been acknowledged as ecologically significant, they have received little attention in the literature. An understanding of such relationships is important not only in contemporary cases, but for prehistory as well. Where clear interdependence between two populations has existed in the past, it has potentially affected the course of prehistory by allaying for a time the need for technological change. In spite of the apparent significance of such relations, only two studies have attempted fully to explore the role of sedentary peoples in the environment of hunter-gatherers. Turnbull (1965), in an insightful analysis, discusses the economic importance of Mbuti hunters to Bantu villagers, describes village foodstuffs and other material items exchanged to the Mbuti, and accounts for these exchanges in socioreligious terms. In lesser known work (J. Peterson 1974, 1976), I offer an ecological interpretation of very similar relations in the Philippines between Agta hunter-gatherers¹ and sedentary Palanan farmers. In both cases a primary characteristic of relations is the exchange of non-domestic protein produced by hunters for domestic carbohydrate produced by farmers. In addition to these accounts there are ample references to similar relations for hunters and adjacent sedentary peoples throughout the world.²

A survey of behaviors in such exchange relationships reveals common features that of themselves command interest. Unfortunately, in many cases, incomplete reporting may have omitted pertinent behaviors or attitudes. Certainly, as noted, the exchange of nondomestic protein or other natural products (honey, rope, herbs) for domestic carbohydrates or trade goods (cloth, iron, and beads) is common. Such exchanges are reported extensively for the Negritos of the Philippines (Vanoverbergh 1929/30:533;

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Maceda 1964:46-49; Warren 1964:38, 43, 48; Garvan 1963:32, 41, 79; J. Peterson 1974, 1976). They are important as well in the Mbuti-Bantu case (Turnbull 1965:36ff.). Lee (1972b:140, 1972c:348) reports that from earliest contact, !Kung provided furs, hides, honey, and beads to Bantu and Tswana settlers in exchange for tobacco, pots, and iron. Gardner notes this type of exchange between the Paliyans and neighboring Tamils in India (1972:417). The Birhor of India provide rope, honey, and monkey skins to several populations of agriculturalists in exchange for rice, corn, salt, and oil. Sinha describes these exchanges as occurring in markets for money or through barter (1972:386-387). Williams (1968:128), however, reporting on the same peoples, indicates that these are nonmarket exchanges, and that the Birhor supply hares as well as forest products.

In addition to actual exchanges of goods, the hunting peoples often provide a significant and coveted labor source for sedentary farming or pastoral peoples. The Birhor aid Oraon agriculturalists during planting and harvest (Sinha 1972:388). Paliyans serve as guides for plainsmen in exchange for salt, chilis, rice, tobacco, snuff, betel, areca, and trade goods (Gardner 1972:417). !Kung, too, are herders for villagers in exchange for milk and meat (Lee 1972a:331, 1972c:348). Bantu villagers are highly desirous of obtaining Mbuti labor (Turnbull 1965:39). Filipino farmers, too, eagerly seek to obtain the labor of neighboring hunters (Garvan 1963:76, 79, 80, 146, 158; Warren 1964:94; J. Peterson 1974). Often the hunter-gatherers become unwillingly committed to exchange labor through unsolicited extension of credit by farmers (Warren 1964:49, Garvan 1963:76, Turnbull 1965:42, J. Peterson 1974). The hunters may, at least initially, avoid all contact with sedentary peoples (Gardner 1972:441, 407, 406; Williams 1968:128; Garvan 1963:158; Warren 1964:30). Once gifts have been offered, harassment, social pressure, and even threats of violence may follow to coerce the recalcitrant laborers.

These exchanges may be mediated through permanent relationships between two individuals as among Philippine Negritos (Garvan 1963:158; Maceda 1964:48; J. Peterson, 1974, 1976), the Mbuti (Turnbull 1965:228), and the Bihor (Sinha 1972:387, 388, 393). Because these relationships rest on oral contracts, they are most efficacious when such partnerships, or friendship, are involved (Garvan 1963:80, 158, 159; Turnbull 1965:37, 228; Vanoverbergh 1925:443; J. Peterson 1974).

Social relations between exchanging peoples are complex. On the one hand, sedentary peoples generally see themselves as superior (Warren 1964:94; Sinha 1972:390; Gardner 1972:441; Williams 1968:128; J. Peterson 1974). On the other hand, the hunters' skills in the wild and the ferocity attributed to them by farmers may lead to elements of fear and respect on the part of farmers and pastoralists (Sinha 1972:390; Gardner 1972:441; Lee 1972a:332; J. Peterson 1974, 1976). At the extreme, these mixed feelings lead to actual abuse of hunters (J. Peterson 1976; Gardner 1972:441).

These relationships have religious and other social dimensions. Inter-marriage occasionally occurs (Sinha 1972:393; Lee 1972a:332; Warren 1964:65; Turnbull 1965:49-51), and farmers may seek to adopt hunters' children (Garvan 1963:160, J. Peterson 1974). This practice has been regarded by some as slavery and may, in fact, involve the ultimate sale of a child by one farmer to another. Most often, however, it stems from more humanitarian concerns (see Garvan 1963:161-162 for a discussion of this). Turnbull discusses social and religious manifestations of such relations at length and sees the Bantu as using supernatural sanction to maintain dominance and control over Mbuti (1965:51-62, 229-261). In other cases, hunters provide religious specialists and supernatural expertise to farmers (J. Peterson 1974; Warren 1964:100; Sinha 1972:393). Nonetheless, Lee (1972b:143) and I (1974) see these relations as primarily economic, differing from Turnbull in this interpretation.

In spite of often extensive relations, the primary acculturative effect appears to be

linguistic (Lee 1972a:332), and in some cases the sedentary peoples assist the hunters in conflict resolution (Lee 1972a:333, J. Peterson 1974). While some of these hunting peoples have begun to plant, planting remains minimal and has not supplanted their "broad-spectrum" (Flannery 1971:55-56) subsistence.

A review of the literature on hunter-gatherer/farmer exchange raises several controversial issues relevant to the study of hunter-gatherers. First, several authors (cf. Vanoverbergh 1925, Reed 1904) fail to recognize the importance of hunter-gatherer/farmer exchange to the farming economy. Maceda (1964:48), while he uses the term *symbiosis* to describe the relationship, characterizes it largely as a patronage relationship in which the hunter-gatherers are the fortunate recipients of largesse and goodwill from beneficent farmers. This is almost certainly a distorted perspective. Most authors recognize that agriculturalists are generally eager to receive goods and services provided by the hunter-gatherers, and Turnbull and I have indicated that very significant benefits accrue to them.

A second point is that several scholars see these relations as stemming in large part from preferences hunters develop for peasant food. Thus, Vanoverbergh refers to the Negritos' "constant need of rice," which "practically makes them slaves to the Malays" (1929/30:533; cf. 1925:188), stating a position that is shared by Schebesta (1954:302). Turnbull denies any absolute dependence of Mbuti on villagers, but asserts, rather, that they seek village foods and other items, which are luxuries they have come to expect. I cannot argue against the Mbuti preference for village foodstuffs, but in regard to the Philippines, I do most heartily concur with Garvan's (1963:51) statement that foods provided by farmers are not necessarily preferred, they are simply easier to obtain and are a more dependable source of carbohydrates.

Most authors (cf. Lee 1972a; Woodburn 1968a; Maceda 1964) either do not explore or else directly minimize the extent of interdependence between two trading populations. Turnbull (1965) is most explicit in this. While he acknowledges the importance of the Mbuti in Bantu economy, he emphatically denies any absolute dependence of the Mbuti on their neighbors. I would argue that absolute or necessary dependence is not an issue. It is, nonetheless, very important that an interdependence may well exist in these situations, that it deserves more attention, and that we can best study it by measuring, in some way, the extent of that interdependence. A description of the economic transactions involved in a hunter-gatherer/farmer relationship in the Philippines will provide a basis for discussion of these issues.

THE PHILIPPINE CASE

The Palanan Bay watershed on the northeast coast of Luzon is one of the more isolated and environmentally least hospitable areas of the Philippines. Access to Palanan is limited to chartered light planes, an annual visit of a trading launch from Manila, and walking, the only effective means for most inhabitants of the area. The trip across the Sierra Madre Range requires two to three days of rugged hiking for a strong adult, and up to six days for children and many women. Moving north or south along the coast, one encounters only two equally isolated communities. Radios and outdated newspapers and magazines are rarities in Palanan; the only other communication is provided by two sporadically functioning shortwave radios and an equally undependable telegraph service.³ Much of the coastline is rugged, and hillsides are forested. The mean monthly dry season temperature is 82 degrees and rainfall exceeds 254 cm. (100 inches) annually (Spencer and Wernstedt 1967:54, 423). The rainy season, which begins in September and tapers off in January, is often characterized by constant, unbroken cloud cover and incessant rain, further limiting internal mobility and eliminating external contact. Thir-

ty-two percent of all typhoons reaching the Philippines strike the northeast coast of Luzon. Disease, as well, takes its toll on life in Palanan. Nineteen percent of children of the sedentary people and one-third of the hunters' children die before the age of two. Many persons, especially children and the elderly, die of bronchitis during the rainy season. A government doctor visiting the area in 1970 estimated that better than half the adult population was affected by tuberculosis and reckoned that malaria is endemic in the area.

Archaeological excavation (W. Peterson 1974a, 1974b) indicates the existence of a hunting, fishing, and collecting population, with seasonal occupation of relatively permanent houses along the coast between 550 and 3500 B.P. Archaeological survey suggests the existence of a classic Neolithic culture of unknown date on the coast and up the Palanan River. According to Keesing (1962:258), early Spanish records report two pagan populations in the area, the Agta and the Irraya. The present-day inhabitants refer to the inland mountainous area to the west as Irraya and use the same term to describe the swiddening peoples inhabiting that area. Whether these Spanish accounts refer to a population separate from the present-day Palanan farmers is a matter of speculation.

Presently two ethnically and physically distinct populations inhabit the area. The Palanans, a farming people who number about 10,000, are now distributed predominantly in the flatland areas along the Palanan and Disukad rivers and adjacent coastal strips. In modern times until World War II, Palanan settlement was confined to the lower Palanan River valley around Centro. During the Japanese occupation in that area, many Palanans, fearing abuse from the Japanese, moved up and down the coast and up the river valleys, leading to the present-day distribution. This pioneering endeavor continues as the farming population seeks new lands. The 800 Negritos, who are known to themselves as Agta, and to others as Dumagat or Aeta, live largely by hunting and fishing in areas fringing peasant settlements. Agta and Palanan speak a mutually intelligible language (Headland and Headland 1974) with only two phonemic shifts, and some vocabulary referring to forest products and activities, and to kin relations, known only to the Agta. Headland and Wolfenden (1967:596) designate Agta as an Austronesian language. A description of the subsistence technology of the two peoples provides a basis for understanding the interdependence with which we are concerned in this paper.

The Palanan farmers produce mostly corn and roots (especially yams and manioc) and only small amounts of rice. This production is carried out in small flatland plots. Average land holdings are five to ten hectares per household, less if the family is young. While a pioneer may originally clear a forested area, it is always with the intent of permanently cultivating that ground. An average farmer produces just under 40 *cavans* of corn, just over eight *cavans* of rice, and a variety of roots.⁴ This breakdown of productive activity is efficacious from several perspectives. First, by focusing predominantly on corn and roots, they are reducing their labor output, as these two crops require less care than rice. Second, corn and roots may be planted in the same fields at the same time, and productivity may actually be thus enhanced. Third, corn and roots are nutritionally superior to rice, particularly considering that the leaves of root crops are regularly consumed. Finally, corn is a crop that thrives in dry years; rice, which in Palanan depends on rainfall for irrigation, fails when rain is not abundant. Thus, diversification between these two crops provides some assurance of adequate food in spite of climatological variation.

Other domestic flora are minimally cultivated. While many families would like to maintain kitchen gardens, few are able to do so because of a lack of seed. Vegetables raised include eggplant, tomatoes, two types of squash, and beans. Perennials and tree crops are somewhat more common and include pineapple, jackfruit, papaya, coconut, and banana.

Domestic animals are notably sparse in Palanan. Typically a family might own four *carabao* (water buffalo); 30 chickens, four of which are laying hens; and one pig.⁵ While all of these animals may be eaten, they rarely are. *Carabao* are primarily draft animals and may not legally be butchered unless the animal is too old or ill to work and permission is obtained from the mayor to kill it. Owners of pigs and chickens regard them less as a food source than as an investment. Chickens and, much more rarely, pigs, may be butchered to provide meat for life crisis events such as weddings, funerals, and death anniversary ceremonies, but they are rarely killed just to provide daily food. Rather, hens are kept primarily for their eggs and roosters for weekly cock fights; chickens, pigs, and water buffalo are, for the most part, butchered only when cash is needed and the meat may be sold. If, for example, a family member requires expensive medical care, a child is to be sent to school away from Palanan, or a house needs repairs, an animal might be killed and sold to neighbors or at market. Typically, chickens are sold whole and large livestock is sold in one-kilo lots. In short, Palanan farmers raise too little livestock to regularly supply their own animal protein needs.

Agta production, focused as it is on hunting and fishing, provides a striking contrast to what I have described for the Palanans. The Agta produce little in the way of domestic vegetable foods. Cultivation is confined to small swidden plots, usually on hillsides; occasionally an Agta may "borrow" or sharecrop a portion of a peasant field. Draft animals are rarely used; most planting is done with dibble sticks and the plots abandoned after two or three years. The aged, those too old to hunt or fish, are most prominently involved in planting; young men, especially, focus effort on hunting and fishing and plant less or not at all. Thirty-eight percent of Agta usually plant, but some years even they do not. About half of the Agta in Palanan regularly cultivate at least a few plants. Some Agta, however, have never planted, 12% ($n = 52$) were not planting in 1968 and/or 1969,⁶ and 25% planted only roots in those years. The 25% of the population planting only roots cultivated not more than 0.5 hectare, often less than 0.25 hectare, and in some cases, fewer than half a dozen plants.⁷ Planting is, for most Agta, an incidental and sporadic activity, characterized most often by the tending of a few root crops. Noncarbohydrate vegetables are cultivated even less. Only 56% ($n = 52$) of Agta plant a few vegetables and 46% claim tree crops, usually only one or a few coconut palms or banana plants. Wild vegetables are utilized and account for some vegetable intake in roughly 15% of Agta meals.

Only 37% ($n = 52$) of Agta own domestic food animals other than dogs, and these are kept only for sale to peasants. Agta have a strong aversion to domestic meat of any kind and refuse to eat it. Wild game and fish account for the vast majority of Agta food production. For Palanan as a whole. Agta per-family production of boar totals 12 kilos/month, for deer just under three kilos/month, with just over 43 kilos/month of fish. There is significant areal variation in these production figures. Agta recognize three distinct bounded territories within Palanan. The resources of each territory may be tapped only by its residents and their visiting kinsmen from other territories. The regional variation in resources is illustrated in Table I.

Clearly, these two populations, Agta and Palanans, present optimum opportunity for economic interdependence. The Agta are a people who produce limited carbohydrate or other vegetable foods, and the Palanans produce limited protein foods. Through trade, each supplies the other with needed foods. The extent and nature of their interdependence as expressed through food production is shown in Figure 1.

Food exchange represents only a part of Agta-Palanan economic interdependence. Access to cleared land and Agta labor are other dimensions of exchanges between the two populations. As noted, Agta swidden small plots of land, which they then leave. They may then move on to other forests or abandon cultivation altogether for a year or

TABLE 1. RESOURCE VARIATION IN AGTA TERRITORIES

	North	South	Inland
Production (kg/week)			
boar	< 6	0	2.5
deer	> 1	0	> 1.5
fish	< 5	> 12	< 11.0
Consumption/production ratio (%)*			
corn	26.6	2.4	34.1
camote (yam)	< 44.0	> 80.0	> 100.0
Trade and exchange			
trade ratio†	.207	1.28	.36
average no. trades/week	1.360	.83	1.20
Agta not claiming ibay (%)	5	30	0
Average land holding (hectares) #	> 1.5	< .75	< 1.5
Agta/Palanán ratios			
land holdings (individual)	1:2.5	1:0.36	1:1.6
demographic (families)§	1:1.7	1:0.25	1:1.4

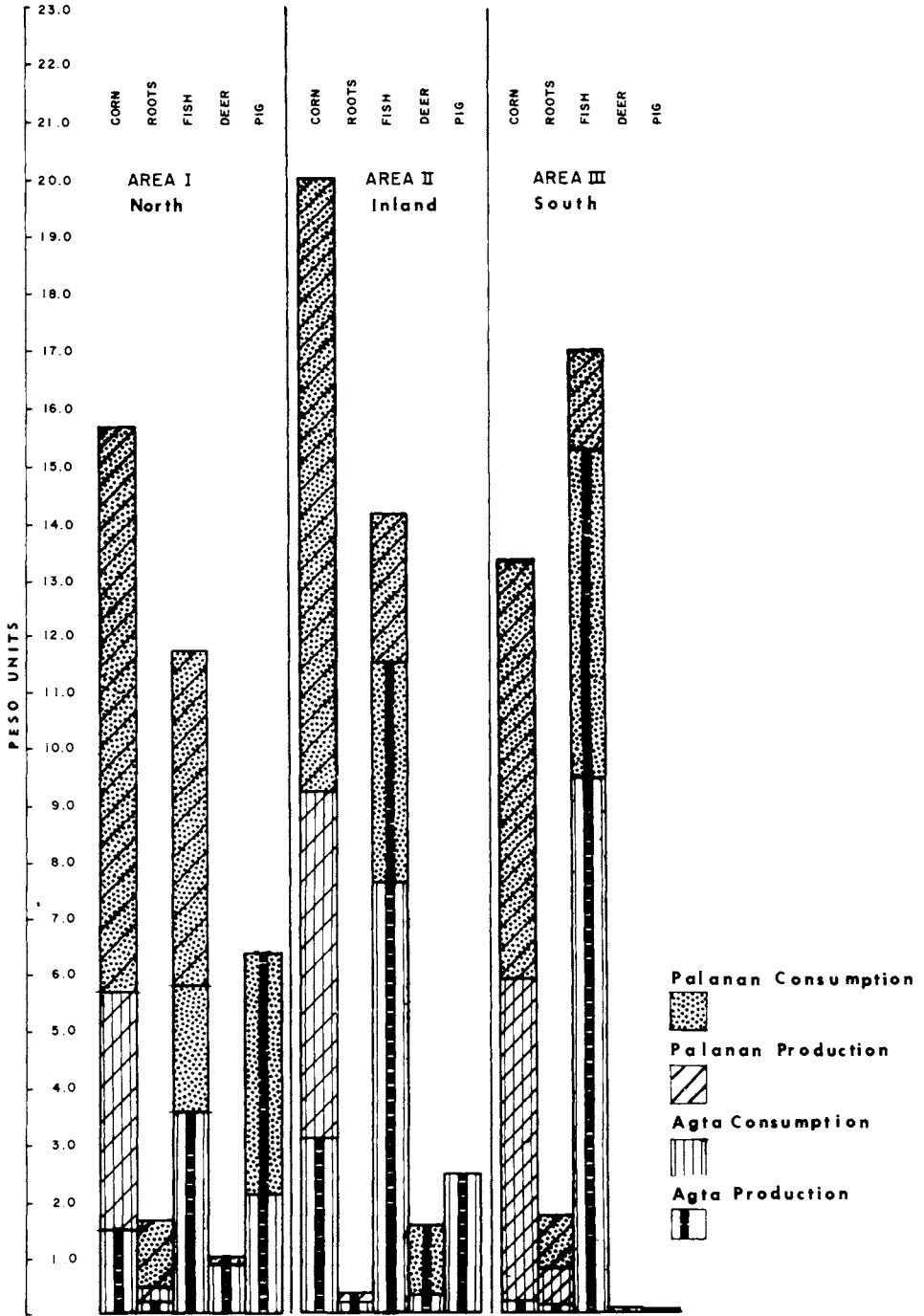
* The percentage of corn or camote consumed by Agta that is produced by Agta. The remainder is obtained in trade. Wild vegetable foods are utilized in 15% of Agta meals.

† These figures represent mean fish traded over mean corn traded and provide an indication of the favorability of trade. A higher value represents trade more lucrative for Agta. The southern figure here is somewhat deceptive as it includes exchanges in town; local exchanges in this area are much less lucrative for the Agta.

While these figures for the northern and inland areas are the same, Inland Agta till this much land without prompting, while in the north cultivation has been strongly encouraged by Panamin.

§ These figures are based on census of all persons in selected sample communities in each territory.

more. They retain the right to return to that land at their discretion. Many Palanans, on the other hand, are eager to acquire more land to cultivate permanently. Whenever possible, they prefer to take over land already cleared by Agta. When they are able to acquire cleared Agta land they save themselves a significant amount of labor. They estimate 175-200 man-hours of labor expended for each hectare of forest land cleared in Palanan. Since this clearing takes place only on the peripheries of Palanan settlement, it is difficult to amass a large enough labor force to clear a significant amount of land at once. Agta who clear often do so piecemeal, requiring one to two years to complete clearing a single hectare. Because Agta dibble, they are not concerned with removal of tree stumps; thus, in order to plow, Palanans must take into consideration this additional labor expenditure. A prosperous Palanan may hire Agta or peasant neighbors, but pioneers are seldom prosperous. It is, therefore, highly advantageous for pioneering peasants to take over land from Agta; it is cleared and any remaining tree stumps are rotting. Agta, who prefer to remain on the forested fringes of peasant settlement where game is most abundant, have relatively little interest in returning to abandoned plots. Palanans acquire access to Agta plots by two means: purchase and land-grabbing. In the areas where relations between the two peoples are most felicitous, the peasants compensate the Agta for their land. The amount and kind of compensation must be agreed upon by both parties. It might range from a simple pledge of future support by the Palanan, to gifts of cloth, beads, and cooking pots, or of *carabao* or plows. In most of these cases, Agta retain rights to any permanent crops they may have planted on the land. In areas where relations between Agta and Palanans are strained, the latter simply



AGTA - PALANAN EXCHANGE

Fig. 1. Agta-Palanan exchange.

take over abandoned Agta land. The Agta have a poor understanding of legal land tenure in the Philippines. Fewer than half a dozen Agta have made tax declarations on their land, the first step to a legal claim. Even those Agta who have a nebulous idea of the appropriate procedure for making land claims have little recourse because of their ignorance and illiteracy. In short, the politically and legally more sophisticated peasants encounter few obstacles when they choose to usurp Agta land without compensation. Unable to exercise their legal rights, the Agta prefer to move on and avoid unpleasant confrontations when their land is taken.

Palanans also frequently call on the Agta as a labor source. The reluctance of most peasants to work for wages and the scattered settlement pattern of much of Palanan make it difficult to assemble a sufficient number of persons for clearing, planting, and harvest. Labor exchanges among peasants accommodate some of the demand for labor, but, particularly in the sparsely populated peripheries, this is not an adequate solution. While Agta are reluctant to assume long-term agricultural work, they will work a few days at a time when the labor need is critical. In exchange for their work, they receive food and/or wages. Field labor seriously curtails their hunting and fishing activities, and they cannot, therefore, easily work for long periods.

The medium for most of these transactions between Agta and Palanans is the *ibay* (special friend) relationship; *ibay* is a term used by both Palanans and Agta. An *ibay* relationship involves one Agta, usually married and usually male, and one peasant, also usually married and male. The two friends, or partners, recognize a mutual commitment to provide goods and services to each other. Typically, the Agta provides protein foods to his partner in exchange for carbohydrate foods. The extent of this commitment is reflected in the fact that peasant *ibay* plant 10% to 30% in excess of their own consumption needs in anticipation of Agta requests for trade. Agta, on the other hand, place the protein needs of their *ibay* as high priority in distributing the protein they produce. While non-*ibay* exchanges of protein for carbohydrates do occur, the *ibay* relationship is unique in that it demands a commitment for regular exchanges, it allows for extension of credit, and it commits the partners to other economic transactions as needed. For example, an Agta who has been unable to obtain protein may, nonetheless, ask his *ibay* for sufficient carbohydrate foods to see him through days or even weeks, with the implicit understanding that he will provide protein when he is able. Conversely, a Palanan may request that his *ibay* supply him with specified amount of game for a life crisis event or to feed fieldworkers during planting or harvest. *Ibay* may depend on each other in crises, such as when an Agta needs medical attention, or a peasant needs a guide and bearer to cross the mountains. Finally, peasants may rely on their *ibay* to work as field laborers when the occasion demands it, and they frequently approach *ibay* to purchase abandoned fields. The social, political, and religious ramifications of the relationship are discussed elsewhere (J. Peterson 1974, 1976).

The complementarity of this relationship is revealed in the fact that the two partners in an *ibay* relationship seldom agree on how or when the relationship began or why it exists. Most peasants acknowledge the primary purpose of the relationship as being access to Agta labor, and cite the first employment of their partner as the inception of the relationship. Agta, on the other hand, invariably indicate that access to carbohydrate foods is the reason for seeking an *ibay* and date the relationship to the first exchange of food.

About one-third of all peasants and nearly all Agta have an *ibay*. Another one-third of the peasants regularly trade with Agta. Interpreting this in the light of the preceding graph showing the extent of interdependence, we can safely say that two-thirds of the peasant population is receiving 30% to 50% or more of their protein food from Agta, and nearly all the Agta depend on peasants for anywhere from 70% to nearly 100% of their carbohydrate foods.

Effectively, Palanan-Agta exchange represents a labor specialization that coordinates the two populations in a higher order economic system. The efficacy of this specialization can be illustrated by exploring the integration of their relative economic roles.

To an extent, resource limitation places a ceiling on Palanan animal domestication. *Carabao* require pasturage that might better be utilized for cultivation. Pigs and chickens in Palanan exclusively feed themselves by foraging. Since most of Palanan habitation is concentrated in long-settled, heavily cultivated areas far removed from the forest, these animals must forage on human refuse or in cultivated fields. Any rise in domestic animal population might well create a more serious threat to field crops.

Alternatively, Palanans might deliberately cultivate a root or grain surfeit explicitly to feed pigs and chickens, but a number of factors are contraindicative of this as a desirable adaptation. As it stands, two-thirds of the Palanans with *ibay* ($n = 39$) do cultivate in excess of their needs in order to provide grain or roots to their trading partners. They estimate that they plant 10% to 30% more food than they consume in order to provide food to Agta. Five percent of these Palanans with *ibay* cultivate over 30% in excess of their own needs in order to trade; 10.2% could not calculate excess production accurately, but acknowledged "some" deliberately cultivated surfeit; and only 17.8% of Palanans denied any deliberate effort to cultivate a surfeit for trade. In exchange for this additional expenditure of land and labor, they receive half, or slightly less, of all protein foods from Agta.⁸ The quantity of grain and roots given in trade to Agta, if fed to pigs and chicken, might well produce less protein for consumption. While it is impossible to predict with any degree of accuracy how much domestic protein could be produced by expending a given quantity of carbohydrate in Palanan, we can at least consider that it may be cheaper to feed Agta to provide fish or wild animals, than to feed domestic animals.

Several other facts support this argument. First, most meat or fish is provided by Agta in two- to four-kilo lots, that is, in quantities that can easily be consumed by a single domestic unit. Domestic production and slaughter by Palanans produce large temporary surfeits that require either cash sale or some kind of reciprocal or redistributive exchange network. Palanans, as noted, have only sporadic need for cash; there would seem little purpose in substituting an intracultural exchange network or the complexities of a market for an intercultural network. Furthermore, Agta protein is supplied with considerable regularity. Again, to achieve this regularity with domestic animal production would require greater cultural complexity, e.g., a regularly functioning market or a more complex reciprocal or redistributive exchange.

As noted, the existing system of exchange in Palanan may well be providing the peasants with adequate protein with less direct labor output. Certainly, indirect labor expenditure is reduced through exchange. Increased production of domestic animals would require either controlled feeding and/or construction and maintenance of fences, both with concomitant labor intensity. A further obvious advantage of maintaining exchange with Agta is that the hunter-gatherers provide not only protein but an important source of labor and a variety of other services.

In short, by opting for intercultural exchange over domestic animal production, Palanan peasants are widening and diversifying their food web. Such widening and diversification of the food web has been acknowledged in other cases (W. Peterson 1974a, J. Peterson 1974, Lewis 1972) as an effective means of assuring survival without increasing labor intensity.

Elsewhere (J. Peterson 1974, 1976) I have discussed the importance of intercultural exchange for the Agta. Briefly, there are six basic points in my argument.

1. Relative to protein production, surfeit represents at least as great a problem as deficit (cf. Woodburn 1968b:106). Most commonly, Agta hunters spend one to three days at a time in search of game and take all the animals they can kill. Even a single

boar or deer represents a food surfeit. A single domestic unit, or even a camp group, cannot easily consume this quantity of meat before it spoils. The problem then is one of maximizing means of exchanging a protein surfeit.

2. Adequate supply of carbohydrate foods represents a problem of deficit. Garvan (1963:27) and Lee and DeVore (1968:7) conclude that for most hunter-gatherers, collection of carbohydrate staples is at least as critical a problem as protein production. For the Agta, receipt of carbohydrate foods from peasants represents a relatively stable food supply and one that requires little labor output as compared to collecting, preparing, and preserving nondomestic carbohydrate foods. Furthermore, nondomestic carbohydrate foods do not store well; the opportunity of intercultural exchange represents a storehouse full of food that readily and regularly may be tapped.

3. Hunting-gathering as a lifeway requires relatively low labor output. The Agta labor three to five hours a day as compared to four to eight hours among some long-fallow cultivators, and as many as ten or more hours/day for those with short-fallow systems (Boserup 1965:43-51). Other authors, as well, have explored the implications of maintaining a low-labor output system (W. Peterson 1974a, Sahlins 1972, Lee and DeVore 1968).

4. Maximization of cultivation as a lifeway is not compatible with maximization of hunting-gathering as a lifeway. While transition of one to the other can, of course, be effected, long-term maximization of both technologies, on any other than a seasonal basis, poses problems. Fields ideally must be weeded, cultivated, harvested, and guarded against theft. In short, the abandonment of the cultivated site for hunting will at least lower its productivity.

5. Increased cultivation by Agta would result in increased labor output and would throw them into direct competition with Palanans over land. Tensions arise in those areas where Palanan land-grabbing has occurred. As it stands, the limited cultivation practiced by Agta can be effectively carried out predominantly on peripheral hillside land that holds less attraction for the peasants, and peasants generally exploit land that appeals less to Agta.

6. The combination of hunting-gathering, limited cultivation, and exchange provides an extraordinarily wide food web, which, as noted, is an effective adaptation for a population with a limited technology.

In short, then, the union of culture-specific specialization and intercultural exchange allows particularly effective utilization of land and labor resources. This tandem specialization, or specialization of two populations relative to each other within a higher order economic system, certainly represents intensification of land use. In a sense, a single area is being exploited for two diverse resource bases, a kind of dual technology "double-cropping" (cf. Barth 1959:8-9).⁹ This intensification is possible with less labor intensification than would be required if each population were to produce a similar abundance and diversity of foods independently. In fact, intracultural intensification would require significant cultural change and might not be possible. Therefore, where such a relationship occurs, it may be critical to maintenance of existing population size for both populations.

THE AFRICAN CASE

As noted, most authors have not fully appreciated the significance of peasant/hunter-gatherer exchange. Interpretation of these economic relations raises some pertinent theoretical and methodological points. These can best be argued by comparing Turnbull's (1965) study with my own, since these two efforts represent the only sufficient data on this aspect of interethnic relations. Turnbull's assertion that there is no absolute inter-

dependence between Mbuti and Bantu seems to rest primarily on four points: (1) that the villagers lack any political means of enforcing reciprocity or oral contracts with the Mbuti and thus cannot directly control or predict Mbuti exchange; (2) that the Mbuti are entirely casual about these matters, thus exhibiting no sense of urgency; (3) that the Mbuti can subsist in the forest without village food or material goods; and (4) that the only apparent system in these relations is based on flux and is therefore not stable. Let us examine each of these points in turn.

Turnbull (1965) himself acknowledges that in Mbuti-Bantu relations, while Bantu political control is lacking, supernatural sanctions introduced by the Bantu serve as an ultimate control on Mbuti behavior. Thus, while they may fail to reciprocate in exchange, may leave the village when they are expected to work, or may steal from village plantations without immediate reprisal, they ultimately fear supernatural punishment. There is thus some effective check on the behavior. Since Turnbull offers us nothing more than a qualitative statement of what he sees as a lack of interdependence, we can only accept his interpretation. Certainly in the Palanan-Agta case, while the peasants have ultimate political and social recourse and different domains of interaction may provide checks on each other (J. Peterson 1974), any immediate control is often lacking for no other reason than that the Agta are always free to pack up and leave. In short, the two situations seem entirely parallel on this point, but certainly in the Agta case, lack of direct control does not preclude economic interdependence.

Turnbull interprets Mbuti casualness in transactions with villagers as representing an abiding lack of real concern for perpetuating the relationship. This, in turn, he takes to mean that they do not need the relationship other than to fulfill a desire for "luxuries" or "idleness." Thus, he points out (1965:37) that Mbuti dependence on the village is both "voluntary" and "temporary," and Mbuti simply declined to help the Bantu "except when the nature of the work suited their convenience and the rewards were adequate," and commonly Mbuti are least available specifically when their help is most needed (1965:40, 82-83). From this Turnbull infers that there is no "sense of economic urgency" (1965:83). The Mbuti "delight in shortchanging their exchange partners" (1965:40) and, "If he feels that he has exhausted the goodwill of the villager he will simply leave, and thenceforth deal with another villager" (1965:43). Even the *kare* and *kpara* bonds, established by the Bantu, are manipulated to advantage by the Mbuti (1965:67). In any case, failing to get what they want, the Mbuti steal it (1965:82). Turnbull seems to assume that any relationship treated in so cavalier a fashion cannot be highly valued. Here again, the Agta parallel the Mbuti in behavior and attitude to a great extent. Agta reciprocate in goods and services as it suits them. A commitment to work on a particular day is generally honored only as long as no more attractive options materialize. They change locales and trading partners with apparent nonchalance, and will take food they regard as theirs by right if it is not freely offered. This represents, however, not a lack of interdependence, but rather a different system of values; Agta, unlike Palanans, value flexibility over material gain. In abstract terms, it represents adaptation to a total context, a larger ecological system. To limit oneself to the specific categories of events Turnbull cites, ignoring this overall context, is to obscure the value of a systematic overview.

Turnbull establishes beyond a doubt that the Mbuti are capable of subsisting in the forest without village food or material goods. He does not consider, however, whether all Mbuti could persistently survive there without visits to the village. Certainly Agta can, and often do, subsist in the forest without metal, pots, cloth matches, or domestic foods. I nonetheless question whether the forest around Palanan could for long support the entire Agta population with adequate carbohydrate foods. Certainly I would expect conflict to develop with neighboring Agta populations over resources. Conversely, I

would suggest that without Agta exchange, technological adjustments would be required of the Palanan peasants. Lacking specific information on the Mbuti, such as how long they stay in the village, at what times of the year, or how many persons are involved, the reader is unable to judge for himself the extent to which exchanges may be critical in that situation.

Turnbull feels that "if there were a true economic dependence, then there would have to be a workable economic system, with an associated system of social control; and we have already seen that in place of system and control there is, apparently, only flux and instability that militate *against* system and control" (1965:82-83). Again, the Agta case parallels the Mbuti, but I have indicated here and elsewhere (J. Peterson 1974, 1976) that flux may of itself be viewed systematically. The question perhaps is the source of systemization. Turnbull (1965:83) offers a somewhat confused interpretation of this point, as when he states: "In view of the nomadic nature of the hunting band, and as we shall see, of its composition, this 'system' of flux is the only one that could possibly pertain. But it leads inevitably to instability because of the constant lack of any one system of control. . . . The whole system is incompatible with the notion of economic interdependence, yet there is no denying the actual relationship between the two groups of people. Nor can one deny that within a framework of flux and instability, the relationship is persistent, so there must be some system. If that system is so evidently unrelated to economic factors, we have to look elsewhere for its focal point." I would suggest that indeed an economic system may exist, and the flux is a critical part of the system. Even the supply and demand of a market system involves flux. It is, however, a system of a different order from the rigid one Turnbull seems to anticipate.

DISCUSSION

The points of disagreement apparent in this comparison raise several issues. First, interdependence may be of many sorts. Considering the Agta-Palanan material, it seems apparent that the interdependence of the two populations is very significant. It cannot, however, be judged in terms of the ability of either population to subsist for a time without the other, in terms of whether or not there are enforceable contracts, or in terms of the constancy with which critical goods or services are provided. The degree of interdependence could best be judged by examining the extent to which it is viable and effective. This might involve considering whether carrying capacity is higher for the two systems interrelating than could be expected for either system operating independently at its present technological level. While carrying capacity is difficult to compute (Street 1969), especially where two populations overlap in physical territory as do Agta and Palanans, it remains a useful conceptual tool. As Street comments (1969:106), "We should not allow the elusiveness of 'long-term carrying capacity' to distract us from a very proper concern with the ecological soundness of the relationship between our chosen people and the land." Agta-Palanan relations certainly appear to be "ecologically sound."

Another appropriate measure of the interdependence of two populations is the percentage of goods and services provided by each to the other. While each socioeconomic system might be able to persist independently, to do so would involve a social and economic change, such as labor or land intensification, or a reduction in available goods and services. This implies a significant degree of interdependence. The relevant question, then, is not whether there is a necessary or absolute interdependence, but rather what changes might be expected if interaction were eliminated. Certainly, we must not consider the interaction as beneficial to only a single social system as some authors imply.

This, in turn, suggests that we must see the two cultural systems as interacting in a

larger ecological system, each forming a part of the other's environment. This is a system of a different sort than the one Turnbull anticipates. Turnbull describes a rigid system based on an inflexible structure. I am suggesting, instead, a cybernetic system based on flux, for which we may be able to describe a structure. Thus, flux is seen not as a deterrent to order, predictability, and welfare, but rather as an adaptive response to the ever-changing environment. What Turnbull calls "system" is perhaps really "structure," since system more generally refers to elements "in interaction" (von Bertalanffy 1968:19, 38), i.e., while a structure may be derived from the "organized complexity" of systems (von Bertalanffy 1968:34), system also implies some kind and degree of process and flux. Behavior, whether of independent or interdependent populations, must be flexible in order to be adaptive. Bantu and Palanans must be able to maintain flexible behavior in order to respond to crop variations, climatological changes and disasters, Mbuti or Agta input, and so forth. They are open systems adapting to open systems (see von Bertalanffy's discussion of open systems, 1968:39-41). Similarly, Mbuti and Agta must be flexible in response to changing or fluctuating natural and cultural environments. Certainly, with technological development, a system becomes internally more rigidly structured; thus, as Service has indicated in his discussion of the Law of Evolutionary Potential (1960:93-124), the rigidities of an industrial system may inhibit great flexibility. By maintaining relatively low degrees of internal specialization, the populations discussed maximize a valuable flexibility and minimize labor intensity.

This discrepancy in interpretation between Turnbull and myself can perhaps be characterized as follows: Turnbull seems to regard structure as primary and system as an activity deriving from structure and regulated by it. I, on the other hand, regard system, both structure and process, as my own mental constructs that enable me to communicate my perceptions of human behavior. As I see it, a functional relationship does exist between Agta and Palanans and probably between Mbuti and Bantu. It is functional in the sense of controlling energy flow on a boundary. This control of energy flow is achieved by transforming surfeit or deficit in food supply into sufficiency through exchange. In these particular cases the major exchange is of protein for carbohydrate. These tandem systems, which might be seen as a single larger system, have been relatively stable through time. This is true in part because they are low labor intensive systems, and in part because other factors militate against change. For example, Palanans might begin to raise domestic animals in larger numbers for consumption. To do so, however, would increase their labor output and modify their relationship with Agta, potentially reducing their access to cleared land, or producing overt hostility. Stability does not, however, imply rigidity; rather, it exists in large part because of flexibility within the system. Furthermore, none of this is intended to suggest that Agta and Palanans exist in the best of all possible economic worlds. Change is, of course, occurring. Specifically, deforestation by logging companies will produce change, as will government intervention, either developmental or military. Internally, change would ultimately occur as the result of population growth, or potentially by changed behaviors. Flexibility is the nature of adaptation, and of open systems. This, however, is markedly different from Turnbull's perspective.

There are, as indicated, important methodological implications of this point of view. In order to evaluate the relations of tandem systems, we must have adequate descriptions of the food web, energy input and output, and the quantity and frequency of exchanges.

Analysis of tandem systems has, as well, significant implications for prehistory. If we calculate some form of horticulture in certain parts of the world as early as 10,000 B.C., we must acknowledge according to the actuality principle of geology and evolution, that for the past 12,000 years at least a portion of the earth's population may have been engaged in highly significant intercultural exchange. This perspective has two major

corollaries. First, in any interpretation of prehistoric peoples we should ideally consider the economic role of neighboring populations. Such considerations must go beyond material remains, such as pots, to a consideration of neighbors as providers of important food items. When adequate amounts of contemporary cases are provided, careful ecological analysis of prehistoric materials may even suggest specific foods, and quantities of foods, exchanged. We must see diffusion as a secondary element in an adaptive process (W. Peterson 1974a). Second, if such exchanges did occur prehistorically, we can assume that they may have slowed technological growth by reducing pressure toward internal specialization and increasing carrying capacity through intercultural, tandem specialization. Hutterer (1974) has postulated the existence of internal as well as foreign trade in the Philippines prehistorically, and has explored the implications of such trade for population movement, social stratification, and political leadership.

In cases of tandem specialization, ethnic boundaries may serve, in part, to demarcate and maintain discrete interdependent subunits within a larger economic system. Tandem specialization is, of course, only one type of ethnic relationship. Barth (1964:15) characterizes ethnic relations as competitive, cooperative, and symbiotic and acknowledges (1969:19-20) symbiosis and cooperation as typical of stable settings while competitive relations occur between populations occupying the same niche. Analogy with biological systems suggests potentially greater variety of relationships. Odum (1959:225-244) identifies several types of interspecies relationships: mutualism, symbiosis, parasitism, commensalism, proto-cooperation, competition, predation. Furthermore, these relations may change significantly over time (Odum 1959:226). Clearly, ethnic relations are complex and dynamic. On the whole, competitive relations have received far more attention than have relations with a positive valence (Despres 1975:201). Often where no competition exists between populations, it is assumed that no significant relationship exists and a culture is studied as if it existed in isolation. While each subunit (culture) may be legitimately studied independently, to do so is to bound the system operationally for the purposes of a particular kind of analysis. While all open systems must be bounded by the observer for purposes of examination and communication (Forrester 1968:4.1ff.), to pass off interdependence among cultural subsystems as superficial or irrelevant where it does occur is to ignore what may be a critical factor in survival. Finally, whereas culturally internal specialization implies labor and land intensification, intercultural or tandem specialization does not, and the same benefits can be achieved in terms of the survival of a population of a given size.

In summary, survey of reported cases of peasant/hunter-gatherer exchange and a careful examination of one such case from the Philippines indicate that studies of these interactions may be quite significant. The ecological, methodological, and theoretical implications of such research suggest that further inquiry along these lines may be productive.

NOTES

¹I refer to the Agta as hunter-gatherers, as do other Philippine scholars, in spite of the fact that they were excluded from *Man the Hunter* because "Most of the Negrito tribes of the Philippines practice at least a modicum of agriculture and thus fall outside the range of our discussion" (Lee and DeVore 1968:17). Certainly, these people cannot be called "tribal," and while they do some planting, many do not plant, and there are areas where none plant. I could scarcely call them "agriculturalists," or even "horticulturalists," and have avoided these problematic categories by discussing their subsistence activities in terms of the widening and diversification of the food web (Lewis 1972) or "broad-spectrum" subsistence (Flannery 1971:55-56).

²For examples of these references see Sinha (1972:386-387) and Williams (1968:129) on the Birhor of India; Gardner (1972:416-417, 441-442, 405) on the Paliyans of India; Lee (1972a:331-

334; 1972b:141; 1972c:348-349) on the !Kung Bushmen of the Kalahari; Woodburn (1968a:50) on the Hadza; Skeat and Blagden (1906:255) on the Malaya Negritos; and Garvan (1963:9, 32, 41, 58, 76, 80, 146, 158, 163, 261), Maceda (1964:46-48), Warren (1964:46-48), Vanoverbergh (1925:431 f.n., 157), Schebesta (1952-57 II: 156f), Reed (1904:44), and Fox (1956:98) on the Negritos of the Philippines.

³The shortwave radios and the telegraph together functioned no more than two or three months of the 15 months I spent in the area. My husband and I were in Palanan during the first moonwalk. This "giant step for mankind" was unknown there until we visited Manila several months later and carried the news back with us. Most residents treated the information with incredulity and, in some cases, alarm over our absurd claims.

⁴Production of roots and tubers was calculated separately for each species and cannot accurately be lumped or compared except in *peso* units. Certainly, roots and tubers are the carbohydrate foods of secondary importance, and sometimes rival corn as staples. One *cavan* equals approximately 36.37 liters (2.12 bushels).

⁵Mean *carabao* = 5.6, mode = 4, $r = 1-24$, $n = 68$. Mean chickens = 26, mode = 30, $r = 4-70$, $n = 68$. Mean pigs = 1.36, mode = 1, $r = 0-14$, $n = 68$.

⁶Many of these noncultivating individuals were not included in my sample because they were consistently unavailable for interviews since they were away from settled areas hunting.

⁷Average area cultivated per household in 1968 or 1969 was 0.85 hectare, although the average land claim equals 1.34 hectares.

⁸Of those Palanans interviewed on this matter ($n = 39$), 61% could not estimate accurately the amount of protein received from Agta. The remainder (39%) acknowledged roughly half of their protein as produced by Agta. This degree of interdependence is borne out by records of actual exchanges as summarized in Figure 1.

⁹I should point out, however, that while this is a particularly efficacious arrangement between hunter-gatherers and sedentists, it would seem less feasible between hunter-gatherers and swiddenists. This latter case might well exhibit conflict over mutually exploited resources (e.g., game, swidden plots), and at least provide less incentive to exchange due to closer parallels in resource exploitation.

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