Activism by researchers and research by activists are vulnerable to sudden interruption and do not combine well with the collection of data according to a routine, where this is necessary. How good such activist research is depends, as with all research and action, on the purpose, the costs, the alternatives, and replicability and impact. The impact of research and action with and by the poor will be slight if it changes only one small microcosm at the periphery; it will be more cost-effective if it spreads laterally or if it links back with and affects the cores of knowledge and power.

Finally, the conclusion from this discussion is that conventional and professionally respectable methods for rural research are often inefficient. The search is for approaches which are open to the unexpected, and able to see into, and out from, the predicament of the rural poor themselves. For the future, three poles of concentration may serve well: first, long-term, careful investigation, including statistical analysis, and involving social, medical and natural scientists; second, *ad hoc*, inventive work, improvising and adapting for the sake of timeliness and cost-effectiveness; and third, sensitive research which shifts initiative to rural people as partners in learning, enabling them to use and augment their own skills, knowledge and power.

Notes

1 Not entirely, however. See, for example, Kearl, 1976.
2 For a critique, see Cassen, 1976, pp. 793–795.
3 But for an excellent example see Gulati, 1981.
4 This summary does not do justice to the method. The reader is referred to CIMMYT, 1977a, 1977b, and 1978, and Collinson, 1981, for accounts which describe it in more detail as it evolved. See also CIMMYT, 1980 (part of which is summarised in IADS, 1981) for a guide to collaborative research by biologists and economists.

CHAPTER FOUR

Whose knowledge?

The development profession suffers from an entrenched superiority complex with respect to the small farmer. We believe our modern technology is infinitely superior to his. We conduct our research and assistance efforts as if we knew everything and our clients nothing.

Hatch, 1976, pp. 6–7

In practice, the comparison with knowledge of western scientists is rendered . . . difficult . . . since the !Kung appear to know a good deal more about many subjects than do the scientists.

Blurton Jones and Konner, 1976, p. 328

Mwalimu Nyerere is right. So-called leaders do entirely too much talking to the peasants. No one ever wants to listen to them.

A Tanzanian agricultural extension worker (Thomas, 1977, p. 30)

The links of modern scientific knowledge with wealth, power and prestige condition outsiders to despise and ignore rural people's own knowledge. Priorities in crop, livestock and forestry research reflect biases against what matters to poor rural people. Rural people's knowledge is often superior to that of outsiders. Examples can be found in mixed cropping, knowledge of the environment, abilities to observe and discriminate, and results of rural people's experiments. Rural people's knowledge and modern scientific knowledge are complementary in their strengths and weaknesses. Combined they may achieve what neither would alone. For such combinations, outsider professionals have to step down off their pedestals, and sit down, listen and learn.

Knowledge, power and prejudice

It is a truism that knowledge is power. At the crudest level,

technological 'superiority' carries superior physical power:

> Whatever happens we have got
> the Maxim gun and they have not

But the relationship has wider and subtler ramifications. Those who are powerful and dominant have the greatest accumulations of wealth, a centralised and interconnected system of communication, an ability to determine what new knowledge shall be created, and control over flows of information from the centre to the rural periphery. The association of outsiders' modern scientific knowledge with wealth, power and prestige generates and sustains beliefs in its universal superiority, indeed beliefs that it is the only knowledge of any significance. After all, it is this knowledge which has made possible the cities, roads, railways, telephones, transistors, schools, hospitals, medicines and guns which have penetrated and transformed many rural areas. Uneducated rural people see that this sort of knowledge, acquired through schooling, leads upward and away from rural life to urban opportunities and rewards.

Those who acquire formal education and training then have a personal stake in the system. If they live and work in rural areas they derive their status partly from their positions as bearers of modern knowledge. School teachers, health workers, agricultural extension staff, and other rural officials look upwards and towards the centre for authority and enlightenment. They, like others with formal education and training, need to believe that the knowledge and skills they have acquired are superior and that uneducated and untrained rural people are ignorant and unskilled. From rich-country professionals and urban-based professionals in third world countries right down to the lowliest extension workers it is a common assumption that the modern scientific knowledge of the centre is sophisticated, advanced and valid and, conversely, that whatever rural people may know will be unsystematic, imprecise, superficial and often plain wrong. Development then entails disseminating this modern, scientific, and sophisticated knowledge to inform and uplift the rural masses. Knowledge flows in one direction only – downwards – from those who are strong, educated and enlightened, towards those who are weak, ignorant and in darkness.

Outsiders' biases

In rural development, the centre-periphery biases of outsiders'

knowledge are reflected in the concentration of research, publication, training and extension on what is exotic rather than indigenous, mechanical rather than human, chemical rather than organic, and marketed rather than consumed. It is reinforced by other biases – towards what concerns men rather than women, adults rather than children, the clean rather than the dirty, and, pervasively, the rich rather than the poor.[1] Some of these points can be illustrated from research and extension in the three domains of crops, livestock, and forestry.

In crop research, priority, prestige and promotion have gone with work on crops for export, grown usually by plantations, large farmers, the better-off small farmers, and the men of the household rather than the women. These crops include rubber, tea, sisal, jute, palm oil, cotton, coffee and cocoa. Since the 1970s and the initiatives of the international agricultural centres, more attention than before is being paid to poor people's and women's crops for subsistence – such as the millets, sorghum, cowpeas, chickpeas, cassava (tapioca, manioc, yucca), sweet potatoes, and yams. But they are still often overlooked. Sometimes they do not even appear in agricultural production statistics, as with cassava in Zambia, although cassava is grown by over half the Zambian rural population and is for many of them the basic staple, and for most the fall-back food of last resort (ILO, 1981, p. 59). In Zambia, too, in 1980, there was only one solitary research agronomist working on cassava. Sometimes, also, research on crops which poor people eat is geared not to what people need (usually more calories) but to what makes large-scale livestock enterprises profitable (more protein), as with sorghum breeding for animal forage rather than human consumption in north-east Brazil (Sanders, 1980). And following on from priorities in research, so agricultural extension for small farmers has concentrated on cash crops and those, usually the better-off minority of farmers, who are able to grow them.[2]

Livestock research and extension follow similar patterns.[3] The carriers of modernity have often been exotic cattle, bred for and suitable for temperate climates, and needing special care and coddling to survive in the tropics. There is here something of a professional fixation. It was at one time fashionable to believe that certain East African tribes had an irrational, emotional and aesthetic attachment to cattle, dubbed the 'cattle complex'. But it was veterinary and animal husbandry experts who suffered most from this complaint. Their attachment to exotic cattle to the exclusion of native beasts and other domestic species may have had aesthetic and emotional dimensions, but there was also a degree of irrationality. To be sure, there were successes, as with

small farming dairy cattle in Kenya. But more generally, what Robert McDowell has called the 'milk and meat complex' of expatriates was based on their professional training for the conditions and needs of rich, temperate countries and was inappropriate for those which were poor and tropical.

For the poorer rural people, exotic cattle are usually either impossible or unattractive as investments. In economic terms they are 'lumpy': they come in large units of value which are not divisible while alive and which do not store well when dead. This concentrates risks. Moreover, they are vulnerable to tick-borne and other tropical diseases (rinderpest, foot-and-mouth, East Coast Fever . . .). Only households who are already well buffered against contingencies may be sensible to risk exotic cattle. In contrast, the animals of the rural poor are cheaper and smaller: either physically less large native cattle, partly resistant to local diseases, or other usually smaller animals – donkeys, mules, yaks, llamas, pigs, sheep, goats, turkeys, hens, guinea fowl, pigeons, ducks, rabbits, and guinea pigs. Of these, goats[4] and donkeys have been especially neglected.

Goats have many advantages for poor people: they are less lumpy than cattle and so spread risks better; it is cheaper and easier to obtain a few to breed up; they reproduce fast; they can be used as buffers to raise cash for small or urgent needs without selling a major asset; they are a larder of food that can be used at any time; they can be herded by children; they browse on bushes and can be managed to produce milk in the dry season when milk from cattle drops off (Swift, 1981a, pp. 82–84); and they can be used for entertaining visitors or for special occasions and feasts. Yet they have been the subject of relatively little research, are ignored in most government extension programmes, and are regarded by some professionals as a pest. Even the dung of goats has been neglected in work on biogas in India although, as Amulya Reddy has pointed out, it provides a way for some of the poor who do not own cattle but who do have goats to contribute to a communal digester.

Donkeys, even worse, are a joke and their value little recognised. At a subliminal level, those who have had an English or French Language education may despise donkeys partly through the associations of ass and âne applied to human stupidity. The Shorter Oxford English Dictionary (1955) has for donkey: 'A stupid or silly person', and 'An ignorant fellow, a conceited dolt'. Under 'goat' we find 'to play or act the (giddy) goat' meaning to play the fool. Mules, however, do a little better. The SOED, while conceding 'A stupid or obstinate person' is gracious enough to assert, though in brackets, that '(*Without good*

grounds, the mule is a proverbial type of obstinacy)' (my emphasis). The stereotype of the despised donkey is reflected in G. K. Chesterton's verse:

> When fishes flew and forests walked
> and figs grew upon thorn.
> Some moment when the moon was blood
> Then surely I was born.
>
> With monstrous head and sickening cry
> and ears like errant wings,
> The devil's walking parody
> Of all four-footed things.

But it concludes:

> Fools! For I also had my hour;
> One far fierce hour and sweet:
> There was a shout about my ears,
> and palms before my feet.

Perhaps the donkey's hour will come in professional research; or perhaps since it is so tough a beast, so well adapted to bad conditions, it has already achieved a sort of perfection beyond the power of research to improve. This is consistent with Polly Hill's praise of them in Hausaland: 'These small, sturdy, tax-free beasts can manage loads of 200 lbs upwards . . .' (1972, p. 227). But she notes that they have been overlooked. 'Although donkeys are the local camels of Hausaland, and are a most valuable source of manure, their importance has been neglected in literature – for instance by (an FAO report) which regards headloading as the only alternative to road, rail and water transport' (*ibid*, p. 226). Donkeys are important for the earning capacity of the poorer rural people. Mules too can play an important part in the economy of a poor family; the distress sale of a mule by one of the five families studied by Oscar Lewis in Mexico meant less wood to sell, less earned by carting crops, and more trips to bring in the family's own crops (Lewis, 1959, pp. 39–40, and pp. 118–19 below).

No Nobel prizes have been awarded for work on donkeys, goats or mules.

Forestry has similar biases in research and extension. Tropical forestry has paid much attention to the introduction of exotic trees and their culture in single-species stands in plantations. Little attention has been paid to indigenous species and their cultivation. In their study of the knowledge of

vegetation of the Mbeere in Kenya, Brokensha and Riley point out the lack of exotic species which provide good timber, while foresters were ignorant of indigenous species which did provide good timber (1980, pp. 122–3).

Another pervasive bias is against the technology and needs of rural women. Until recently, little attention was paid to home gardens and backyard farming, often sources of small but vital incomes for women. Domestic technology – for processing food, cooking, cleaning, sewing, fetching firewood, carrying water – all traditional responsibilities of rural women, is regarded as uninteresting, a low priority. When the person-hours devoted to these activities are considered, and the drudgery they entail, it is a grave reflection on those with power how miniscule has been the attempt to improve the technology of such activities. The processing of staple foods (cassava, millets, sorghum, paddy) by hand is a gruelling task for hundreds of millions of women, yet easier domestic processing is little recognised as a criterion in seed-breeding, and few engineers or scientists have turned their minds and energies to seeing how, from the woman's point of view, the process could be made easier.[5]

The pro-male and anti-female bias applies in other spheres too. Ploughing, mainly carried out by men, has received more attention than weeding or transplanting, mainly carried out by women. Cash crops, from which male heads of household benefit disproportionately, have received more research attention than subsistence crops, which are more the concern of women. Even now, after a massive shift of rhetoric and a notably less massive shift of real priorities towards rural women and their needs, not much more than a modest foothold has been established in the field of technical scientific research and government extension. There is a male cognitive problem. To take but one example – 'Foresters in Senegal say repeatedly that women cannot be involved in projects as they do not and cannot plant trees, when Senegalese women have traditionally raised crops as well as planted trees in the courtyards of these foresters' own homes' (Hoskins, 1979, p. 14). As a first step from this stage of denial, tokenism is becoming more common – the appointment of a woman staff member, or of the setting up of a (small, weak) extension section for women for what in the UN's language, are described as 'optical' or more generally as 'cosmetic' purposes. It is rare indeed to find substantial changes in perception, attitude or behaviour among the male majority of professionals. Scientific and engineering establishments in particular remain heavily male-dominated and are usually still a very long way from recognising, let alone giving balanced attention to, the needs of

rural women.

Other prejudices also make it hard for professional outsiders to perceive what is important to poor rural people or its advantages. The rich despise the things of the poor; the powerful despise the things of the weak; the learned despise the things of those they think ignorant. In the simple and eloquent, if urban and male-biased, words of Ecclesiastes:

> There was a little city, and few men within it; and there came a great king against it, and besieged it, and built great bulwarks against it;
>
> Now there was found in it a poor wise man, and he by his wisdom delivered the city; yet no man remembered that same poor man. Then said I, Wisdom is better than strength: nevertheless the poor man's wisdom is despised, and his words are not heard.
>
> The Bible, Authorised Version, Ecclesiastes 9, verses 14–16

In the Philippines, Noel D. Vietmayer reports that a visitor discussed the winged bean with an influential Filipino family. They were incredulous that such a miraculous plant could exist. So on a hunch the visitor took them out to the back to the servants' quarters. There climbing along a fence was a winged bean plant laden with pods. '"But that's just *sequidillas*," they said, disappointment echoing in their voices. "It's only a poor man's crop".' (Goering, 1979, p. 1).

In Kenya, the *mukau* tree has long been recognised by the Mbeere people as a valuable resource, pre-eminent among local trees; it produces a bole that can be longitudinally split for house construction poles which are relatively straight, have an untwisted grain, warp less than other woods and are moderately durable in the ground. Brokensha and Riley consider that this is probably the only indigenous timber tree that has been deliberately encouraged and conserved on a wide scale. The seedlings 'which appear to germinate successfully once the seeds of the fruits browsed by goats have been passed in their droppings, are, when found in clearing land for cultivation, protected and reared as individual property'. They continue:

> At the time of our enquiries, few forestry officials knew that this valuable tree could be germinated by people: indeed, some authorities denied this verbally and in print. Yet as we were told rather scathingly by an old man, who was surprised by our ignorance 'every uncircumcised herd-boy knows how

we germinate *mukau*' (Brokensha and Riley, 1980, p. 123).

Perhaps the cognitive problems of professionals are most intractable when several biases interlock. The germination of the *mukau* tree combines the low status of the indigenous trees, the low status of the goat, and the even lower status of goats' droppings. It is no wonder that they pass unnoticed and their potential is overlooked: a programme to germinate *mukau* trees, however admirable a long-term investment for the people of Mbeere, would require foresters to collect the seeds of an indigenous tree, keep goats, feed the seeds to the goats, collect the goats' droppings, and then tend the droppings with care.

Rural people's knowledge

Centralised urban and professional power, knowledge and values have flowed out over and often failed to recognise the knowledge of rural people themselves. An exception has been social anthropologists who have been at pains to experience cultures other than their own from inside, and to learn and understand the values and knowledge of those cultures. The result has been recognition of the complexity, variety and validity of indigenous knowledge systems.[6] These have been variously described as people's science, ethnoscience, folk-ecology, and village science (see e.g. Barker *et al.*, 1977, pp. 2–3). The ethno prefix is widely used, as in ethno-ecology, ethno-soil science, ethno-agronomy, ethno-anatomy, ethno-taxonomy, ethno-botany, ethno-medicine, ethno-linguistics and ethno-aesthetics. Others have written about indigenous technical knowledge (ITK) (IDS, 1979) which can be contrasted with modern scientific knowledge (MSK). More simply 'local knowledge' has also been used (Körten and Uphoff, 1981).

There are problems with all these terms.

People's science can be used to describe the knowledge system of a group of rural people. But in addition, it has been used to describe not the science *of* the people, in this sense, but science *for* the people, making the knowledge of formal science available to them. Thus, describing the People's Science Movement in Kerala, K. P. Kannan (1981) mentions 'study classes and lectures wherein the received knowledge in science and technology was shared with the people'. These science classes 'dispelled any doubts about people's ability to think in ways and methods other than the ones they were accustomed to'. There was a dialogue with rural people, but, it seems, no attempt to learn from them.

Ethnoscience also has a range of meanings. It can be used to

describe indigenous knowledge systems themselves. But to one writer, this includes Western science as one among many ethnosciences (Meehan, 1980, p. 385). For some others, the term ethnoscience also refers to the methodology for eliciting, translating and interpreting the knowledge system of a particular culture (Werner and Begishe, 1980, pp. 151–2).

Indigenous implies originating from and naturally produced in an area, but rural people's knowledge is also added to, influenced by, and destroyed by knowledge from outside the area. However, the literature on indigenous knowledge systems (e.g. Brokensha, Warren and Werner, 1980) and on indigenous technical knowledge (ITK) (IDS, 1979) has served to emphasise the separateness, sophistication and validity of the knowledge of groups of rural people, and the 'technical' in ITK also has a healthy effect in emphasising the practical nature of much of this knowledge.

Local knowledge is tempting for its simplicity. Local knowledge of rural peripheries can be contrasted with centralised knowledge of urban cores. But a weakness is the commonsense interpretation that it refers to knowledge of a local environment, rather than to the knowledge of people existing as a system of concepts, beliefs, and ways of learning.

While using some of these terms where appropriate, I shall adopt *rural people's knowledge* as my most inclusive term. The 'rural' includes those farmers, both small and large, who are thoroughly in the market, purchasing inputs and selling cash crops, as well as groups like the San of the Kalahari or the Hanunóo swidden cultivators of the Philippines who have been much more autonomous. The 'people's' part of the term emphasises that much of the knowledge is located in people and only rarely written down. 'Knowledge' refers to the whole system of knowledge, including concepts, beliefs and perceptions, the stock of knowledge, and the processes whereby it is acquired, augmented, stored, and transmitted.

Outsiders are hindered from appreciating and learning from rural people's knowledge by many forces. Besides power, professionalism, prestige, lack of contact, problems of language, and sheer prejudice, another factor is the gap between practitioner and academic cultures. Those outsiders who have most studied and understood rural people's knowledge have been social anthropologists: they have concentrated somewhat on remote and isolated people who often prove to have rich and complex indigenous knowledge systems. The painstaking studies of these social anthropologists have led them off into what, to the uninitiated, must appear a morass of detail, and into

what for practitioners is bound to appear an esoteric analysis of the cognitive systems of particular rural cultures. To the practitioner's question – so what? – they may not always be ready with an answer. Some academics may even be open to charges of romanticism, and stamp-collecting.

The result of this communication gap between academics and practitioners is unfortunate. On the one hand we have rural people and a handful of researchers with access to and understanding of rich and detailed systems of knowledge which do not influence development; and on the other we have government organisations and staff engaged in development but ignorant of and conditioned to despise that knowledge. To bridge the gap requires reversals to offset the grotesquely unequal balance between outsiders' knowledge and rural people's knowledge. Outsiders' knowledge (modern, scientific . . .) is accessible to them in books, and information retrieval systems, is easily communicated, and is taught all over the world. It both supports the state and the state apparatus and is supported and propagated by it. It can claim to be universal. In contrast, the knowledge of any group of rural people is accessible to outsiders only through learning from rural people themselves or, rarely, through ethnographic literature coded in anthropological jargon. Moreover, rural people's knowledge exists in innumerable forms among innumerable groups of people in innumerable environments. Outsiders, so well connected to centralised knowledge, have access in the written form to only a minute proportion of that of rural people. It is the powerful who are ignorant. It is they who have to begin as learners, and rural people who can instruct them.

In seeking a balanced view of rural people's knowledge, it is as well to note that it can be overvalued as well as despised. The social anthropologists who have elicited it have been well-disposed towards it and have praised its richness and interest. However, the communities which are most cited tend to be those which have revealed the most remarkable knowledge; in the discussion which follows, this applies to the Hanunóo swidden cultivators of the Philippines studied by Conklin (1957, 1969) and the San (Bushmen) of the Kalahari studied by several authorities. The spread and depth of knowledge in a community may also be exaggerated through the selection of informants. Any prudent investigator will seek out those who know most:

> Generally, the best information about the small annual herbs is obtained from older women; herd-boys, being always hungry and also experimental, are experts on the range of wild edible fruits; honey-collectors show the most detailed knowledge of flowering sequences, and indeed know most differential characteristics of their local plants. Yet even within a group, one individual will stand out because of keen powers of observation, prodigious memory, curiosity and intellect.
>
> (Brokensha and Riley, 1980, p. 121)

What is recorded may then represent what those who are best informed know, and is by no means an average for the society as a whole. Nor is rural people's knowledge always valid or useful. A further danger is that some observers may be tempted to revive the Noble Savage, or to reincarnate him[7] as the Rational Peasant whose actions are perfectly judged exercises in optimisation that even well-informed computers can only struggle to simulate. But these positive biases may be no bad thing. The colonising force of outsiders' knowledge is programmed to override and bury other paradigms and to impose its own. It needs to be offset by countervailing power. To balance it not only requires an independent and open mind; it also requires positive discrimination.

Rural people's knowledge, and especially indigenous knowledge systems, have many dimensions, including linguistics, medicine, clinical psychology, botany, zoology, ethology, ecology, climate, agriculture, animal husbandry, and craft skills. Its validity and range have been neglected in all of these. In supporting reversals in the attitudes and behaviour of outsiders, four out of many aspects will be singled out for comment. These are farming practices; knowledge of the environment; rural people's faculties; and rural people's experiments.

Farming practices

Many of the practices of small farmers which were once regarded as primitive or misguided are now recognised as sophisticated and appropriate. Examples of this understanding include various forms of sparing tillage and shifting cultivation (Allan, 1965; Boserup, 1965; Harwood, 1979; de Schlippe, 1956). Only one such practice will be described here, by way of illustration: mixed cropping in West and East Africa. This refers to the growing of two or more crops simultaneously on the same land. Mixed cropping has been and remains a widespread technique in small farming in tropical Africa and elsewhere. Yet for many years it was regarded as backward. Since agricultural research was confined to pure stands of crops, it was only natural that the advice emanating from research stations and conveyed to farmers

was also to plant pure stands. When small farmers continued to plant mixtures they were branded as primitive, conservative, ignorant, lazy and unprogressive.

With hindsight, the agricultural researchers and extension staff are easily condemned. But there were many reasons for their behaviour. Many of the researchers were foreigners with a background and training in the agriculture of temperate climates, with large farms and mechanised row-planting, weeding and harvesting, where pure stands made economic and agronomic sense. The agricultural development policies of the colonial countries where they worked aimed to increase the output of single crops, mostly cash crops for export but also food crops for domestic consumption. Monoculture was practised by large (plantation, European settler) farmers who influenced research policy. The organisation and rewards of agricultural research also pushed researchers towards work on only one crop at a time: crop-specific teams were, and still are, a simple way to organise research, and work on one crop at a time is statistically simpler than work on intercropping with two or more. On top of all this, in most of Africa, expatriates conducting agricultural research suffered from cultural conditioning which made it difficult for them to see indigenous farming as anything but backward. The model in their minds was a tidy, geometrical, mechanised field in Europe or North America. The higgledy-piggledy muddle (as it seemed) of mixed cropping on African farmers' fields scarcely appeared a place to learn anything.

And yet it was (Belshaw and Hall, 1972; Norman, 1974; Belshaw, 1979). Not only have many of the supposedly irrational and wasteful practices of traditional African farming been found to be prudent and sound, but mixed cropping has been shown to have many advantages, including:

- different rooting systems exploit different levels in the soil profile for moisture and nutrients;
- one crop may provide a favourable micro-climate for another;
- nitrogen-fixing plants fertilise non-nitrogen fixing plants;
- crops which are scattered among others are less vulnerable to pest attacks than single stands;
- labour requirements are less, especially in reducing weeds;
- labour peaks are spread out;
- more moisture is retained in the soil;
- returns are higher per unit of land;
- successive sowing of crop mixtures supplies a mixed diet over an extended harvesting period;

- risk is less;
- where labour is a constraint, the returns to labour are increased at the time of the year when labour is limiting.

Not all of these may apply in every case. But the list is impressive. So is the fact that it took organised agricultural research decades to realise that what appeared primitive and unprogressive was complex and sophisticated. Small farmers are, after all, professionals. They cannot afford not to be. And as professionals they have much to teach.

Knowledge of the environment

Knowledge of the observable environment is also often very detailed. There is a debate (Howes, 1979) as to what extent such knowledge is utilitarian, and to what extent it reflects innate curiosity and the spirit of enquiry. It may be significant that the knowledge which presents the most categories and the finest discrimination is that of communities which live in environments with much diversity (presenting the opportunity), and/or which live near the margins of survival (presenting the need). Ethnobotany provides striking examples. Heinz and Maguire record that an !Ko bushwoman who was considered to have an average knowledge of plant lore for an adult member of her community, could recognise, identify and name 206 out of 211 plants, in spite of the effects on the specimens of a severe drought; and they considered that at least 300 plants were part of the generalised botanical knowledge of a Bushman (n.d., p. 43). Even more remarkable Conklin noted for the Hanunóo swidden cultivators in the Philippines:

> More than 450 animal types and over 1600 plant types are distinguished . . . of some 1500 'useful' plant types over 430 are cultigens (most of which are swidden-grown), existing only by virtue of the conscious domestication of the Hanunóo. Partly as a result of this intensified interest in plant domestication and detailed knowledge of minute differences in vegetative structures, Hanunóo plant categories outnumber, by more than 400 types, the taxonomic species into which the same local flora is grouped by systematic botanists.
>
> (Conklin, 1969, pp. 229–230)

For the Andes, Brush reports 'vast numbers' of locally named

varieties or cultivars of potatoes, with up to one hundred in any locality and several thousand in the central Andes alone (1980, p. 40). For any rural society, it is difficult to foresee how rich the naming of types will be but there may often be many more than the outsider is predisposed to expect.

Soils and land types are another domain where local knowledge is strongly based. Soil types are usually distinguished by colour and texture. Some farmers in Nigeria use colour to identify degrees of soil fertility (Netting, 1968). In one case in Malaysia soils are also discriminated into three categories by taste, as sweet, neutral and sour – categories which correlate significantly with pH levels (Weinstock, 1977). The Hanunóo are reported to have ten basic and thirty derivative soil and mineral categories, four different terms for describing the firmness of soil, nine colour categories to reflect its properties, five different topographical types, and three different ways of categorising slopes (Conklin, 1957, p. 36). Soil colour is used by Somalis in Northern Kenya to distinguish soil-vegetation associations (Chambers, 1969), the strongest distinction there, as in other parts of Africa, being between red or dark brown and black soils. In Bangladesh indigenous land classification is based on the depth of flooding and associated differences in cultivation practices: six different depths are distinguished. While depth of flooding is not the only land characteristic important to cropping, it is 'certainly one of the most important considerations for use of some areas in Bangladesh' (Brammer, 1977). Nor are rural people's categories for land and soil limited to the third world. Stephen Kraft at Cornell University is reported to have found farmers in up-state New York to have 18 operational categories for land types, including such aspects as drainage, rockiness, slope, and duration of frost, and to find these more useful than the USDA soil classifications.

Climate is another sphere in which local knowledge can be strong and local lore soundly based. W. Reed (1970) made an intriguing discovery through his study of pest insects in East Africa. He collected them at night by attracting them to a light. The effectiveness of this method varied with the amount of competing light from the moon. This led him to become interested in cloudiness in relation to phases of the moon. He found that farmers generally sowed according to the phase of the moon, believing that there were lunar phases in rainfall. The Meteorological Office in Nairobi was sceptical, but Reed analysed five and a half years of rainfall data which supported the belief. The Meteorological Office was not at first convinced, but a subsequent analysis of rainfall at 200 sites near Nairobi confirmed

an association between rainfall and lunar phase. The scientific explanation is that the lunar phase influences the amount of dust entering the earth's atmosphere which seeds rainfall. In Reed's words, 'The experts claimed that such effects could not affect rainfall in the tropics but the local farmers knew better'.[8]

Examples might be multiplied to cover the seasons, water sources, animal behaviour, insects and other invertebrates, livestock and livestock husbandry, and micro-environments. Rural people discriminate these not only through categories and their indicators and boundaries, but also in terms of location and timing. People often know not only the *what*, but also the *where* and the *when* of plants, animals, water, fruits and other elements of their environment.

Rural people's faculties

A strength of rural people's knowledge is the faculties which maintain, extend, and correct it. These may include acute observation, good memory for detail, and transmission through teaching, apprenticeship, and story-telling. These are needed because of a high wastage and replacement rate, much faster than with outsiders' knowledge stored on paper, in libraries, and on computer tapes. Such rural knowledge is at the same time vulnerable and adaptable. It is continuously lost through death; it is continuously renewed and corrected through observation. The Gourma of Upper Volta have a saying *'A yaa nua, a ba bandi* – How can you know if you have not seen?' (Swanson, 1980, p. 82).

Much of the knowledge of animal behaviour of the !kung San of the Kalahari is based on direct observation and respect for evidence. Blurton Jones and Konner found in seminars with San that they distinguished sharply between hearsay and direct observation; that in one discussion 'there was a striking rejoinder by an elderly man that his colleagues should speak only if they have seen things happen' (1976, p. 330); a readiness to admit ignorance; a lack of defensiveness when asked how they knew something – such questions typically leading to long and careful descriptions of observations or of tracking evidence; and a delight in long and detailed story-telling, including mimicry. Blurton Jones and Konner concluded that !kung observational methods resemble those of modern-day western ethology in attention to detail, in distinguishing data from hearsay, and in general freedom from inference. 'In these respects their observations are superior to those of naturalists such as Gilbert White and Aristotle, and very sophisticated indeed when compared with the

legions of animal behaviourists among western hunters, gamekeepers, and pet owners' (1976, p. 333). Those who have to survive in extreme conditions cannot afford inaccurate observations or misleading inferences. For other rural people in less extreme conditions, and more so for those with secure or affluent livelihoods, there is more leeway, and their knowledge may be correspondingly less sharp and exact.

Rural people's knowledge can be underpinned and enhanced by a richness of discrimination not easily available to outsiders' science. This derives from an ability to use a wider range of experience and more of the human senses than a scientist. Two examples can illustrate this. First, !ko San identifying plants do not rely merely on visual appearance, as a conventional scientific taxonomist might. Rather:

> The !ko Bushman after his initial scrutiny, will sometimes be observed to touch or feel by rubbing between his fingers certain plant parts. He may then carefully smell and also taste these parts. Finally he may repeat the whole of this procedure after he has crushed or teased apart the feature being examined. All these observations can be of great assistance to him in successfully establishing the identity of a plant which for various reasons may offer problems in straight-forward identification. It may be mentioned that this procedure is but rarely adopted by the conventional ecologist and for obvious reasons usually cannot be adopted by the indoor taxonomist. Thus again is made manifest the detailed and in fact superior approach of the !ko Bushman to one aspect of plant taxonomy, and the welter of facts which when coordinated and learned form the basis and substance of his practical plant lore.
>
> (Heinz and MacGuire, n.d., p. 13)

A second example has been presented by Graham Chapman (1977). He sought to compare Bihari folklore about climate with what had been observed scientifically. He could obtain records giving rainfall for each 24 hour period measured precisely to within 1 mm for six stations for the period 1891 to 1965 with very few gaps. But he had only occasional average data for longer time periods for temperature and wind. A further problem with the scientific data was that they were aggregated according to the European calendar, while the intervals of the Bihar calendar better fitted and described local seasonal changes. As Chapman points out, the folklore contains very coarsely observed data for several variables. But this may be superior to more precisely

observed data on only one variable. In information theory, five variables each measured on a scale of only three categories (for example hot-warm-cold, or wet-damp-dry) can convey as much information as a single variable on a scale of 1 to 243. Rural people's knowledge can have here a major advantage over that of outsiders. Whether it is San seeing, touching, crushing, smelling and tasting different parts of a plant, or a Bihari sensing insolation, cloudiness, cloud shapes, humidity, temperature, weather-related animal behaviour, and rainfall, they can achieve a richness of observation and a fineness of discrimination which would only be accessible to organised science through a vast exercise of measurement and computing. Five senses, keen observation and a good memory go a long way.

Rural people's experiments

Perhaps the least recognised aspect of rural people's knowledge is its experimental nature. Michael Howes has postulated 'the likely universality of what might best be described as the "experimental mentality" – at least where relatively little risk is entailed' (1979, p. 18). Experiments can also be risk-minimising. When cassava came to Nigeria, it was known to be sometimes toxic; so to establish the conditions in which it could be eaten safely by humans, it was first fed to goats and dogs. Jeremy Swift reports that pastoralists in Mali noticed that drinking a lot of tea made people nervous and irritable and argued whether the tea or the sugar was the agent. To find out, they took the liver of a freshly slaughtered animal and poured on first, water and sugar, which gave no reaction; and then tea without sugar, which did give a reaction. It is scarcely surprising if an experimental mentality should be part of the human condition, at least among those whose education has not suffocated it; prudent curiosity and judicious testing have survival value.

The experimental approach is marked in agriculture. It is implicit in the selection of seeds or clones. Andean farmers select potato varieties according to several criteria (Brush, 1980, pp. 45–46). The Director of the Bangladesh Rice Research Institute knows of three cases where farmers have made their own selections from IR-8, one of the earliest high-yielding dwarf varieties of rice released by the International Rich Research Institute; in all cases they selected greater plant height for conditions where flooding was difficult to control (Brammer, 1980, p. 25). Small farmers in Kenya tend and nurture clones for their best tea bushes in improvised greenhouses (Fitzgerald, 1980).

None of this should occasion surprise. It is, after all, through such selection that domestic crops and livestock have evolved over the ages. But experimentation goes further than this. There is curiosity in trying out new plants and new methods of cultivation. The Hanunóo are reported to show great interest in unfamiliar plants which are tested on small plots near to people's homes (Conklin, 1957, p. 10). The adoption of any new crop or practice is an individual experiment. Farmers can also be ahead of scientists in breeding techniques. Paul Richards reports this anecdote. In Nigeria, a scientist made a breakthrough. Yam propagation is normally vegetative, but the scientist managed under his experimental conditions to breed some yams from seed, as he believed for the first time. However, on a chance encounter a farmer said that he had himself succeeded in doing this; and not only that, but he had also discovered, as had the scientist, that although the first generation of tubers were small, second and subsequent generations were of normal size. Legend concludes this anecdote with the scientist thanking God that farmers did not compete in writing scientific papers.

The readiness of small farmers to experiment and innovate on their own has been obscured by the preoccupation in the social sciences with the agricultural research, extension and communication which are carried out through official organisations. The fact is that innovations which farmers can manage and find are good spread very rapidly indeed, through innumerable personal trials. In Sri Lanka, the new rice variety H4, released for general cultivation in 1953 (Dias, 1977, p. 57), raised yields by some 50 per cent and swept through the island. Though not true in that case, the spread of an innovation often has nothing to do with the official research and extension system. Brammer reports many innovations originated by small farmers in Bangladesh and their rapid spread. 'The impression is gained of an unofficial research and extension network operating independently – even obliviously – of government programmes, often more practically oriented than the latter and, becuase of this, apparently more successful in terms of new adopters' (1980, p. 25). All too commonly, the unofficial research network is overlooked by all except small farmers themselves.

The best of both

In most countries of the third world, rural people's knowledge is an enormous and underutilised national resource. John Hatch has written that the small farmer's expertise represents 'the single

largest knowledge resource not yet mobilised in the development enterprise', going on to say that "we simply cannot afford to ignore it any longer' (1976, p. 17). For Bangladesh, Hugh Brammer has observed that ignorance of the basic adaptive research carried out by farmers themselves implies waste of 'a tremendous resource of native talent and information which officials could use to amplify and accelerate their own research and development activities' (1980, p. 25). Brokensha, Warren and Werner consider that indigenous knowledge systems should be regarded as part of national resources, 'although so far nearly all nations have virtually ignored this national asset' (1980, p. 3). These statements are true in several domains besides agriculture with its dense research network of small farmers. In medicine, indigenous health practitioners are there already (Pillsbury, 1979), operating at the periphery but largely unconnected either with the modern medical system or with each other. In fishing, forestry, game, animal husbandry, and water resources there are also innumerable skilled and well-informed local experts.

The word 'expert' is used advisedly. Many activities undertaken by rural people and scientists are similar: they distinguish, name and classify entities in their environments: they observe, compare and analyse; they experiment; they attempt to predict. Enough has been presented to show, contrary to some professional prejudice, that there is much for outsiders to learn from rural people. The question now is to assess the relative strengths and weaknesses of outsiders' and rural people's knowledge, and to see how the strengths may be combined and the weaknesses neutralised.

Let us look at this from the point of view of their comparative advantages.

Some of the strengths and weaknesses of rural people's knowledge are embedded in their languages and concepts. What is perceived affects the language evolved to describe it; and language in turn provides concepts and categories which shape perception. Colour discriminations are an example. On the one hand, the colours actually seen by people vary: populations near the equator tend to have accumulations of pigment within the eye, acting as a protection against the potentially carcinogenic high incidence of ultra-violet and near-ultra-violet radiation, and this pigment attentuates short wave-length radiation. The lowered discrimination of shades of blues and greens is said to be reflected in the absence of terms differentiating these colours (Bornstein, 1975). On the other hand, the many fine distinctions of shades and patterns of brown among pastoral nomads which are used to describe and distinguish their animals are proverbial,

and probably without equivalents in other languages. Colours illustrate nicely that different people can and do see and discriminate in different ways.

Other local words and concepts are inclusive rather than differentiating, combining categories which the outsider is trained to keep separate. These can be helpful. A simple example is a local term for a soil-vegetation association which an outsider would do well to adopt for its utility. Other words and concepts can lead to confusion. They may combine spatial, social and ecological dimensions in a broadly inclusive span. The Hausa word 'gàrii' means: 'human settlement or inhabited place, especially township or village-area (also country or chiefdom), community, inhabitants (of a settlement); (local) economy, including farmland, crops, weather and (local) sky' (Dalby, 1964). This and some similar words:

> ... are ecological concepts par excellence. If the words are hard to classify into the field of 'geography' or 'sociology', this is because their meaning applies at once to a place, to the social group which occupied the place, to that group's internal structure, to the relationship between the group and the place, and to the way in which the place has been moulded by the group
>
> (Langley, 1975, p. 97)

Appreciating this range of meanings is important if outsiders are to understand rural people's ways of thinking and to avoid misunderstanding. More practically useful will be words which discriminate finely or which describe stable associations which in other languages are kept separate.

Much of the relative strength of rural people's knowledge lies in what can be observed locally and over a sustained period, and in what touches directly their lives and livelihoods. Most obviously, this applies to their knowledge of customs and practices. Except where there has been systematic ethnography, this knowledge is superior to that available to outsiders. Descriptive and conceptual terms also provide points of departure for scientific investigation which may be more practical and useful than the externally determined categories of outsiders' knowledge. For example, a scientific soil survey in a semi-arid area can miss micro-environments with typical combinations of slope, soil, vegetation and micro-climate. These may be small places sheltered from the wind where the soil is deep enough for a few bananas to grow; or narrow strips, a few feet wide, of fertile alluvium, beside streams where vegetables can be irrigated; or the

margins of seasonal ponds where crops can be planted. These may all have local names and be as critical for the livelihoods of local inhabitants as they are easy to miss for unobservant outsiders coming with their different preconceptions and categories.

Sometimes rural people's knowledge and that of outsiders are evenly balanced. In his study of local knowledge of the grasshopper, *Zonocerus*, Paul Richards found that community knowledge was equivalent to that of the scientific research team concerning what it ate, the degree of damage it did to cassava, and the tendency for eggs to be laid in certain sorts of places; but he found that community knowledge added to the knowledge of the scientific team concerning the dates, severity and geographical extent of some of the outbreaks, and the fact that the grasshopper was eaten and sold, and was especially important for women, children and poorer people (1980, p. 185). Rural people's knowledge is at its strongest with what is observable and its local *what, where, and when*.

Not surprisingly, then it is in agriculture that rural people's knowledge has its most marked local advantages, and that of outsiders has been at its weakest. The dangers of the Groundnut Scheme in Tanzania might have been foreseen more clearly if the local inhabitants had been carefully consulted about why they did not cultivate in the areas proposed for the project. The examples of inappropriate agricultural research on research stations, and harmful advice emanating from them, are legion – advice to grow crops on soils or in seasons which do not suit them; to apply more fertiliser than is profitable or justified by risk; to grow crops which threaten a family's food supply because of the land they take up or the labour they would pre-empt at a critical time; insistence on soil conservation measures which destroy fertility; advice to plant pure stands when mixed cropping makes more sense. It is also in agriculture that the strongest reversals have taken place, and where there has been most learning from rural people – through interviews, observing farmers' practices, surveys, on-farm trials, and on-farm experiments with farmers as colleagues. Professional outsiders' knowledge of agriculture has already gained much by trying to fit together what small farmers want and know and what formal scientific agricultural research can do.

Outsiders' scientific technology is superior in being able to measure precisely and examine microscopically, while rural people are usually relatively weak on measurement and unable to observe except with the naked eye. The precision of outsiders' statistics can, however, be gravely misleading. Rural people

could probably have given much more accurate estimates of village-level grain losses in storage than those high figures which were so misleadingly believed for so long. (Rural people protect their grain in ways which scientists do well to study: in India, the berry of the neem tree is added by many people to their stored grain, and belatedly scientists have discovered the potential of an insecticide – azadirachtin – which can be extracted from the neem.) The weaknesses of measurement by rural people can also be exaggerated. Local standards and units of measurement exist and may incorporate important criteria which outsiders would otherwise miss. People can also be taught or helped to measure or quantify. Filipino farmers have been taught to map their fields, evidently without difficulty. There are ways in which farmers' estimates can be sharpened and more readily expressed, as with an adaptation of the West African mancala board by David Atteh and Paul Richards (Barker, 1979).

Despite these qualifications, the balance of advantage with precision and with the microscopic remains with outsiders' technology. Richards found in his *Zonocerus* investigation that community knowledge could not extend to findings concerning egg mortality under different conditions, or the possible role of chemical attractants in helping create and sustain egg-laying sites. These required precise quantitative data, experimental control, and sophisticated biochemical analysis (1979, p. 29). Nor is there any way in which rural people can identify a missing trace element in their soil. Again, in the health field, rural people have no direct way of knowing the aetiology of many diseases; they cannot observe bacteria, viruses, or even internal parasites. When it comes to malaria, the !kung San, so sophisticated in their plant lore and knowledge of animal behaviour, are reduced to the method of inference they so rightly distrust: for they believe that malaria is caused by a large caterpillar seen only in the rainy season when malaria is prevalent (Blurton Jones and Konner, 1976, p. 344).

Rural people's knowledge, in the form of beliefs and practices, is sometimes harmful according to the values of rural people themselves. It is true that there is much to be learnt from indigenous medical and psychiatric practices, and there is a large literature on ayurvedic, homeopathic and other local medicine, as well as on medicinal plants. But there are also some beliefs and practices in health and nutrition which make things worse, not better: reducing the fluid intake of children with diarrhoea, believing that less fluid going in will mean less coming out and so help to cure; the use of weaning foods which lack proteins and vitamins when cheap, nutritious alternatives are available; failure

to recognise kwashiorkor because children with it can look robust and healthy (Fonaroff, 1975, p. 120); a belief that dehydration caused by diarrhoea is a separate condition, most commonly caused when a mother feeds her small infant after seeing a woman who has had a miscarriage (Lozoff *et al.*, 1975); not bringing children with diseases like chickenpox and measles for treatment for fear of making angry the goddess or her sisters who were believed responsible for the condition (Mather and John, 1973); the use of incisions or tourniquets to treat snake bites, thereby increasing morbidity (Warrell and Arnett, 1976, p. 331); or easily avoidable insanitary practices which spread disease.

It seems to be more in health and nutrition than in agriculture that harmful local beliefs and practices are found. It might be supposed that the incentive to observe, and to be effective, would be greater with what directly touches human welfare and survival in health and nutrition; but this does not seem to be the case. Several explanations can be advanced. In growing crops, there is a large population of plants from which to learn, and a few are expendable; but with people there are fewer and each one is precious. The causes of poor crop performance (drought, flooding, a pest, lack of soil moisture) or of good performance (good soils, manure, timely planting, weeding) are often only too obvious, compared with the invisibility of microscopic infections or the spread of disease. Again, learning from agricultural practices can also occur every season, whereas the care of a child through the stages of growth, even in large families, occurs less often, and sickness and malnutrition are spasmodic. Perhaps, also, sickness so engages the emotions that the experimental attitude is driven out. And the coping mechanisms for the awfulness of the illness and death of those who are close are social and spiritual, and so linked with social and spiritual rather than physical explanation.

But whatever the reasons, it is not sheer prejudice when outsider professionals see that rural people's beliefs and practices are sometimes harmfully wrong. Both outsiders' knowledge and the knowledge of rural people can be wrong. The key is to know which is wrong when. It would be as foolish here to do a complete reversal in favour of rural people's knowledge as it has been so often in the past to suppose that professional outsiders have a monopoly of insight.

There are many cases, especially in health and nutrition, where professional outsiders' knowledge can help rural people better to achieve what they want. Its strongest advantages lie in its capacity through the experimental method and through its command of resources and skills to generate new technology, and

then to transfer it from one environment to another. Many examples potentially benefit rural people: inoculations against human and animal diseases; oral rehydration for small children with diarrhoeas; drought-resistant or drought-avoiding varieties of staple food crops; new methods for lift irrigation; new high-yielding varieties of crops; fertilisers and pesticides, and so on. There is a debate about who benefits, and how much. But the power of these techniques and artefacts of outsiders' science is beyond dispute.

Unfortunately, these dazzling capabilities blind outsiders. For originators and bearers of modern scientific knowledge, it requires a major effort to recognise that rural people's knowledge exists at all, let alone to see that it is often superior. The arrogance of ignorant educated outsiders is part of the problem. They do not know what rural people know and do not know that not knowing matters. Four positive examples can make the point.

First, with our friend *Zonocerus variegatus*, laboratory results showed that cassava leaves were by no means a favourite food of the grasshopper, yet it attacked them severely during the dry season. A local inhabitant gave a basic reason – that cassava is one of the very few plants with green leaves surviving in farm fields during the dry season. That may not seem such a remarkable insight but it might not have been available so quickly to the scientists on their own. Again:

> The most impressive overall understanding of the *Zonocerus* problem came from Kabba farmers, who explained its general incidence in recent years by reference to rainfall fluctuations, but in many cases accounted for its specific appearance on their farms as being due to colonization of neighbouring thickets by the herbaceous weed *Eupatorium odoratum*. These thickets do indeed appear to provide favourable breeding or feeding sites, and many Kabba farmers were anticipating advice which may emerge from studies on the biology and control of *Z. variegatus*, by cutting down *Eupatorium* and, in one or two cases, marking out and digging up egg-laying sites.
>
> (Barker *et al.*, 1977, p. 46)

In this aspect, the farmers were ahead of the scientists in working on the same problem.

In a second example, a scientist, Peter Jones, was working on the bird pest *quelea*. He was travelling by Land Rover in Botswana with two !kung men:

> Knowing of Jones' interest in quelea (he had been retained by the government to explore possible solutions to the serious quelea pest problem), the two men pointed out a low stand of thorn bushes which, at a distance, looked like any other but which, on close examination, proved to have been stripped of leaves on the distal few inches of their branches. The men said that this had been done by quelea, which were in the habit of preparing bushes in this way and then returning after a few days to rest on the ends of the branches. This observation, which was unknown to Jones, and which proved to be correct, enabled him subsequently to improve greatly the efficiency of his investigation and to collect at an early stage of the nesting cycle specimens previously inaccessible to him.
>
> (Blurton Jones and Konner, 1976, p. 340)

A third case comes from Jeremy Swift's work with Wodaabe Fulani pastoralists in Niger. In order to benefit from their local knowledge, his research team asked the herders to draw maps, which the herders did without difficulty. The maps showed ecological units, as might be expected. But in addition, the Wodaabe mappers indicated several special zones. These were areas in which their cattle got night blindness in the dry season, and for this reason had to leave otherwise good pastures. They associated night-blindness with the absence of certain types of green plant, which fits the scientific explanation of vitamin A deficiency. It emerged that livestock service staff, who had been working in the area for 50 years, were not aware of this problem.[9]

Fourth, Hugh Brammer, whose intimate knowedge of Bangladesh agriculture has already provided material and insight for this chapter, can speak for himself:

> Wheat cultivation on the Barind tract soils of Bogra District in the Northwest of Bangladesh provides an example of farmers jumping ahead of the scientists. Being a soil scientist, I had recommended that these impervious soils, puddled for transplanted rice cultivation in the monsoon season, were unsuitable for wheat cultivation in the following dry season. I found some farmers growing wheat on these soils. Not, of course, in the way in which wheat normally is grown, broadcast on the flat. These innovative farmers had made ridges by hand, as for cultivating potatoes – which are also grown in the area – and had sown two closely planted rows of wheat on each ridge. Also, they were irrigating the crop from dug wells or tanks (excavated ponds), applying frequent,

> small amounts of water down the furrows so as to avoid waterlogging the soil. The crop growth appeared excellent, a view obviously shared by neighbouring farmers, because the practice has spread widely during the following two years. In retrospect, I recognised that cultivation on ridges and the application of frequent small amounts of water are the solution for cultivating dry-land crops on impervious soils, but I had not considered that the farmers would use horticultural techniques for cultivating a crop such as wheat.
> (1980, p. 28)

These four instances have in common a feature of many scientific advances: the discovery of things which were not being looked for. The scientists working on *Zonocerus* can scarcely have been looking to the farmers to try out their control recommendations before they had even been formulated, yet that was what some were doing. Peter Jones travelling in Botswana did not know that his guides knew how *quelea* stripped leaves from the distal few inches of some bushes, preparing to return to rest on them a few days later. Jeremy Swift was trying to get the Wodaabe Fulani to map, not trying to find out about nightblindness in cattle. And Hugh Brammer may not have been looking for farmers growing wheat on soils he had recommended as unsuitable. But in each case, the unexpected was noticed and in each case the revelation was available from rural people. One may wonder how much goes unknown because of unseeing eyes, unhearing ears, professional conditioning, and the biases of rural development tourism. Neither rural people nor outsider scientists can know in advance what the others know. It is by talking, travelling, asking, listening, observing, and doing things together that they can most effectively learn from one another. For that, special attitudes and behaviour are called for from both parties but especially from the outsiders since it is with them that more of the initiative lies.

Finally, some of the greatest challenges are where both outsiders' and rural people's knowledge have been found wanting. Any list might include three great outstanding problems: the aetiology and prevention of diarrhoeas; sustained and stable small farming in marginal rainfed environments; and tragedies of the commons in the exploitation of natural resources. It is difficult to overstate the importance of these three. The diarrhoeas are major killers of children in the rural third world. Marginal rainfed environments, especially but not only in Africa, are supporting or failing to support more and more of the poorest and are undergoing what may often be irreversible degradation

leading to deeper poverty. And tragedies of the commons are found in fisheries, forestry and pastoralism – through competition between rural people themselves and through appropriation by outside state and commercial interests: examples are the over-fishing and declining production of East African lakes, the destruction of India's forests, and the downward spiral of desertification and impoverishment, not only in the Sahel, affecting many of the world's 100 million pastoralists.

These three great outstanding problems are not alone in showing human knowledge, ingenuity and will still a long way from solutions. For such intractable issues, the joint use of professional outsiders' and rural people's knowledge, skills and resources may be the best way forward, combining the precise observations, measurements and experiments of modern science over a narrower and briefer range with the local knowledge and more extensive and continuous observations of rural informants and experimenters. The two types of knowledge complement each other; and together they may achieve advances which neither could alone.

For that to happen, power must shift. Knowledgeable rural people are disregarded, despised and demoralised by urban, commercial and professional values, interests and power. For them to be better able to participate, control and benefit requires reversals. Among these, one first step is for outsider professionals, the bearers of modern scientific knowledge, to step down off their pedestals, and sit down, listen and learn.

Notes

1 For expansion of these points, see Chapter 7, pp. 172–9.
2 This should not be taken as support for the sometimes quite silly attack on cash crops for small farmers. Most of the critics would, were they small farmers, be only too keen to grow cash crops. My criticism is against the balance of research and extension, which has neglected the subsistence side.
3 See McDowell and Hildebrand, 1980, especially pp. 57–62 on 'Barriers to Integrating Livestock in Farm Systems Research', for parts of this paragraph and for other relevant points.
4 But see French, 1970; McDowell and Bove, 1977; and Sands and McDowell, 1979.
5 See Chapter 7, pp. 175–6.
6 Much relevant analysis and much empirical data, are to be found in Brokensha, Warren and Werner's book *Indigenous Knowledge Systems and Development* (1980), on which I draw extensively in this chapter.

7 As far as I know, Noble Savages were always thought of as men.
8 Personal communication. Such patterns have also been established for temperate zones. See *Science*, 137, 1962 for articles by Bradley, Woodbury and Brier for the USA (p. 178) and by Adderley and Bowen for New Zealand (p. 749).
9 The subsequent experience deserves a footnote. The vitamin A treatment is easy. The research team obtained some vitamin A and took it to a Wodaabe camp where cattle had nightblindness, and approached a cattle-owner. He was willing for his cattle to be treated, but asked for only half of them to be treated so that he could observe the effects and compare them with the untreated half.

CHAPTER FIVE

Integrated rural poverty

We have no power to talk in front of the rich, like the Chairman. We are afraid of them. We are always looked down upon and scolded. So we never know what they are writing and doing.

A landless labourer in Bangladesh (BRAC, 1979, p. 20)

We used to go to people to hire us for the brewing of beer and for collecting some water but now they are refusing to help us. There is nowhere we can go for help. If you have nothing, you have nothing and it ends there.

The eldest daughter in a poor household in Botswana (Henderson, 1980, p. 226)

Sometimes you are overcome by weeds through illness or accidents.

A Gambian villager to Margaret Haswell (1975, p. 44)

I do not wish to speak to you about these things, for my situation is so miserable and I am so desperate that I cannot go on talking of them. It is not words that can change my life, but a change in my country. . .

Interview in Nepal, reported in Blaikie, Cameron and Seddon, 1979, p. 48

Outsiders' comfortable views of the poor as improvident, lazy, fatalistic, ignorant, stupid and responsible for their poverty, are reassuring but wrong. Case studies show that poor rural people are usually tough, hard-working, ingenious and resilient. They have to be to struggle against five interlocking disadvantages which trap them in deprivation: *poverty itself, physical weakness, isolation, vulnerability*, and *powerlessness*. All are important, but vulnerability and powerlessness especially deserve more recognition and analysis.

Vulnerability reflects lack of buffers against contingencies

such as social conventions (dowry, bridewealth, weddings and funerals), disasters, physical incapacity (sickness, the child-bearing sequence, and accidents), unproductive expenditure, and exploitation. Contingencies often force poverty ratchets, entailing the irreversible loss or sale of assets, making people poorer and more vulnerable to becoming poorer still.

Powerlessness is reflected in the ease with which rural elites act as a net to intercept benefits intended for the poor, in the way the poor are robbed and cheated, and in the inability of poorer people to bargain, especially women, and those who are physically weak, disabled or destitute. Altruism and generosity are also found, but reciprocal relations and traditional supports for the poor are rarer and weaker than in the past. There are environments where greater prosperity has improved the material conditions of life for all except the most indigent and unfortunate, but there remain hundreds of millions of people for whom the trends are in the other direction, moving down into deeper and more tightly integrated poverty.

Outsiders' views of the poor

Outsiders' views of the poor are distorted in many ways. Lack of contact or communication permits them to form those views without the inconvenience of knowledge, let alone personal exposure. Poor people are rarely met; when they are met, they often do not speak; when they do speak, they are often cautious and deferential; and what they say is often either not listened to, or brushed aside, or interpreted in a bad light.[1] Any attempt to understand the poor, and to learn from them, has to begin with introspection by the outsiders themselves. We have first to examine ourselves and identify and offset our preconceptions, prejudices and rationalisations. Above all, we have to treat with suspicion beliefs and interpretations which we find comforting, and which purport to justify our relative affluence and the relative poverty of others.

The most reassuring view is that the poverty of others is part of a divine order. This idea is embedded in popular Hinduism and the belief that position in the caste hierarchy is determined by the law of karma, according to which the advantages and hardships of this life are a consequence of the degree of merit of past actions in a previous life. But it is not only Hinduism which justifies, or has justified, social inequality, the coexistence of rich and poor. In the much quoted words of Mrs Alexander's Victorian Christian hymn:

> The rich man in his castle,
> The poor man at his gate,
> God made them, high or lowly,
> And order'd their estate.[2]

The American ideology of success, dominant until the Great Depression of the 1930s, was another convenient belief for the better off: it regarded wealth as a reward for Puritan virtues such as honesty, industry, sobriety, self-discipline, neatness, cleanliness and punctuality, and saw poverty as the converse. Nor are these beliefs dead today. To the contrary, in Britain at least, the idea that the poor are to blame for their poverty has been widespread. A survey in 1976 in 9 countries of the EEC, including Britain found that 27 per cent of respondents in Britain, compared with only 14 per cent for the EEC as a whole, were 'poverty cynics' (CEC, 1977, p. 88)[3], that is, they were defined as people who

> ... rarely or never see poverty around them. When they mention it, they imply culpability – if poor people exist, it is because they are lazy or lack will-power and they or their children could well escape from this situation. As far as the cynics are concerned, there is no great need to reduce social inequality and the authorities are doing quite enough – if not too much.
>
> (*Ibid.*, p. 80)

Such beliefs are common in many cultures. In some cases they have antecedents in the racial ideologies of colonialism, and in the colonial view of the native as improvident, lazy and fatalistic. They are to be found among long established elites like those of Bombay or Buenos Aires. A parallel can be found between the old American myth of the opportunity of an open frontier and the new African myth of the opportunities of education: those who have made it to good urban jobs owe their success to diligence rather than influence, and the remaining rural poor are those who did not work hard enough. The greater the inequalities and cognitive distance between urban, educated haves and rural, less educated have-nots, so the commoner may be beliefs which hold the rural poor responsible for their poverty. Such beliefs so happily rationalise the haves having and the have-nots not having, that it would be odd if it were not so.

Now outsiders cannot help bringing with them whatever ideological baggage they have, and it is difficult to avoid

choosing and collecting evidence that fits into it. What they can do is travel lightly, asking open-ended questions, listening, observing, revising their ideas, and above all doubting and criticising themselves. Passionate moral indignation, however necessary as a driving force for action, can be an impediment, just as can cold conservatism. Evidence will always be selected, but to struggle closer to the truth a certain dispassion helps.

The evidence itself is imbalanced. It has been generated by top-down, centre-outwards processes of learning. The rural poor are scanned in misleading surveys, smoothed out in statistical averages, and moulded into stereotypes. This scarcely helps an outsider, who starts by being affluent and urban, to make the long leap of imagination and see and feel the world from within the skin of a poor rural person. Nor has social science research helped as much as it might. Studies count surface phenomena, or conceptualise; not many reveal the world view, the problems and the strategies of particular poor individuals and families. Yet for generalisation, one needs to start with the raw material, with cases, with people.[4] Those which I have examined reflect many differences of culture, ecology and social, economic and political relations. They also reveal common features.

The evidence does not support the view of poor rural people as improvident, lazy and fatalistic. What does emerge is that some do sometimes behave in ways which can be thus interpreted. They may not save, may not always be visibly working, and may appear to accept fate passively. But there is evidence for interpretations of this behaviour other than moral defects in character. 'Improvidence' – the failure to save and invest – can reflect pressing needs for immediate consumption, a backlog of essentials needed, insecurity of land tenure, and the likelihood that any saving would attract the attention of begging relatives and social predators. 'Laziness' conserves energy: those who live near the margin hoard their strength and ration their effort. ('I pick fennel when it's in season, and we eat it at home. When there's no fennel and nothing to do, I go to bed' (Dolci, 1956, p. 261).) 'Fatalism', too, can be seen as an adaptation: like resting, it conserves physical and mental energy. It is also prudent. Appearances of powerlessness, unawareness, and acquiescence may be a condition for survival, for a chance of casual work, for the next loan from the trader, landlord or money-lender, for freedom from petty persecution and expropriation.

Nor does the evidence support the belief that the rural poor are ignorant and stupid. The depth and validity of rural people's indigenous technical knowledge is one dimension. Another is the understanding poor people have of why they are poor (Freire,

1968; BRAC, 1979, 1980; Malik, n.d.). This is clearer and more detailed than some outsiders might suppose. Apparent ignorance and stupidity are part of the strategy of lying low. Indian tribals asked by Baljit Malik why they kept being polite to officials who visited them, always agreeing to everything, replied with the saying: 'If the circumstances so demand, keep saying YES; if someone asks whether you saw a cat carrying a camel in its mouth, say YES!' (Malik, n.d., p. 13). Questionnaire surveys badly administered can also generate spurious figures which grossly understate the knowledge of rural people (see pp. 55–6). Ignorant and stupid poor people are often the creation of ignorant and stupid outsiders.

In correcting the prejudiced view of poor rural people as culpably improvident, lazy, fatalistic, ignorant and stupid, the pendulum can swing too far. The poor, the landless, the illiterate and the oppressed can be idealised. A modish account of peasant decision-making could read as though the subject were a sublime incarnation of Rational Man. There are some stupid and lazy poor people, just as there are stupid and lazy rich, and poor people can miscalculate, make mistakes, get drunk, and forget things, as others do. But the evidence speaks for itself. Again and again and again, observers have remarked on the toughness, application and ingenuity of the poor. Leela Gulati's (1981) case studies of five poor women in Kerala describe in detail the gruelling physical work and long hours they undergo, and that on astonishingly low calorie intakes. One of Dolci's informants said 'I cudgel my brains day after day wondering what to do. To get by, you've got to scrape a bit here, a bit there. If you don't you die' (Dolci, 1966, p. 267). Rural squatters in Kenya have a resilience often born out of desperation (Mbithi and Barnes, 1975, p. 165). John Hatch was in rural Peru when small farmers were hit by a flood disaster:

> I briefly toyed with the idea of documenting the disaster itself. But then I was captured by an even more impressive phenomenon: the relentless tenacity of the small farmers themselves; their amazing ability – without disaster assistance from any source – to bounce back and begin land preparation for a new crop. Like pawns on a chessboard, their only option was to move forward.
>
> (1976, pp. 14–15)

People so close to the edge cannot afford laziness or stupidity. They have to work, and work hard, whenever and however they can. Many of the lazy and stupid poor are dead.

To get beyond stereotypes and counter-stereotypes requires comparative analysis of the micro-detail of rural poverty. This is not easy. With some evidence, there are problems of bias in what poor people say, and in cases selected for writing up. Case histories of people and families have also been few: the traditions of research and scholarship have absurdly neglected and undervalued the particular, the non-statistical, and the easily obtained. Social anthropologists have contributed, but it has been an economist, Leela Gulati, who has most decisively shown what can be done with painstaking research to record the lives of poor rural people. Her study (1981) of five poor rural women in Kerala breaks new ground in its detail and persuasiveness and is a model of the sort of investigation that is needed.

But even with good cases as raw material for analysis, there are still problems of interpretation and ideology. No analysis is 'objective'. Eclectic pluralism is itself an ideology. I can only say that I have tried to review case study and other evidence and to see what categories and generalisations they generate. The outcome, which follows, suggests that there are striking common dimensions in conditions, activities, relationships and strategies of the poorer rural people in different regions and countries.

Clusters of disadvantage

A description of the condition of poor rural people might start with communities or with individuals. Starting with communities would have the advantage of distinguishing two types of situation: those where the poverty of whole communities is linked to their remoteness or inadequate resources or both; and those where there are marked differences of wealth and poverty within the same community.[5] Starting with individuals would have the advantage of pointing to the disadvantages of females in many societies, sometimes from the moment of birth. These two dimensions – of location and resource base, and of gender – are significant, and qualify all that follows: some communities are much poorer than others, and more uniformly poor; and women are usually, but not always, poorer than men.

It is, however, households that are the common, and increasingly distinct economic entities for production, for earning, and for sharing consumption. The approach here is to try and identify clusters of disadvantage of households, separate them, and then see whether, and if so how, they are connected. This could be done in many ways, and no particular merit is claimed for the categories which follow. Readers can list their

own. But it is useful to dissect evidence and not to allow the term 'poverty' to cover all aspects of disadvantage, but only those – lack of wealth or assets, and lack of flows of food and cash – to which it properly refers. To make a start, five clusters of disadvantage can be described – poverty, physical weakness, vulnerability, isolation, and powerlessness. These can be presented as a composite sketch of the household.

i) *The household is poor.* It has few assets. Its hut, house or shelter is small, made of wood, bamboo, mud, grass, reeds, palm fronds or hides, and has little furniture: mats or hides for sleeping, perhaps a bed, cooking pots, a few tools. There is no toilet, or an insanitary one. The household has no land, or has land which does not assure or barely assures subsistence or which is rented or sharecropped. It has no livestock, or has only small stock (hens, ducks, goats, a pig . . .) or a few weak cattle or buffalo. The household borrows from neighbours, kin and traders, and is in short-term or long-term debt. Clothes are few and worn until they are very old. Family labour has low productivity: if it farms, its land is marginal or small; if it does not farm, it has little or no control over the means of production, and its main, often only, productive asset is the labour of its members.

   The household's stocks and flows of food and cash are low, unreliable, seasonal and inadequate. The household is either locked into dependence on one patron, for whom most work is done, or contrives a livelihood with a range of activities which reflect tenacious ingenuity in the face of narrow margins for survival. Food or cash obtained meet immediate needs and are soon used up. All family members work when they can, except the very young, the very old, the disabled, and those who are seriously sick. Women work long hours both at domestic tasks and outside the home. Returns to the family's labour are low, and in the slack seasons often very low, if indeed there is any work then at all.

ii) *The household is physically weak.* There is a high ratio of dependents to able-bodied adults. The dependents may be young children, old people, the sick, or handicapped. The ratio of dependents to able-bodied adults is high for one of several reasons: because there is no man and the household head is a woman with responsibilities for child care, food processing, cooking, drawing water, collecting firewood, marketing and domestic chores, besides earning a livelihood for the family; or because of the stage of the domestic cycle when there are small children demanding time, food and care

but not yet contributing economically; or because adults have been permanently weakened or disabled by accident or illness; or because of early deaths of other adults; or because active adults have dispersed or migrated to escape poverty or debts or to survive. The adults are seasonally or continuously pressed for time and energy. The household is seasonally hungry and thin, and its members weakened by interactions of parasites, sickness and malnutrition. Pregnancy, birth and death are common. Birth weights are low. All have small bodies, stunted compared with their genetic potential.

iii) *The household is isolated.* The household is isolated from the outside world. Its location is peripheral, either in an area remote from town and communications, or removed within the village from the centres of trading, discussion and information. Often illiterate and without a radio, its members are not well informed about events beyond the neighbourhood: Its children do not go to school, or go and drop out early. Its members either do not go to public meetings, or go and do not speak. They do not receive advice from extension workers in agriculture or health. They travel only to seek work or to beg from relatives. They are tied to their neighbourhood by obligations to patrons, by debts, by immediate needs that must be satisfied, or by lack of means for travel.

iv) *The household is vulnerable.* The household has few buffers against contingencies. Small needs are met by drawing on slender reserves of cash, by reduced consumption, by barter, or by loans from friends, relatives and traders. Disasters and social demands – crop failure, famine, a hut burning down, an accident, sickness, a funeral, a dowry, brideprice, wedding expenses, costs of litigation or of a fine – have to be met by becoming poorer. This often means selling or mortgaging assets – land, livestock, trees, cooking pots, tools and equipment, ration books, jewellery, a standing crop, or future labour, often on distress sale or usurious terms. Vulnerability is heightened during wet seasons when food shortages, sickness and agricultural work coincide, and is acute when rains and agricultural seasons fail. The family is especially prone to sickness and death.

v) *The household is powerless.* Ignorant of the law, without legal advice, competing for employment and services with others in a similar condition, the household is an easy victim of predation by the powerful. It has inherited or descended to low social status. Its position is weak in negotiating terms for the use of its labour or the sale of its produce or assets. It is easily exploited by moneylenders, merchants, landlords, petty officials and police. Aware of the power of the richer rural and urban people and of their alliances, the household avoids political activity which might endanger future employment, tenancy, loans, favours or protection. It knows that in the short term accepting powerlessness pays.

To some, this sketch may appear exaggerated. There are exceptions. Some poor families are less weak physically than described. Poor people in pastoral populations have different patterns of deprivation. Some of the strongest qualifications apply in East Africa where vertical patron-client relations, chronic indebtedness, and exploitation of the poorer peasants by those who are less poor, are much less in evidence than say, in Bangladesh. Other countries spring to mind where only a minority of the rural population might fit this description: perhaps Taiwan, Korea, China. Nor is isolation always a trait. In Sri Lanka there is near-universal primary education. In Kerala, many rural people read and discuss newspapers daily. And accepting Goran Hyden's (1980) analysis for Tanzania, small can be powerful: small peasants, seeking to retain their independence of bureaucracy and the manifestations of the state, adopt isolation as a strategy, avoiding becoming powerless by avoiding certain types of contact.

Such qualifications do not invalidate the general description. Rather, they identify places and conditions in which some of the forms of disadvantage have been avoided, overcome, or made use of. Any immediate urge to reject the description might be tempered by reflection on the anti-poverty biases (pp. 13–23). Most poverty, quite simply, goes unseen; and where perceived, is only seen in one or a few dimensions. My best judgement is that for the great concentrations of rural poverty in South and Southeast Asia, in Africa, and in Latin America, most of the description holds true, applying broadly to perhaps a half to three quarters of the rural people in the third world.

The deprivation trap

Still examining poor households and their immediate environments we can see that these clusters of disadvantage interlock. This is variously described as the vicious circle of poverty, the syndrome of poverty and the poverty trap. We can go further than saying people are poor because they are poor because they are poor. Linking the five clusters (Figure 5.1) gives twenty possible causal relations, which in their negative forms interlock like a

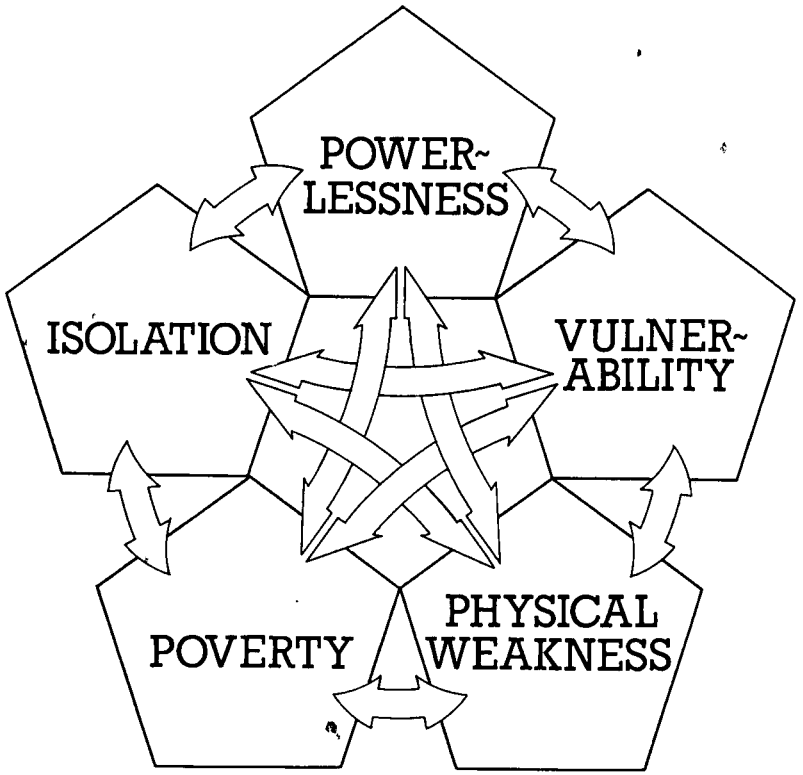

Figure 5.1 The deprivation trap

web to trap people in their deprivation. The strength of these linkages varies, but they can be illustrated by starting with each cluster in turn.

Poverty is a strong determinant of the others. Poverty contributes to physical weakness through lack of food, small bodies, malnutrition leading to low immune response to infections, and inability to reach or pay for health services; to isolation because of the inability to pay the cost of schooling, to buy a radio or a bicycle, to afford to travel to look for work, or to live near the village centre or a main road; to vulnerability through lack of assets to pay large expenses or to meet contingencies; and to powerlessness because lack of wealth goes with low status: the poor have no voice.

The *physical weakness* of a household contributes to poverty in several ways: through the low productivity of weak labour;

through an inability to cultivate larger areas, or to work longer hours; through lower wages paid to women and to those who are weak; and through the withdrawal or weakening of labour through sickness. It sustains isolation because of lack of time or energy to attend meetings or to seek information, especially for women because children make travel difficult. It accentuates vulnerability by limiting the ability to overcome a crisis through harder work, new activities, or negotiations for help. It contributes to powerlessness through the lack of time or energy for protest, organisation, or political activities: sick and hungry people dare not bargain hard.

Isolation (lack of education, remoteness, being out of contact) sustains poverty: services do not reach those who are remote; illiterates cannot read information of economic value, and find it difficult to obtain loans. Isolation goes with physical weakness: remote households may have a high level of migration of the able-bodied to towns or to other rural areas. Isolation also accentuates vulnerability – remote marginal areas are more liable to crop failures, and are less well provided with services to handle contingencies like famine or sickness; illiterates also find it harder to register or acquire land and are more easily cheated of it. And isolation means lack of contact with political leaders or with legal advice, and not knowing what the powerful are doing.

Vulnerability is part of many of the links. It relates to poverty through the sale or mortgage of productive assets; to physical weakness because to handle contingencies, time and energy have to be substituted for money; to isolation through withdrawal – whether spatial (to a more distant marginal area) or social (to fewer reciprocal relationships) – following shocks and contingencies; and to powerlessness through the dependence on patrons to which it gives rise.

Finally, *powerlessness* contributes to poverty in many ways, not least through exploitation by the powerful. It limits or prevents access to resources from the state, legal redress for abuses, and ability to dispute wage or interest rates; and it entails weakness in negotiating the terms of distress sales, and only feeble influence on government to provide services for the poorer people and places. It reinforces physical weakness, because time and energy have to be devoted to queuing for access, because labour obligations to patrons reduce labour available for household production or other earning; and because relief food supplies in time of famine may never be obtained because people are powerless to demand what is meant for them. Isolation is linked with powerlessness through the inability of those who are powerless to attract government aid, schools, good staff, or other

resources. Powerlessness also makes the poor more vulnerable – to sudden demands for the repayment of loans, to threat of prosecution and fine or imprisonment, or to demands for a bribe in a dispute.

The five clusters and their linkages could be much more fully explored. They could be further illustrated, tested and modified against cases. But two of them are relatively well accepted and understood: poverty; and isolation, both spatial and informational. A third – physical weakness – is subject to an important and fascinating debate on which it would be premature to pass judgement. This suggests, in brief, that estimates of minimum calorie requirements have been high, and that many people who would be classified as malnourished in terms of height for age ('stunting'), are normal in terms of weight for height, and may in principle be described as 'small but healthy' (Seckler, 1980a; 1980b, p. 225). Much more needs to be known about all this.

No doubt the next decade will provide both intellectual excitement and useful understanding about human nutrition, health, growth, mental and physical capacities, and qualities of life and experience. In the meantime, any scaling down of estimates of the numbers of people who are 'malnourished' in the world must be sharply qualified by a recognition of widespread seasonal stress of shortages and starvation on families which are at risk. In tropical climates this stress is common during the rains and before the first crops are harvested, when food shortages, hard work, poor child care, and high disease incidence interact, and when urban-based professionals are least likely to have contact with the poorer rural people (Schofield, 1974; Longhurst and Payne, 1979; Chambers, Longhurst and Pacey, 1981; Chambers, 1982). Minimum calorie requirements may have been somewhat exaggerated, but seasonal stress is still seriously underperceived by outsiders.

Of the other two clusters, vulnerability has been curiously neglected, and powerlessness is a key problem which many outsiders find it uncomfortable to face. I shall therefore examine these two in more detail.

Vulnerability and poverty ratchets

Households become poorer by loss of assets. To meet small needs, ready cash or barter may be used, or small loans from neighbours, kin, patrons or traders. But to meet big needs, or for small needs at times of seasonal shortage or general crisis, it is often necessary for poor people to mortgage or sell capital assets. Where these

events entail debts at high interest rates or loss of productive wealth, they can have ratchet effects, like movements down past a cog[6] which are difficult or impossible to reverse, making poor people permanently poorer. The poverty ratchet – the loss of assets or rights which it is difficult to reverse – may be forced by a slow build-up of pressures which pass a threshold, by an expenditure which is foreseeable but large, or by a sudden crisis. Contingencies which force poverty ratchets are of five main types: social conventions; disasters; physical incapacity; unproductive expenditure; and exploitation. These will be described separately, but their force is greatest when they combine, either at the same time or in sequence.

Social conventions which make heavy demands include dowry, bridewealth, weddings and funerals. In the Indian subcontinent these were a favoured explanation of indebtedness during the British raj (e.g. Darling, 1947, pp. 48–59). Possibly some of this emphasis should be discounted as it fitted an exaggerated stereotype of the improvident and extravagant peasant; but there can be no doubt that the costs of ceremonies and social transactions did often drive people deep into debt. Nor may the burden of such demands always have eased. In two villages in South India Scarlett Epstein records a rapid change from bridewealth to dowry as part of the process of Sanskritisation whereby lower castes adopt the practices and attributes of higher castes. For example:

> Boma, one of the poorer Peasants, who used to work in the Wangala factory plantation, told me that the recent marriage of his eldest daughter had landed him deeply in debt. He had tried very hard to find her a husband without having to give dowry, but without success. The girl was already 15 years old and had reached puberty. His wife was urging him to arrange a marriage. He finally settled the wedding by paying Rs 1 000 dowry to the groom's father, giving a watch and clothes to the groom worth Rs 500, buying clothes and jewellery for Rs 850 for his daughter and spending Rs 1 200 on the actual wedding ceremony and accompanying feast – about Rs 3 550 altogether. He has only two acres of wet land and therefore hardly produces enough to meet his current household needs let alone to pay such heavy marriage expenses. He has three more younger daughters and dreads the time when their turn comes to get married.
>
> (Epstein, 1973, p. 196)

Dowry makes the father of many daughters an object of pity in

societies where it is customary. Small farmers may have to sell land to raise it. Not surprisingly, some of the poorer peasants in one of Epstein's villages were arguing against dowry on the grounds that the bride's family was losing an important productive helper while the groom was gaining one in his new wife. Indeed, of these social expenditures, bridewealth is the least impoverishing, and can be seen in one sense as an investment for the groom and his family.

In much of Africa, expenditures on bridewealth, marriages and funerals make similarly heavy demands on resources. Polly Hill, recording remarks volunteered in Northern Nigeria on 'other people's poverty', includes 'He sold all his farmland to meet his marriage expenses' (1972, p. 148). For the Giriama of Coastal Kenya, David Parkin lists bridewealth and funerary expenditure among important contingent demands, and notes that their costs had risen greatly. 'More than being simply obligatory, the funerals must be lavish occasions, the magnificence of which match, and frequently exceed, the resources of the nominal sponsors' (1972, p. 59).

Disasters take many forms. They may be directly man-made: theft of livestock, tools or jewellery; the burning of a hut; and war and persecution which instantly impoverish by destruction or seizure of crops and animals and by driving peasants off their land and away from their rights in resources. A household can be hit by the death of a cow, buffalo, mule, pig, goat[7], or other animal. Other disasters take a natural and widespread form: floods; droughts; epidemics of plant, insect and animal diseases; and famines. Statistical estimates for the reasons for disposal of assets are rare[8], but famine may be the most common trigger for sales of land and livestock. Where many people have some land but nothing to eat, as in Bangladesh in 1974, sales of land become epidemic as they surrender property on almost any terms in order to obtain food and survive. Similarly, for people with cattle, as in Dodoma in Tanzania in 1969 (O'Keefe and Wisner 1975, p. 36), a sudden rise in sales can reflect the passing of a threshold of lack of purchasing power beyond which loss of capital assets is accepted as the necessary high cost for survival.

Physical incapacity takes three forms: sickness; the child-bearing sequence of pregnancy, childbirth, and the post-natal period; and accidents. Pregnancy and some sicknesses build up gradually but much sickness and almost all bodily accidents have a sudden impact.

The effects of physical incapacity are two-fold. First, the weakening or loss of labour and earning power of an adult reduces or stops the flow of income and food into the household.

Single-adult female-headed households are most vulnerable, but in larger households too, effects can be severe especially if more than one member is incapacitated. Second, treatment almost always has to be paid for, whether for sickness, birth attendance, or injuries. With both traditional and allopathic medicine the sums vary widely, but they are often large. With traditional practitioners, loans are often possible and there may be an option of repayment by labour or in kind. With allopathic medicine, immediate hard cash is more likely to be needed for transport, medicines, hospital care, bribes, and food and sustenance both for the sick person and an accompanying family member. Offerings to gods, priests, shrines or temples may also be made. If the sickness coincides, as many do, with the tropical wet season (diarrhoeas, malaria, dengue fever, guinea worm disease, skin infections, snake bite), the costs of production and earning foregone from agriculture may be high and will be reflected in subsequent shortages of food and cash in the hungry period before the next harvest.

A prolonged illness can impoverish utterly. Interviews with working women, among the poorest of the poor in rural Bangladesh, suggest that one sequence starts with the sickness of a husband. As the sickness continues, assets are sold to pay for treatment, bit by bit, down even to the last small rings and jewellery. In the end, the husband dies, and his widow and children are left destitute. Similarly an accident – a back injury, a broken limb, a pulled muscle, a damaged hand or foot – can so weaken the labour and earning of a household that it sets the household on an irreversible downward slide.

Unproductive expenditure takes many forms. It can involve drink, drugs or other expensive or debilitating consumption. It can combine bad judgement and bad luck in various mixes, as with failures in business, litigation and gambling. It can take the form of bribes or inducements which are inadequate or which do not pay off. It can be made for apprenticeship or training which is not completed or otherwise does not lead to benefits. A common pattern is that capital is lacking to make productive what has already been invested – to buy stock for the small shop, to pay for the licence renewal, to sink the well deeper to reach water, to buy pesticides to protect the crop to which irrigation, labour and fertiliser have already been applied. Or again, the expenditure can be on an asset which is not directly productive – a better house, jewellery, a radio, shoes and clothes. A major cost for many households is education for their children even when it is nominally free: outlays are often quite heavy – for textbooks, uniforms, the sports fund, the building fund, and presents for the

teacher; and the withdrawal of child labour also has costs. If education does not pay off as an investment, it too can make people poorer. And whatever the unproductive expenditure, if money is borrowed to finance it, interest payments and other obligations deepen the improverishment.

Exploitation includes excessive demands and illegitimate acts by the powerful. It has many forms. The exorbitant interest rates of money-lenders are sometimes explained in terms of high risks of non-repayment, but the astonishingly high rates of between 100 and 200 per cent or more per annum which are found in many parts of the world cannot be justified when so many of the debtors are trapped in their physical and social environment and unable or unlikely to run away. The use of trickery or force to cheat people of land, livestock, produce or access to communal resources is another form of exploitation. Again, poor people can have to find large sums to buy off police prosecution, to get out of illegal custody, to secure a hearing in a case, or to obtain a resource from the public sector. Intimidation, blackmail, and violence are overt means of exploitation, but much more widespread are its many less explicit, more subtle forms in which poor people accept bad deals for fear of loss of favour or reprisal.

To carry the discussion further, let us now examine some examples of poverty ratchets from different countries and regions. Those that follow are not representative in any statistical sense. I have no reason to doubt the accuracy of any of them, but it is as well to bear in mind that it is the more dramatic and disastrous events which are remembered and recounted. Although accounts of personal misfortune rarely lose in the telling, these all have about them the ring of truth.

In a highland village of Mexico, the Martinez family was continuously in debt and preoccupied with making ends meet. For Pedro, the father, as for most of the villagers, getting enough money for food and clothing from one harvest to another was the all-absorbing, never-solved problem (Lewis, 1959, p. 40). '. . .the really bad times were when there was a serious illness in the family. Then they had to sell nearly everything, sometimes all their young turkeys or a grinding stone, sometimes a mule' (*ibid.*, p. 43). On the occasion described, Pedro had recently borrowed money for surgery in hospital. Now he had just sold a mule to pay off a debt:

> . . .and it infuriated him to think that he had to sell it for only 300 pesos when it was easily worth 450. And now he had only one mule left. This meant that the boys could bring only half the usual amount of wood down the mountains and that

> there would be little left to sell after Esperanza took what she needed. Besides, during the plum season the boys could earn only half of what they had the year before hauling crates of fruit to the railway station. And at harvest twice as many trips would have to be made to bring the corn down from the fields.
>
> (*Ibid.*, p. 40)

In the Philippines, the landless Sumagaysay family had a similar experience. The family head is Tiyo Oyo and his wife Tiya Teria. Antonio Ledesma records a pressing emergency in 1969:

> Tiyo Oyo was striken by El Tor (a mild form of cholera) for a month. He had to be brought to the hospital in Pototan. The week's stay in hospital cost the family P120, with food not yet included. Another P130 had to be provided to buy dextrose when Tiyo Oyo was in a critical condition. Fortunately, one of the drugstores in Pototan agreed to provide a guarantee for the Sumagaysays in the hospital. To cover the expenses, Tiya Teria had to sell their carabao (buffalo) for P330 to another small farmer in the barrio. The carabao was already in full working condition, and under normal circumstances could have been sold for more than twice the amount received by the Sumagaysays. Moreover with the carabao, Tiyo Oyo would still have been able to plow other farm parcels for P10 a day instead of working as a pure manual labourer for the current wage rate of P6 a day . . . . In that sense, parting with the carabao meant parting with their last capital investment in farming. Buying a new carabao today would be unthinkable with the current market value of a working carabao estimated by barrio people themselves at P1 000–1 500.
>
> (1977, p. 27)

The uncontrollable lot of the South Italian peasants has been described by E. C. Banfield (1958, quoted by Seligman, 1975):

> What for others are misfortunes are for him calamities. When their hog strangled on its tether, a labourer and his wife were desolate. The woman tore her hair and beat her head against a wall while the husband sat mute and stricken in a corner. The loss of the hog meant they would have no meat that winter, no grease to spread on bread, nothing to sell for cash to pay taxes, and no possibility of acquiring a pig the next spring. Such blows may fall at any time. Fields may be washed away

in a flood. Hail may beat down the wheat. Illness may strike. To be a peasant is to stand helpless before thesepossibilities.

In rural Bangladesh, an accident led to a poverty ratchet of a different kind. According to this account, the son of an informant broke his leg and the father took his son to the Tangail hospital for treatment. The doctors there said they had no supplies or instruments but that if the father could pay them 250 Taka, they would arrange for treatment. The father said that by selling his belongings he might be able to give them 50 Taka.

> The doctors told him this was too small a sum and that they could do nothing for that amount. Angry and disgusted, the man took his injured son back to the village where he was treated with whatever traditional medical knowledge they possessed . . . the boy is now lame and will be a cripple for the rest of his life . . . [and] now . . . cannot lead a productive life. He will not be able to work in the fields but still, he will have to eat.
>
> (Jansen, 1978, pp. 27–28)

Again in Bangladesh, a poor householder inherited 0.19 acres from his father. On this land he grew cane and reeds from which he and his wife wove mats for sale. But during the 1974 famine rice went from 3 taka a seer to 10 taka a seer and he felt the only way he could raise enough money to feed his family was to sell his land. Now, having to buy the raw materials he formerly grew himself, the economics of mat-making are harder for him and his family (Jansen, 1978, pp. 19–20).

A final, more general example, comes from famines in West Africa. Polly Hill writes of a village in Northern Nigeria that:

> The people of Batagarawa have vivid memories of four famines: *Malali* (1914), *Kwana* or *Kona* (1927), *'Yar Balange* (1942) and *Uwar Sani* (1954) – the dates all relating to the pre-harvest months of the year following the crop failure . . . many migrated following Uwar Sani (1954) – it being 'after suffering that you migrate'. Those whose grain stocks were exhausted were obliged to sell their farms to others more fortunate – farm prices fell very low during 'Yar Balange (1942) and Uwar Sani (1954).
>
> (1972, p. 231)

These six examples – from Mexico, Italy, Bangladesh, the Philippines, and Nigeria – present some types of contingencies,

and some evidence for dissection. But they are weak both cross-sectionally and longitudinally. They do not tell us about the relative importance in a community of different impoverishing events; nor do they show, except a little with Don Pedro, how sequences of events may affect a particular household. Let us examine these dimensions in turn.

Five studies have investigated the different reasons given for selling capital assets or taking debts. In chronological order of fieldwork these are by F. G. Bailey for sales of land in Bisipara village in Orissa in India; by David Parkin for sales of land and palms in Tsakani in Kilifi District in Kenya; by P. Ganewatte for rural indebtedness in Kagama Kattiyama, a settlement project in Sri Lanka; and by Mead Cain for sale transactions of arable land in Char Gopalpur – a village in Mymensingh District in Bangladesh, and in three Indian villages – Shirapur and Kanzara in Maharashtra and Aurepalle in Andhra Pradesh. Some of the main findings of these studies are summarised in Table 5.1. While taking debts is not as ratchet-like as selling land, the Sri Lanka data are included because of the interest of the comparisons.

The authors would probably be among the first to question a superficial interpretation of the results. In some societies, data on land sales are sensitive, and Polly Hill is sceptical about answers to questions on this subject in Northern Nigeria (1972, pp. 88–9):

> To ask a farmer 'Why did you sell that farm?' is almost as ridiculous as to enquire 'Why are you poor?'. The matter of farm-selling is usually a very painful one to all but the brashest sellers – reasonably enough in a society where sellers are apt to be dubbed 'failures' by others. Although it is often a conjunction of unfavourable circumstances which causes selling, so that a man could fairly retort that he sold a farm because he was so poor, embarrassed informants commonly mention the first contributory cause which enters their heads (providing it is not too painful), or hastily provide the foolish questioner with the kind of simple answer they expect him to be expecting.
>
> (1972, p. 88)

She concludes that in this situation it is impossible to indicate the relative importance of different causes, though she does list the different contributory causes given (*ibid.*, pp. 89–91). Bailey is similarly cautious (1957, p. 62). Such difficulties vary by context. But all the authors carried out careful fieldwork and significance can be attached to the orders of magnitude they identify. Three qualifications must, however, be made.

Table 5.1 Reasons given for sales of land and for outstanding debts

	Percentages				
	Bisipara, Orissa, India	**Tsakani, Kilifi District, Kenya**	**Kagama Kattiyama Special Project, Sri Lanka**	**Char Gopalpur, Mymensingh District, Bangladesh**	**Three villages (2 in Maharashtra and 1 in Andhra Pradesh) in India**
Year(s) of fieldwork	?1953	1966–7	1971	1976	1980
Number and nature of transactions	57 Sales of land	75 Sales of land and palms	102 Debts[1]	239 Land sale transactions	61 Land sale transactions
Marriage (bridewealth dowry, costs of ceremony)[2]	33	59	21	3	15
Funerals	19	29	20	–	–
Sickness[3]	2	24	7	7	18
Buy food[4]	12	–	10	58	
Buy plough cattle, bullock	16	–	–	4	28
Other productive investment	–	–	–	8	
Inconvenience of cultivation, location, or size of plot	4	7	–	1	–
Build or repair house	2	4	–	3	–
Litigation/compensation/fines	4	2	–	5	13
Children's education	–	–	–	–	–
Emigration	2	7	–	15	24
Other	7	2	40[5]		
Total	101	130[6]	102	101	101
Sources	Bailey (1957, p. 58)	Parkin (1972, p. 59ff.)	Ganewatte (1974, p. 13)	Gain (1981, pp. 451–2)	

Notes:

1 Ganewatte's data are for debts outstanding in 1971 and may include debts incurred earlier. (66 farmers who took cultivation loans in 1968/69 and had not repaid are excluded. These were, however, scarcely serious loans as only 2 of the original 68 loanees had repaid.) The size of total outstanding debts was (in Rs.): marriage ceremonies – 10 125; purchase of capital goods – 4 392; funeral – 3 380; sickness – 2 600; consumption – 2 550; house repairs – 2 100; pilgrimages – 1 985.

2 In the Orissa village, 15 cases were 'to bring a bride' and 4 'to send a bride'; in Tsakani the cost was bridewealth; in Kagama Kattiyama it was wedding expenses and dowry.

3 The Orissa village had a high incidence of sickness but was isolated and had no close access to allopathic or ayurvedic medicine. Tsakani and Kagama Kattiyama expenditures were mainly or entirely for local (i.e. not allopathic) treatment.

4 In Kagama Kattiyama this was described as 'consumption expenditure'.

5 This includes 15 per cent for pilgrimages and 15 per cent for buying capital goods such as radios.

6 More than one reason could be counted for a sale.

First, the reasons for land sales can be expected to vary according to landholding size. This is borne out by the evidence from Gopalpur and the three Indian villages. In the three Indian villages, almost all the sales reported for children's marriage, children's education, and productive investment were made by large owners, constituting 57 per cent of all the land sold, and large owners are recorded as selling over ten times as much land as medium and small owners. The poverty ratchets are to be sought among the sales of small and medium owners, as shown in Table 5.2.

The second qualification is that information about asset disposals is subject to time lags. There are the time lags between fieldwork and the publication of research findings (see pp. 31–2 and 49). Further, Bailey's fieldwork was carried out some thirty years ago, in 1953, Parkin's in 1966–7, and Ganewatte's in 1971. On top of this, the information is retrospective. Cain's data, for example, are for land transactions since inheritance, and the average date of inheritance in Char Gopalpur was 16 years, and in the three Indian villages 23 years, before the respective surveys. Any policy implications that might be drawn must be tempered by recognising these time lags, and the possibility that the proximate causes of impoverishment might have significantly changed in recent years.

The third qualification concerns sequence. Parkin was surprised by the replies he received since funerals and sickness were not cited as frequently as he expected from observations (1972, p. 60). This prompted him to investigate the expenditure during the preceding few years of families which had given 'debt' and 'expedience' as reasons for sales. This revealed that all had had medical and funeral expenses in recent years.

Sequences can be illustrated by two cases. A small and illiterate peasant in Jhagrapur, Bangladesh, is reported to have described thus the process of his impoverishment:

> When my father died eleven years ago, I was seven years old. He left my mother and me 11 bighas[9], while there were no other inheritors. My mother could not manage, since there was no-one to do the ploughing and harvesting. So she felt forced to sell part of our land. Moreover, we lost some of our land through extortion.
>
> At present, only 4 bighas are left. Two of these have been mortgaged to two rich peasants. One time we were in great need of food and the other time our hut had burnt down and there was no money to build a new one. . . . If I could pay both of them 70 taka now I would get back the land. But

Table 5.2 Reasons given for sales of land by landholding size

	Numbers of land sale transactions							
	Char Gopalpur Bangladesh (114 households)				Three Indian Villages (119 households)			
	Land-less	Small	Medium	Large	Land-less	Small	Medium	Large
Children's marriage	–	5	–	1	–	–	–	9
Medical expenses	1	6	2	8	–	–	2	9
Buy food	3	35	44	56				
Buy bullock	–	2	5	3	5	–	4	8
Other productive investments	1	8	3	6				
Irrigation expenses	–	3	6	3	*	*	*	*
Children's education	–	1	–	–	–	–	1	7
Bribe for employment	–	1	1	–	*	*	*	*
Pressured to sell by other claimant	–	2	–	–	*	*	*	*
Other	–	11	5	17	1	4	2	9
Total	5	74	66	94	6	4	9	42

Source: Cain, 1981, pp. 451–2

Notes

1. In Char Gopalpur, small = 0.01–0.92 acres; medium = 0.93–2.18 acres; large = 2.19+ acres.
   In the Indian villages, small = 0.01–3.72 acres; medium = 3.73–13.75 acres; large = 13.76+ acres.
2. * = not a category in the original table.
3. For further information to throw light on the many intriguing questions raised by this table, the reader is referred to Cain's original article.

> where do I get so much money? And moreover, they do not like to give it back before the whole period has passed.
> (Arens and van Beurden 1977, p. 14)

By this account, the physical weakness of the family, extortion, shortage of food, a hut burning down, the lack of a small sum to redeem a mortgage, and the assumption that rich peasants would object to early repayment, have made the peasant poorer and keep him poor.

Another sequence comes from the life of Hem Nath Brahmin in Nepal.

> Originating from a hill village in Gulmi district where he owned a small parcel of land, he was obliged in 1971 to emigrate to maintain his wife and three children. He sold the land and came to the *terai* (lowland) to buy land there. He was unable to find an adequate plot with the small sum at his disposal and set up a tea shop in the meanwhile to keep the family alive. The tiny business survived for around three years, but he was obliged to extend credit to maintain a clientele and when he fell sick with cholera four years ago the accumulated debts of between Rs. 700/- and 800/- could not be recouped and the hospital charges led to his financial collapse. His wife returned to the hills with their youngest son of five to live with his wife's brother, and his other son of thirteen had to be sent to stay with his mother's brother in India. The only member of his family remaining with him is his ten year old daughter. 'I have no land and no place in my village now; I am sick and can barely work. I may not see my family again.'
> (Blaikie, Cameron and Seddon 1979, p. 47)

Here the sequence appears to have been pressure of population on land forcing emigration, too little money to buy land, the prevailing poverty of others which forced Hem Nath Brahmin to give credit from his tea shop, and then sickness and hospital care leading to the ruin of his business, and the dispersal in desperation of his family, split into three for survival.

The six cases, five area studies, and now these two sequences together with other evidence, provide the basis for some reflections.

There is a danger of over-generalising. In the first draft of this chapter, before I was aware of Cain's work, I wrote 'Social expenditures – dowry, brideprice, weddings, and funerals – are strikingly dominant as reasons given for selling land or taking

debts . . .'. However, in the three Indian villages not one of the small landholders reported selling land for a marriage. The contrast between Char Gopalpur, where so many land transactions were reported to buy food, and the Indian villages where there were so few, is also revealing, and can be attributed substantially to the relief programmes mounted in the Indian villages when there was serious drought.

Ratchets are not all in the direction of deeper poverty. In Char Gopalpur, it is true, the proportion of landless increased from 20 per cent at inheritance to 29 per cent in late 1976. But in contrast, the movement was in the other direction in the three Indian villages: the decline in the proportion of landless was from 32 to 12 per cent in Aurepalle and from 41 to 18 per cent in Kanzara. Among other factors this is attributed by Cain to effective public works relief in bad years, to land reform legislation which discouraged large owners from accumulating more land and which induced them to sell to tenants, and to opportunities for larger owners to invest in more intensive cultivation through irrigation.

Sickness emerges as a common cause and form of poverty ratchet. The very low incidence in Bailey's study of Orissa is misleading. The climate was considered unhealthy and there was always sickness in the village; but the local doctor (*baidyo*), the Brahmin, and the diviners were called in when there was sickness and did what they could with traditional measures. The doctor expected a fee of a glass or two of rice only. The Brahmins and the diviners would haggle and hold out for more, but it seems that the total cost of treatment was very low, that a certain fatalism prevailed about sickness and that visits to the ayurvedic or allopathic doctor were rare (Bailey, 1957, pp. 18–19, 113–14). The village appears to have been at a stage before the higher costs of ayurvedic and allopathic medicine had begun to bite. In Tsakani in Kilifi District, sickness was listed as a factor in land and palm sales in 24 per cent of the cases reported. In Kagama Kattiyawa in Sri Lanka, the lower figure of 7 per cent of debts incurred because of sickness may be a consequence of the virtual absence of malaria from Sri Lanka at the time of the fieldwork, the free rice ration, and the extensive and cheap health service.

Sickness occurs often in the six case studies and the two sequences. In three of the six case studies, it was the cost of medical treatment (for Don Pedro's surgery in hospital, for Tiyo Oyo's hospital treatment and dextrose, for setting the broken leg of the Bangladeshi boy) rather than the sickness or accident itself which led to the main disaster (selling the mule, selling the carabao, the boy being lame and dependent for life because the

money could not be raised). The plight of Hem Nath Brahmin in Nepal illustrates the multiple effects of sickness on the vulnerable. His cholera dealt him a treble blow: there was the sickness itself which put him in hospital, weakened him, and stopped him earning; then the costs of treatment; and finally his inability, sick as he was, to recoup debts owed to him – all combining to ruin his tiny tea shop business and scatter and virtually destroy his family.

In all these instances, those whose treatment was expensive were males. It is a question for research to what extent there are differential costs and types of treatment for men and women in different social conditions. In a village in Karnataka in South India, Sudha Rao reports that almost all those receiving treatment for TB were men. Women may often simply have to bear their sickness, or may receive lower cost treatment; and may thus less frequently precipitate poverty ratchets for the cost of treatment.

Many poverty ratchets are made worse by urgency. Contingencies cry out for action. Assets have to be disposed of in a buyer's market. The seller, or the pleader for a service or loan, is known to be desperate and up against time. Raising resources for bridewealth or dowry can sometimes be spun out. But funerals cannot be delayed; sick people must be treated; a broken leg must (one would suppose) be set; a new hut must be built when the old one has burnt down; food must be obtained to relieve hunger so that work can be done and for very survival.

> If an ox drops dead in the middle of the ploughing season, when no-one wants to lend or hire their cattle, and if the peasant must sell land to buy a new ox, he is in no position to drive a hard bargain. In general the market of buyers is restricted to his own village, where everyone knows his predicament. The same can be said of the cost of mortuary rites which must be concluded within at the most twelve days. There is not the same immediacy about sales to provide for a marriage or to build a house, but the price is still kept low because the prospective buyers know that the time which the seller can spend bargaining is limited.
>
> (Bailey, 1957, p. 59)

It is not surprising then to find distress sales and distress prices. The Bangladesh mat-weaver appears to be an exception: he sold his 0.19 acres to his brother for 2 000 taka, a good price presumably given because of kinship. But Don Pedro got only about two-thirds of what he felt his mule was worth and Tiya

Teria less than half what was considered the value of the Sumagaysay's buffalo; and the Nigerian land, as is usual in famines, was sold at very low prices. Poor people cannot wait. Because they cannot wait, they get low prices. Ergo, they get low prices because they are poor.

Vulnerability to poverty ratchets is heightened when the assets to be disposed of are big, indivisible, and productive. This applies to both land and animals. Bailey (1957, p. 60) gives an example of indivisibility of land. A field may be the smallest unit which can be sold, but a man's smallest field may be worth more than the money he needs. If the land is his only capital resource, the buyer is in a strong position and the seller is likely to get no more than he needs even though the field is worth more. Similarly, large livestock present problems. The Sumagaysays sold their carabao for P330, but the costs of hospital treatment and medicine were only P250, not including food. It seems probable that even with the low price they got for the animal, they raised more money than they needed simply because it was 'lumpy' and could not be divided. It is also possible that the small farmer who bought the carabao had some sense of how much money the Sumagaysays needed, and kept the price down to near that. It is here that small stock are better for the very poor. They can be realised in smaller lumps. Sales of sheep and goats and the purchase of grain with the proceeds are a widespread defence against the food shortages of the hungry season (O'Leary, 1980), even though they may fetch far lower prices at such times (Hill, 1972, p. 164).

But whether the sale is of land or livestock, and whether these are large or small, a productive asset is being disposed of, and, with the exception of old livestock past breeding, this reduces the subsequent food supply and income of the family. Without their mule, the Martinez family lost firewood they could sell and earnings hauling crates of plums, besides having to put in more work to bring home their own harvest. A day's labour by Tiyo Oyo had been worth P10 with the carabao; without it he could earn only P6. The same applies to disposals of land, when small farmers become landless and have only their labour to sell. The Bangladeshi mat weaver who previously grew his own cane and reeds had, after losing his land, to buy them. The loss is also greater when the asset is appreciating. The Italian peasant's hog was no doubt being fattened and increasing in value. Small stock breed fast and provide a potentially rapid means of gaining. But the dice are, as always, loaded against the poor. In a village in the Dominican Republic:

> Most day laborers have neither the land to support cows or pigs nor the capital to buy them. More seriously, day laborers rarely can hold animals long enough to fatten them: with their continual money shortage, serious illnesses are always forcing quick sales for the cash needed to pay doctors and buy medicine.
>
> (Sharpe, 1977, p. 46)

The less people have, the more vulnerable they are, and the harder it is for them to rise. A study of peasant farmers in Northern Nigeria over four years found that those with both livestock and land retained virtually the same acreage, but those with no livestock ended with 12 per cent less land (Simmons, 1981). Sales of livestock were, it seems, a buffer against sales of land. N. S. Jodha, comparing several studies of drought years in India and their sequels, found that the decline in assets was greater and the recovery was generally slower in the case of small farmers compared with large (1978, p. A41).

There is, too, the pervasive trap of indebtedness and high interest rates. While these may not be mentioned as contingencies forcing poverty ratchets, they are often a major factor building up intolerable pressures to mortgage an asset or to surrender an asset that has been mortgaged. The cruellest cut is where the less educated and the poorer people pay higher rates than others who are better off. Michael Howes (1980) found a not very numerate peasant in Thailand charged 120 per cent interest on a 2 months loan (an annual rate of 720 per cent). Margaret Haswell found in Genieri village in the Gambia that during the 1973–4 agricultural season, short-term loans repayable at harvest bore interest rates ranging from 49 per cent of 157 per cent for the eight months of the loan; and that the lowest rates applied to those who had one or two head of cattle which could be sold in repayment if necessary, and the highest rates to those with no assets in livestock (1975, p. 186).

With similar perversity, rates of interest rise in drought years (Jodha, 1978, p. A46). High interest rates, or bad credit-worthiness which prevents loans, make it even more likely that the poor will be forced to dispose of whatever assets they have. There are indeed what Jodha calls 'asset depletion-replenishment cycles' (1978, p. A38). But those best able to replenish are those least depleted. In the words of the Bible, 'For unto every one that hath shall be given, and he shall have abundance: but from him that hath not shall be taken away even that which he hath' (St Matthew XXV, verse 29). Depletion heightens vulnerability. The depleted household has fewer

buffers against contingencies. One ratchet effect leads to another. For many of the poor, depletion makes them permanently poorer, and permanently vulnerable to becoming yet poorer still.

Powerlessness

There is a peculiar obviousness, almost a tautology, about the links between powerlessness and poverty. What is most important is clear and well known, and yet so discomforting for the powerful that we continue somehow to overlook it and talk about other things.

So let us start with the obvious. At the local level, those who are powerful are often described as an elite. They are at the opposite pole to the poor along each of the dimensions of deprivation: they are relatively well-off in assets and income; they are physically strong (healthier, with larger families, larger bodies); they are secure – able to weather disasters and to obtain medical treatment when sick; they are spatially, socially and politically at the local centre of things – well-informed, able to educate their children, and able to draw on government resources and the machinery of the State. Their power derives from these factors, from their solidarity as a class, and from the powerlessness of the poor. In an earlier age, such rural elites were often seen as benevolent; today they are more often regarded as exploitative. And this shift of view within limits reflects a change in reality.

Exploitation of the powerless poor by the local elite takes many forms, but three clusters stand out: nets, robbery, and bargaining and its absence.

i) *Nets*

Local elites stand as nets between the poorer people and the outside world, in the sense that they catch and trap resources and benefits. Most government, parastatal and private sector programmes and campaigns are either designed intentionally for the elites, or so designed and implemented that they are likely to be intercepted by them. It is a notorious commonplace how, almost everywhere in the third world, credit and marketing cooperatives have been dominated by the larger farmers who have used them for their own benefit, at the cost of smaller producers; how agricultural extension staff are locked in with the more 'progressive' farmers, and with men rather than women; how

tube-wells, tractors, irrigation water, subsidised fertilisers, and cheap credit are obtained by the larger farmers; and how the benefits of the green revolution have been unequally distributed.

The eloquent case study *The Net* (BRAC, 1980) (see pp. 69–70) lays bare the power structure in ten villages in Bangladesh. This may be an extreme case. All the evidence I have seen suggests that Bangladesh presents particularly bad conditions of rural exploitation, and the Bangladesh Rural Advancement Committee may have chosen an area where power was much abused, even by Bangladesh standards: the villages were near the border where there had been refugee movements, where poor and despised Adivasis (tribal people) lived, where the Army was present, and where there was a frontier of communal forest resources inviting expropriation by the powerful. Even so, similar conditions are found in other places and other countries and the findings of the study present an agenda of questions to be asked elsewhere. The BRAC study found, for example, that food relief was intercepted by the powerful, and over one period only 24 per cent of the food sanctioned for food-for-work had been distributed, the remainder having 'disappeared' (BRAC, 1980, p. 78). Large sums of money accrued to a small group of lower and middle level politicians and officials and local wealthy men through appropriation of relief food and subsidised food and its resale. The main effect of food programmes destined for the poorest was to enrich those who were less poor.

It is not just that the powerful intercept; it is also that the price demanded for passing on benefits can exclude many of the poor, quite apart from diminishing the value of the benefits. One of Jansen's informants said he tried to get loans from banks at the thana headquarters, but he failed because the bank personnel demanded too much in bribes (1978, p. 49). Epstein was told by Malla, a member of a Scheduled Caste in South India, that he was aware of the favourable loan arrangements for members of the Scheduled Castes, but that to qualify for one he would need the signature of an official who he knew would not sign without a bribe of Rs. 150. 'Malla went on jokingly: "If I had Rs. 150 ready to give in bribes I would not need a loan at all!" ' (Epstein, 1973, p. 161)

Nor does this exclusion apply only to loans. We have already seen (p. 120) treatment for a broken leg withheld because the sum illegally demanded could not be raised. To make things even worse, the rich and powerful may receive free the services for which the poorer have to pay.

ii) *Robbery*

The elite is also well placed to use deception, blackmail and violence to rob the poor. Police, government officials and the larger landowners and traders have common interests and understandings. Illiterate people are induced to sign documents they do not understand or which are falsely described to them; ignorant, misled, and fearful, they unwittingly renounce their rights in land, accept debts without knowing the terms of repayment, mortgage possessions without being clear about how they can retrieve them, and accept terms for loans which are grossly extortionate. They then lack recourse to justice – since they do not know the law, cannot afford legal help, fear to offend the patrons on whom they depend, and would anyway be bringing their case before members of the very elite against which the appeal would lie. If they complain or resist, they can be brought to heel by a visit from the police, a threat of prosecution or arrest, the calling in of a debt, a refusal of employment, or violence – the burning of a hut, a roughing up by thugs, or worse. Open violence against the poor may be the last sanction not often needed, but it can represent the visible tip of an iceberg of very widespread subtle and not so subtle intimidation and the fear it creates. Violence against vulnerable groups in rural India is recorded almost daily in the Indian press, to the credit of its courageous journalists; and much more would be reported in other countries were their press as free as it is in India.

Some of the worst situations for the poor are where military, police and a local elite together exploit small farmers and the landless, especially when the latter are politically weak refugees (Chambers, 1979). In South Kivu in the mid-1970s the Zaïrean Army was arbitrarily seizing fish and small stock of Barundi refugees, and forcing young men to carry for them in the mountains. Some of the refugees never returned. For Bangladesh, *The Net* analyses a similar situation concerning a weak tribal people, intermittently refugees, who were being persecuted and expropriated by an alliance of elite, army and police. Let it speak for itself with one incident, by no means the worst:

> Not only are powerful people able to defy the law without suffering any consequences, because of their good links with the Police and BDR (Bangladesh Rifles) they are able to use their power to make personal profits. For example in 1978 Rafiq Daktar was passing the house of a poor Koch [Adivasi or Tribal] when he was attacked by a buffalo. Rafiq Daktar ran off and accused the Koch of owning a dangerous mad buffalo,

telling him to sell it immediately or he would inform the Police. When the man refused he went to the Police Station and returned with two Policemen, who threatened him with arrest. The man became afraid and agreed to sell the buffalo to Rafiq Daktar for Tk. 1 200/- (the market price was Tk. 2 500/- to Tk. 3 000/-). After buying the buffalo Rafiq Daktar slaughtered it and sold the meat to other people giving a share to the Police and BDR. He never paid the price, however, and when it is demanded he replies that most of the meat was taken by the BDR and Police, who did not pay, so why should he pay? The local people have demanded an account from him, but he has not given it.

(BRAC, 1980, p. 98)

In cases like this, the slightest presumption, justified or not, of legal or moral error on the part of the poor can be turned against them for profit to the rich; and appeals for justice can simply be shrugged off.

iii) Bargaining and its absence

Unequal power is reflected too in bargaining and its absence. This applies to prices paid in distress sales, as we have seen; to low payments when assets are pawned or mortgaged, even though the assets are likely to be lost through non-repayment; to reluctance of those who have mortgaged assets to try to redeem them for fear of prejudicing future loans, and for fear that the creditor would anyway refuse; and most common of all, to the prices paid for the labour of the landless.

In many places, the landless face the harsh arithmetic of supply and demand. In the words of a Filipino (Ledesma 1977, p. 27) 'As a landless worker, it is solely your body that earns a living'. Where the bodies exceed the work available, the price paid for them goes down, or work and payment are shared, as practised in parts of South India. Declining real wages are far from universal, but are widely reported for parts of Asia (e.g. ILO, 1977). Employers of casual agricultural labour, moreover, switch from payments in kind to payments in cash and back again, adopting whichever makes labour cheaper. But what is even more significant, and more general, are the differentials within populations of rural labourers. What happens to those groups who are most disadvantaged is easily lost in statistical averages. But those who are weaker socially, physically and politically are least able to bargain and get paid least.

The clearest group discrimination is against women. Almost everywhere, the earning power of rural women is less than that of rural men. Sometimes men are paid more than women for the same work. More commonly, tasks are segregated by gender. Leela Gulati records that in brickmaking in Kerala, women are confined to the strenuous work of carting bricks and never earn more than Rs. 5 a day, whereas men can expect to make Rs. 10 or more (1981, pp. 40–44). Again, in the coir industry, women husk-beaters make less than Rs. 4 per day whereas men who transport husks make between Rs. 12 and Rs. 16 (1981, p. 148). The weak bargaining position of women has several dimensions – low social status, the fact of male physical domination, and the strong maternal drive for work. Women with children to feed and no food cannot bargain, except desperately for some bare minimum. And they are least likely to negotiate anyway at the bad times of the year, especially during the rains when food is short before harvest. Thus, again in Kerala, Joan Mencher records interviewing groups of women working in the fields in the pouring rain who said that they had no idea what they would be paid for their day's work, but that they had no choice but to work. As one woman put it:

> This Maharaja called us. What can we do? Can we sit at home and listen to the cries of hunger from our children? For one or two nights we can bear it, but then we will come to whoever offers us some work. This is a bad time and the children suffer so much. Even our own hunger is not easy to bear.
>
> (1980, p. 1799)

Those who are disabled, physically weak, or destitute are also unlikely to bargain. One of Jansen's informants in Bangladesh, suffering from chronic asthma, said the pay he received was determined by the landowner. 'When asked if he ever asked for higher wages, he replied that he is afraid to ask for more pay – besides, he said, what landowner would seriously listen to his request' (Jansen, 1978, p. 28). For those who are destitute, seeking work is making a distress sale of the only asset that remains to them, their labour. Their powerlessness to bargain is manifest in their clothes, bodies, and demeanour. A Bangladeshi village woman whose grown daughter was sick had to get work each day for them to survive: a day's earnings was three meals – one only each day for the daughter, and two for the mother to give her strength to work.

Willie Henderson has described (1980, pp. 231–2) two unmarried sisters in a village in Botswana who were in a similar

plight. On one occasion they and their eight children were sitting in the yard crying for hunger. They earned money collecting buckets of water. The round trip was nearly two miles. The normal price for a bucket was five cents or ten cents; but to earn ten cents, *they* had to fetch six buckets. They had complained to the headman but he had done nothing. '...the fact that these women were known to be destitute or virtually destitute meant that other families tended to exploit them.' People in such straits have nothing with which to bargain; they can only plead and beg for work and food and accept whatever they are given.

Powerlessness in labour relations is often acute for migrant labourers. If village labourers become desperate and migrate, this may be taken as an excuse by their village patrons to withdraw from their obligations to provide support, while those who employ migrant labourers accept no responsibility. Health then is critical. Sick labourers get neither work nor help. Jan Breman has described the annual migration of poor people (Dublas) from a south Gujarat village in India to get seasonal work in brickyards:

> The continual alternation of work situations... means complete subjection to a labor system in which the employer, owing to the temporary nature of the engagements, rejects any obligation to provide for the most elementary needs of his employees. This sometimes leads to their being treated inhumanely. During my stay (in the village) for instance, a grandfather, a father, and two daughters returned to the village in mid-season. They suffered from typhoid fever and had been sent away from the brickyard so as not to infect the other laborers. Gravely ill and penniless, they had found their way back, travelling surreptitiously by train and getting a lift in an oxcart. Once they were in Chikhligam, not one of the farmers for whom members of this household sometimes worked gave them any aid. I found these people in their hut, uncared for and without food, lying on jute bags. Two of them died of the fever the next day.
>
> (1979, p. 252)

Examples such as these present only one part of the whole. There is another side: reciprocal relations between the powerful and the weak, a sense of obligation within a community to employ landless labourers (Hayami, 1978, p. 29), and sharing and mutual help between kin and between the poorer people who are often so generous themselves with the little they have. However much it may be brushed aside by those who see, or wish to see, only the selfish exploitation of power, there is also generosity, altruism

and an ethic of sharing. The great religions enjoin charity; Christ said 'The last shall be first'. A desperate household, the wife sick, the husband unemployed,

> was surviving on a tiny amount of savings and on a loan of food stuffs worth about Rs. 40/- from a shopkeeper who had employed him [the husband] previously. No interest was to be paid on this loan, nor was there a repayment date – 'it is just help, and without such help we would not be able to go on'.
>
> (Blaikie, Cameron and Seddon, 1978, p. 48)

Nor are elites, classes or bureaucracies monolithic; nor are they all parasitic and corrupt.

But evidence of the directions and magnitudes of change is depressing. In some earlier societies, and some which still survive, the sharing and reciprocity of what is, ironically, termed *primitive* exchange (Sahlins, 1974, p. 210ff.) reduced inequalities and hardships by redistributing gains, assets, and food within the community, and inhibiting economic differentiation. However, the traditional responsibilities of the rich, or less poor, for those who are poorer, have been fading: the storage of food by the wealthy to be provided to all in bad times has withered in Nigeria as in West Bengal; communal rights to land, water, grazing, forests and fishing have been appropriated by the stronger families and households, or by powerful outsiders, and have become private and exclusive; households once differentiated more in terms of their labour power and their ability to use their labour to make communal resources productive, are increasingly differentiated by wealth, education, and command over external material resources and political power.

Sometimes, in these processes, all are better off, though some much more than others; quite often many find themselves worse off. Traditional supports and coping mechanisms are weakened or removed, and new ones cannot be found or improvised to take their place. Despite variations, these are widespread trends. Economic growth which gives also takes away. Earlier observers of rural life were right in their time, in the prominence they gave to reciprocity and sharing: they were more common. And observers today are also right in giving more prominence to the acquisitiveness of the smaller family: it is already more significant than many yet realise.

Of course, this is not the whole story. There are many places where the introduction of cash crops, irrigation, input packages, and infrastructure have generated prosperity, more employment, higher real wages, and a better livelihood for all except the most

indigent and unfortunate. The directions of change vary – by country, by region, by social group, and by gender. If these directions have been positive for many, there remain hundreds of millions for whom they are negative. It is these people who present the awfulness, the tragedy, and the challenge. For them, poverty, physical weakness, isolation, vulnerability and powerlessness become more and more tightly integrated. They are more and more trapped in deprivation. Stopping the downward slide, let alone reversing it, becomes for them more and more difficult. There is the imagery of games: the dice loaded against the poor: snakes and ladders where there are more snakes than ladders at the bottom of the board, keeping the poor poor and making them poorer, and more ladders than snakes near the top, keeping the rich rich and helping them to get richer. Or there is the trap closed on the rural poor, with the less poor – rural, urban and rich country alike – sitting on the lid. The problem is to reverse the trend – to load the dice differently, to make more ladders near the bottom, to shift the privileged so that the lid can be lifted. It is this challenge that the rest of this book will try to address.

Notes

1 It is not only the non-rural outsider, of course, who may despise what poor people say. The better-off rural people may do so even more. In a meeting with Somali cattle owners once, an old man who seemed to me to be speaking a lot of sense was openly laughed at by others present. When I later enquired why, I was told it was because he had hardly any cattle.

2 Which words I, like so many others, was taught to sing at an early age. It is a shame that this verse disfigures what is otherwise a simple hymn of wonder.

3 In descending order the percentages of poverty cynicism in the whole population surveyed were:

United Kingdom	27
Germany	17
Belgium, France	13
Denmark, Netherlands	11
Italy	9
Ireland	8
Luxembourg	7

(CEC, 1977, p. 88)

Compared with others, the poverty cynic group 'is older, less well-educated and not so well off'. However members are not unhappy with the life they lead. They tend to put themselves fairly

high up on the rich/poor scale and to the right of the political spectrum (*ibid.*, p. 80).

4 For micro-detail in trying to make progress with this subject I have found the following works especially useful: Arens and van Beurden, 1977; BRAC, 1979, 1980; Bailey, 1957; Blaikie, Cameron, and Seddon, 1979; Breman, 1979; Dolci, 1966; Epstein, 1973; Gulati, 1981; Haswell, 1975; Henderson, 1980; Hill, 1972 and 1977; Jansen, 1978; Ledesma, 1977; Lewis, 1959; Moore and Wickremesinghe, 1980; O'Leary, 1980; Parkin, 1972; and Srinivas, 1976. I have not tried to penetrate the mode of production debate. For advice on that subject, without which I might never have managed to write this book, I am grateful to John Harriss.

5 For a revealing analysis of India village survey data which identifies two polar types of villages – those which are remote, with less irrigation, and more equal distribution of assets, and those which are more accessible, with more irrigation, and greater inequalities of wealth, see Dasgupta, 1975.

6 The more correct but less well known term, according to Douglas Thornton, is pawl.

7 For the death of a goat, see Gulati, 1981, pp. 56–7.

8 But see Bailey 1967, Parkin 1972, and Cain 1981, and pp. 122–3 and 125 below.

9 In Bangladesh, a bigha is about 1/5th of an acre. This is a regional figure; in Bihar the bigha is bigger.

CHAPTER SEVEN

The new professionalism: putting the last first

'You are old, Father William', the young man said,
'And your hair has become very white
And yet you incessantly stand on your head –
Do you think, at your age, it is right?'
Lewis Carroll, *Alice in Wonderland*, Ch. 5

Everyone is ignorant, only on different subjects.
Will Rogers, *The Illiterate Digest*

. . . and the last shall be first.
The Bible, St Matthew, Ch. 19, verse 30

For the rural poor to lose less and gain more requires reversals: spatial reversals in where professionals live and work, and in decentralisation of resources and discretion; reversals in professional values and preferences, from a 'first' to a last 'list'; and reversals in specialisation, enabling the identification and exploitation by and for the poor of gaps – under-recognised resources, and opportunities often lying between disciplines, professions and departments. Reversals require professionals who are explorers and multidisciplinarians, those who ask, again and again, who will benefit and who will lose from their choices and actions. New professionals who put the last first already exist; the hard question is how they can multiply.

Reversals

A theme of reversals runs through this book. For those who are poor, physically weak, isolated, vulnerable, and powerless to lose less and gain more requires that processes which deprive them and which maintain their deprivation be slowed, halted and turned back. These reversals have many dimensions. They

include, for example, pricing policies, and rural-urban terms of trade (pp. 150–151). But three dimensions deserve special attention because they combine potential impact with feasibility. They concern reversals in space, in professional values, and in specialisation.

Spatial reversals

Reversals in space concern the present concentration of skills, wealth and power in the cores, draining and depriving the peripheries. They have two main complementary aspects: where people live and work, and seek to live and work; and where authority and resources are located.

We noted in Chapter One the inward flows of educated and experienced people along the gradients from peripheries to cores. At each point along these gradients people seek qualifications and opportunities for the next inward step: rural parents educate their children hoping they will gain urban employment; officials in districts seek postings to regional headquarters, those in regional headquarters try to get to capital cities, and those in capital cities try to join the brain drain to richer countries. The resulting movements are often anti-developmental. Poor parents in labour-scarce rural households give their children an urban-biased education and point them towards the towns where they exacerbate urban problems. Poor countries train doctors and engineers they need who then leave for countries where they are less needed. Cruel absurdities result: urban unemployment and misery while rural areas are short of labour; and poor countries deprived of the professional competence which they have trained at great expense.

On top of this, populations grow fast. Even in countries with a substantial urban sector, the rural areas will have to support much larger populations in future. The balance of misery, between deprivation in the town and deprivation in the countryside, may shift in the next decade, with slowing rates of rural-urban migration, and even perhaps some net flows back to rural areas. Such flows have in the past resulted from urban distress – economic decline, or revolution, or both. Examples are the migration out of Kampala under Idi Amin and the forced move of over a million people from Pnom Penh under Pol Pot. But for the future a more positive view can be taken. It is usually cheaper to generate rural than urban livelihoods, and economically more productive (Lipton, 1977). Whether people are treated as an end in themselves or as an economic resource, the pointers are in the

same direction: towards priority for more and better rural livelihoods to support larger populations and to provide rural solutions to urban problems.

Decentralisation is one key to these spatial reversals. Many forces centralise power, professionals and resources in the urban cores: this is encouraged by national, urban and class interests; communications; markets and facilities; distrust of the peripheries and of those lower in the political and administrative hierarchies; personal interests in convenience, services and promotion (pp. 7–10); and the sheer weight of political and administrative influence. New investments, buildings, industries, and even agricultural processing are sited centrally, and scale, capital-intensity, and high cost correspond with the size and importance of the core where they are placed. Rural goods, taxes and people are sucked inwards, drained from the rural periphery more strongly and consistently than the opposite flow of goods and services is pushed or drawn outwards. If the economy falters, or goods are scarce, it is the periphery and the poorer people at the periphery who go short and pay more.

But these processes, though strongly determined, are not unalterable. With varying success, programmes of decentralisation have been implemented. Tanzania under the leadership of Julius Nyerere sent staff out from the capital, depopulating the ministries' headquarters, and allocated regional budgets with some local discretion in how they were spent. Decentralisation in Egypt and Sudan may provide further examples of what can be done when governments are prepared to devolve financial discretion. With strong leadership or strong local demands, it is possible, though difficult, to force funds outwards, to give more local discretion, to decentralise agricultural processing and small-scale non-agricultural production, to disperse, in short, parts of the cores towards the peripheries.

Where people decide to live and work, and where resources and discretion are located, depend on a host of individual decisions. Professionals, at many levels of hierarchy, from the lowliest field staff to presidents and prime ministers, daily make decisions which affect the spatial dimension. The extension agent may decide to take a bus to district headquarters to draw personal allowances or to bicycle to a remote village where his or her services are needed; a president or prime minister may decide to visit an industrial complex and receive the obeisances of captains of industry, or to go to a remote and poor rural area and listen to those who are poorest and most deprived. The extension agent may deliver all the subsidised fertiliser to nearby farmers, or may distribute it more evenly to include those who are further

away. The prime minister or president may order flyovers for the capital city, or roads to reach remote villages. These are real choices. Professionals at all levels do have influence over choices such as these; and how they use that influence is affected in turn by their values and preferences.

Reversals of professional values

The values and preferences of professionals are, then, a point of entry. We have seen how they respond to the pulls of central location, convenience, opportunities for promotion, money, and power. But this is not all. They are also influenced by professional education and training.

Professionals are achievers. Were they not, they could not have got through school, training institute, college, or university. To succeed they learn to be sensitive to signals of approval or disapproval. They strive for recognition. Good marks and further education reward the accurate and faithful adoption and reproduction of the views and values of their instructors. So pupils, students and trainees keenly internalise the values of their teachers. To be sure, at their rare best, education and training encourage independent thought, disagreement with lecturers, and the choice of unconventional subjects for study and research. But usually the pressure is to conform – from students' families who have made sacrifices for the students' education, and from routinised and authoritarian teaching. Some universities resemble old-fashioned factories turning out a standard, third-rate, out-of-date, product – people with skills but no originality, with an ability to remember and repeat rather than to reflect and create, parrots more than true professionals. The PhD, with subservience to supervisor and slavery to method, can stunt and deform intellectual development. The damage done by university education is easily underestimated, not least because those whose opinions matter are initiates themselves, and have a vested interest in the system. But damaging or no, one major impact of it is the inculcation and embedding of professional values.

After university, those who pass from the academic to the practical culture find many of these values not just unquestioned, but sustained and reinforced by others, now in senior positions, who were processed earlier. For those who go from university into private practice, their senior partners, and the professional associations which they aspire to join, have clear expectations. For those who go into government, one hierarchical environment

replaces another, as they pass from Faculty of Agriculture to Department of Agriculture, from Faculty of Veterinary Sciences to Department of Veterinary Services, from Faculty of Engineering to Public Works Department or Department of Irrigation, from Faculty of Medicine to Ministry of Health, from Department of Economics to Ministry of Finance or Planning.

Whatever their other differences the academic and practical cultures share the values of the rich and powerful cores. These are polar opposites of the values of the poor and weak peripheries. Table 7.1 lists some of these polar values and preferences. The reader may wish to add to or subtract from this list, and to rate professions, technologies, research, development programmes, and the preferences and behaviour of individual professionals, according to their location, in the two columns. It is also revealing to list pairs of value-loaded words which express and reinforce professional preferences. Two examples can be given.

First, the two lists might have been labelled 'sophisticated' and 'primitive'. But nowhere outside this paragraph are these words used in this chapter. They are not neutral, and both have done much harm. In its current usage, 'sophisticated' indicates approval, and refers especially to 'high' technology which is complex, capital-intensive, modern and so on, combinations of 'first' characteristics. But this is a recent meaning. The transitive verb 'to sophisticate', according to the Shorter Oxford Dictionary (1955 edition) means:

> To mix (commodities) with some foreign or inferior substance; to adulterate.... To deal with in some artificial way.... To render artificial; to convert *into* something artificial.... To corrupt or spoil by admixture of some baser principle or quality; to render less genuine or honest.... To corrupt, pervert, mislead (a person, the understanding, etc.).... To falsify by misstatement or by unauthorized alteration.

Language has played a trick on us, accommodating and affirming the cultural imperialism of the professional values of the 'first' world. Foreign 'substances' have become superior: what might earlier have been seen as adulterated, artificial and spoiled has become advanced, modern and good. Similarly, the usage of 'primitive' has shifted from 'original', and 'ancient', towards the negative sense of 'backward'. The new contrast of sophisticated (=good) with primitive (=bad) both reflects and reinforces biases against the 'last'. Elites aspire to the sophistication of the cores, and abhor the primitiveness of the periphery.

Table 7.1 Professional values and preferences

First	Last
A For technology, research and projects	
Urban	Rural
Industrial	Agricultural
High cost	Low cost
Capital-using	Labour-using
Mechanical	Animal or Human
Inorganic	Organic
Complex	Simple
Large	Small
Modern	Traditional
Exotic	Indigenous
Marketed	Subsistence
Quantified	Unquantified
Geometrical	Irregular
Visible and seen	Invisible or unseen
Tidy	Untidy
Predictable	Unpredictable
Hard	Soft
Clean	Dirty
Odourless	Smelly
B For Contacts and Clients	
High status	Low status
Rich	Poor
Influential	Powerless
Educated	Illiterate
Male	Female
Adult	Child
Light-skinned	Dark skinned
C For place and time	
Urban	Rural
Indoors	Outdoors
Office, laboratory	Field
Accessible	Remote
Day	Night
Dry season	Wet season

The second example of value-loaded words is the use in India of 'major' and 'minor' in irrigation and forestry. Major irrigation refers to canal systems and commands of over 10 000 hectares;

medium irrigation is between 2000 and 10 000 hectares; and everything under 2000 hectares is minor. Major irrigation receives the bulk of attention; it is prestigious, involving the investment of large sums of money, the design and construction of large dams and canals, and the gratification of impressive and highly visible achievement. Minor irrigation receives much less attention, involving only small and scattered physical works, investment in smaller projects, and less visible and impressive achievements. Yet in 1981 minor irrigation accounted for some 32 million hectares, more than the 28 million hectares of major and medium irrigation. Minor irrigation was also growing faster, and cost much less per hectare.

In Indian forestry, timber resources have been classified as 'major forestry produce' and non-timber as 'minor forestry produce'. Sharad Sarin has pointed out that this distinction of 'major' and 'minor' has led to a certain orientation and perceptions

> ... which are far removed from reality. For instance, the entire orientation and thus organizational/administrative arrangements in the form of structures, systems, training of manpower, procedures, planning, etc. of the forest department, appears to have been around major forestry produce. Little attention has been paid to the management of minor forestry produce.
>
> (Sarin, 1981, p. 398)

Yet most of the 40 million odd tribals in India, among the poorest and most despised of people, directly depend on the collection of minor forestry produce, and for many of them it is a key source of livelihood. Moreover, its recorded value during the first half of the 1970s, even at the low prices paid for it, was over one-quarter of the value of total forest produce (*ibid.*, p. 410). But 'major' timber involves larger lumps of money, the use of machinery, commercial contracts, and people who are well-off, organised and influential, while 'minor' forestry produce (leaves, seeds, gum, honey and the like) involves smaller lumps of money, collection by hand, informal sale, and those who are poor, unorganised and uninfluential. Not surprisingly, in both irrigation and forestry, the use of these two words – major and minor – diverts attention and resources away from 'last' things and towards those which are 'first'.

As in these examples, many of the 'first' preferences and values overlap and support each other. Many are so deeply part of the way professionals see things and work that they pass

unnoticed. Take for example the male–female dimension. Male predominance and dominance in organisations is so marked and so widespread that to many men it is, quite simply, natural, and the question of deliberate action to increase the status and numbers of women staff does not arise. In most universities, research institutes and government departments, the great majority of staff are men, especially where 'first' subjects are concerned. Those few departments where women are numerous and sometimes predominant deal, in contrast, with 'last' subjects – nutrition, home or domestic science, childcare, handicrafts, and women themselves. Such departments have a low status. Some are no more than token gestures. A women's wing in agricultural extension is understaffed and underfunded and consequently ineffective. In an agricultural university, a home science department is a poor relation, staffed mainly by women and involved with 'last' subjects. The important, male, visitor to the university is taken to the higher status male-dominated departments while his wife is sent to be entertained by the female home science staff; these staff thus never meet, or are met by him.

University syllabi and research, and knowledge itself, are dominated by the 'first' column. A special reverence is reserved for quantification, and preferences shown for the quantifiable. Not surprisingly, much more is known about 'first' subjects than 'last' ones. Compare knowledge of space rocket technology with the ignorance of how female-headed households in remote rural areas contrive to survive tropical wet seasons. There has been an explosion of journals in the hard sciences; there is no journal of rural poverty.[1] More is known about computers than goat droppings: a large imported computer scores straight 'first', a local goat's droppings straight 'last'.[2]

At this point, misunderstanding might arise. I am *not* saying that third world professionals should abandon the 'first' list. I am *not* saying that poor countries should abstain from developing the expertise to manage 'first' hardware and to negotiate with foreign organisations peddling 'first' technology. I am *not* presenting a neo-colonial argument designed to perpetuate dependence. Nor am I advocating a naive Luddism. Complex, capital-using technology has had, and will continue to have, important applications in attacking rural deprivation. It took the electron microscope, scoring heavily with 'firsts', to discover the miniscule rotavirus (scoring heavily on 'lasts') which causes so much (rural, indigenous, organic, untidy, soft, dirty, smelly ...) diarrhoea, accounting for perhaps one-third of the attacks on vulnerable weaning group of children. It took a large imported computer to reform Kenya's examination system, making it fairer,

and providing information about performance which enabled backward districts and schools to do better (Somerset 1982). Other examples where contributions have already been made, or are promised, include remote sensing from satellites to identify good sites to bore for water (Tanzania), radio communications for the management of large irrigation systems to improve responsiveness to farmers' needs (Philippines), aerial photography for land consolidation (Kenya), refrigerated seed banks to preserve disappearing genetic resources (in several countries), and laboratory analyses to pick up trace element deficiencies in soils (in many countries). And other 'first' technology, such as lasar techniques for precision land-levelling in irrigated deltas, photovoltaic conversion of solar energy to pump water, and the like, should not be rejected automatically but carefully weighed on their merits. So-called high technology does have selective applications in rural development. I am *not* advocating a universal shift from 'first' to 'last'.

But in almost any field of professional concern, the biases are loaded against the attributes and things that are directly important to poor rural people. Endless illustrations are possible: colonial and post-colonial prejudices against small native cattle, small stock, shifting cultivation and intercropping; the long neglect of the diarrhoeas; cold water fishing research devoted to exotic trout for the recreation of elite fishermen rather than local fish for livelihoods for low status fisher*people*; forestry research on commercial teak for the few rather than fuelwood species for the many; or the continuing neglect of some subsistence crops. Often the automatic, unstated, and unquestioned assumptions are striking and shocking once they are recognised.

Cassava (manioc, tapioca) is the major staple of tens of millions of people, and the food of last resort of many more, and its processing is a laborious task for millions of women. Yet an FAO publication – *Cassava Processing* (Grace, 1977) – is devoted only to commercial processing; it is as though to the author the word 'processing' could only refer to 'first' processing by machines, in quantity, for the market. Yet such biases are not inevitable. Another FAO publication (French, 1970) is a sensitive, well-informed labour of love for a despised and rejected 'last' animal, even if its title – *Observations on the Goat* – is half apologetic.

It is a commonplace how the pursuit of 'first' values and technology favour the rich and the less poor. The social science literature on the green revolution,[3] even after discounting for negative social science, shows again and again how 'first' technology – tractors, irrigation pumps, chemical fertiliser,

pesticides, mills for crop processing – are captured and largely monopolised by the 'haves'. In contrast, 'last' values and technology are closer to the poorer rural people and serve them better. But their neglect is systemic; and an optimal balance between 'first' and 'last' can only be achieved if these biases are reversed through a vast number of personal choices and actions.

'First' values are, however, deeply entrenched. Derived from and appropriate for the rich, powerful, industrialised and heavily armed world, they are carried from the centre outwards in many ways – in textbooks, in hardware, through the media, through consultancy. For reversals towards the rural poor, big obstacles lie in the citadels of professional purity in the metropolitan cores. Sustained by and supplying the needs of the 'first' world, they are subject to little demand or influence from the 'last', third, world, let alone from the rural poor. One example is the policies and priorities of those custodians of professional values, the editors of journals. They are faceless but powerful. They influence what is written and disseminated, and the content and style of research. Moreover, academic appointments boards all over the world, examining the curricula vitae of candidates look at their lists of publications. More weight is given to publication in journals which are 'international', that is, based in the industrialised countries, than in journals which are 'national', that is, based in third world countries. More weight is also given to publications in 'hard' journals which are believed to have rigorous standards of acceptance according to strict professional norms, than in 'soft' journals which may be more wide-ranging, more inter-disciplinary, and more original.

This discourages imaginative and inventive rural research. A third world student in a rich country university wished to do his PhD on ethno-soil science – to study rural people's knowledge of soils, and its relationship to modern scientific knowledge – but he was dissuaded by his thesis advisers who said it would be bad for his career since he would be unable to publish articles in any of the 'hard' journals. A rich country professor working in a third world country was asked to devise new statistical methods for agricultural research on inter-cropping as practised widely (and rationally) by small farmers in that country; but the papers he then wrote were rejected by the international journal which he had formerly edited. Agricultural researchers in a third world country were reluctant to collaborate with those developing new methods of learning from farmers because they feared they would be unable to publish the results. In another third world country, scientists who worked in villages, devising appropriate technologies jointly with villagers, found that their institute's

own journal would not publish their work. The supposed or actual policies of journal editors can thus undermine or deflect sensitive rural research. There are signs of shifts; but the assault on journals must be sustained and intensified if a fairer balance for the 'last' is to be achieved.

This requires reversals of values both in rich country cores and in the cores of the third world. In the rich countries, there are encouraging indications. There are universities and university departments, where the 'last' attributes are valued, and deliberate attempts made to offset biases towards 'first' attributes. Third worlders who go to these universities may now be exposed to a more reversed and balanced set of concerns and values than a decade ago, or than some would easily find in their own countries. In agriculture, the International Agricultural Research Centres have helped to raise the status of work on poor farmers' animals and crops – including ILCA's[4] work on goats, IRRI's on pest and disease resistance in rice, and on rain-fed rice, CIAT's and IITA's on cassavas and yams, and ICRISAT's on pearl millet, sorghum, chickpeas and pigeonpeas. In medicine, schools and institutes of tropical medicine and health have been prominent in supporting new 'last-first' approaches. Paradoxically, shifts of values have often proved easier and quicker in the rich than in the poor world; and this means that some rich country professionals are now well placed to help colleagues in third world institutes and universities who are working for change but who are impeded by hierarchy, rigidity, and reaction.

Bastions of conservatism remain in all countries. Reversals threaten established distinguished figures, eminent in their fields, respectable and respected arbiters of orthodoxy. In rapidly evolving fields like nutrition, irrigation management, and social forestry, opposition can be expected to the threat of new ideas. Even more, the idea that farmers should be teachers will be resisted. In one Third World university, an MA student with an imaginative supervisor was set to work to learn from farmers as his instructors. When the time came for the public examination, the farmers were asked to list the questions which should be presented to the candidate. The farmers came to the oral, dressed in their best clothes. After their searching questions had been put, the official examiners saw no need to ask any more, and the candidate was passed. But the incident offended the sensibilities of the university establishment, created a furore, and was never repeated.

One hope lies in the comparative, but unrecognised, advantage of Third World professionals. A researcher in, say, MIT, Reading or Paris is far from the rural Third World; but the

researcher in Bamako, Bangalore or Bangkok has it closer. Moreover, Third World scientists working on 'high' technology are repeatedly trumped by Western scientists who have the advantage of less hierarchical research organisations, more resources, and more accessible and rapidly evolving support services. The 'first' values of Western technology draw many able Third World scientists away from the opportunities which surround them. Some, like Amulya Reddy and the ASTRA[5] group at the Indian Institute of Science at Bangalore, have turned around and begun to show what can be done. Further, for their work in villages they have received more recognition than they might have done for conventional 'first' research. But thousands of others are pointed in the opposite direction, towards work where they are at a disadvantage, and where it is difficult or impossible, however brilliant and able they are, to be ahead in their fields and to make useful additions to knowledge unless they emigrate. Ironically, in few spheres are such additions to knowledge so easily, cheaply and simply made as where professionals are most programmed not to seek them: in learning what rural people know that researchers do not know. With 'last' work generally, past neglect means future promise. It is with 'last' work that Third World researchers have a comparative advantage and can most readily trump those of the rich world. For many of them, it is by turning outwards towards this accessible frontier, the poor periphery, that the gains, both for themselves and for rural people, can be greatest.[6]

Reversals into gaps

Specialisation is a parallel problem to the attractions of 'first' values. It both unites and separates the two cultures – of academics and practitioners. The 'first' links between the two cultures are stronger in the physical and biological sciences – geology, hydrology, engineering, soil science, agriculture, veterinary and animal science, medicine, and forestry, for example – than in the social sciences. But with all sciences, it is in the academic culture that specialisation tends to be more marked. The practical world demands breadth, intelligibility and usefulness, while academics are freer to dig deeper down into narrow ruts, so often in the process becoming esoteric and obscure. Each discipline develops its own concepts, jargon and priorities. Disciplines become inbred and spawn subdisciplines, beyond the understanding of lay people. Soil scientists, we are told, are divided between the pedogenetic and edaphological

approaches (Moss, 1979). We learn that there has been a failure to connect between ecological anthropologists and lexicographical anthropologists and that unfortunately 'the demands of both fields have left little room for crossing subdisciplinary lines' (Brush, 1980, p. 38). Hyper-specialisation may be intellectually exciting and sometimes useful, but it can also be blinkered. The old jibe says that people know more and more about less and less; the corollary is that they know less and less about more and more.

To counter the ignorance inherent in specialisation, one common remedy is multi-disciplinarity — the adding of disciplines to disciplines. The assumption is that for any purpose – such as research, project appraisal, monitoring or evaluation – all relevant aspects will be well covered if enough of the available disciplines are mustered. There is much justification for multi-disciplinarity, and it can be especially fruitful when social scientists and physical and biological scientists manage to combine well. But there are also difficulties and flaws in it. Sometimes the more the disciplines, the more cautious people become not to trespass on the territory of others, and the more they focus the beams of their searchlights to shine brighter on smaller patches which they can safely claim as their own. The more the disciplines and the larger the team, so too the more difficult it becomes to communicate and to integrate work. In the report, specialised sections are tacked together. The 'hard' technical parts (Chapter 3: 'Soils'; Chapter 4: 'Hydrology') come first and the 'soft' human parts (Chapter 12: 'Sociological constraints'; Chapter 13: 'Impact on Women') come as an unconnected residual, last. Far from illuminating everything, a full battery of disciplinary searchlights may serve only to dazzle and confuse.

In practice, also, gaps are left in both analysis and action. These include three forms: first, there are gaps between the disciplines; second, gaps occur because although the disciplines or professions exist, they are not represented in the rural scene; and third, there are gaps in modes of analysis. All three present opportunities for serving better the interests of the rural poor.

Gaps between disciplines, professions and departments

Many gaps can be discerned between disciplines, professions and departments as they are conventionally oriented and organised. Illustrations can be taken from biology, from energy, and from irrigation management.

In the biological sphere, neglected areas can be found in various linkages between crops, animals, fodder, trees, groundwater and fish. These have often fallen between disciplines and between departments. Agriculturalists are concerned with field crops, not tree crops. Animal specialists are frequently more concerned with veterinary science and animal health than with animal nutrition. Foresters are concerned mainly with protecting trees in forests and with commercial plantations, not growing them on farmers' fields. Hydrologists and irrigation engineers look for physical and mechanical solutions to problems. Pointed and conditioned in these ways, the professions are poorly equipped to recognise and exploit big opportunities.

To be specific, integrated animal and crop husbandry, despite the many linkages between draught power, crop residues, fodder, manure, and crop production, has fallen between agronomy and animal husbandry (McDowell and Hildebrand, 1980). The use of tree fodders and tree fodder intercropping, which now promises big advances in rural productivity, has fallen between forestry, agronomy and animal husbandry. The use of trees as biological pumps to tackle waterlogging has fallen between forestry, agriculture, hydrology and irrigation engineering. Fish ponds have fallen between fishery departments concerned more with large-scale and marine fisheries, and agriculture and forestry which might provide feed for the fish. Crop wastes (the word 'wastes' begging the question) have been neglected by all. In these examples, the built-in specialisation, conservatism and rigidities of university teaching, research institutes, and government departments point away from the opportunities.

In the energy sphere, new energy sources and technologies also present gaps. Ecological energetics – the study of biological energy flows and efficiencies (Phillipson, 1966) – has been a slow and late comer to rural development, not least because quantified research is laborious and has to be painstaking. Yet the energy crisis since 1973 has opened up huge potential for poor rural people. Some of the crops of the poor, such as cassava (manioc, tapioca, yucca) are energy sources, and can be used to make alcohols. Wastelands which previously appeared of little use except for communal grazing now acquire a new value as potential energy plantations; and a whole movement of social and community forestry is gaining momentum in India, the Philippines and elsewhere, with the possibility that the poorer people may be the main beneficiaries if the passing chances are seized. Producer gas technology, by which cars, irrigation

pumps, and other machines can be powered, is coming back into its own, neglected since the Second World War, and may generate markets for fuel gathered or grown by the poor and sold by them.

It is a sad sign of inertia or lack of imagination that the Consultative Group for International Agricultural Research (the body responsible for IRRI, ICRISAT, CIMMYT, etc.) has not set up a research institute with as its central concern the development of biological and other new energy technologies to benefit poorer rural people. A great chance has been missed. Nor have governments seized this opportunity. The best work has been done by voluntary organisations, inspired individuals, and small breakaway groups.

In the sphere of irrigation management, canal irrigation in South and South East Asia and elsewhere presents a similar gap between disciplines, professions and departments. The management of main irrigation systems, including the scheduling of water deliveries, falls between irrigation engineering, agronomy, agricultural engineering, and sociology, and is the prime concern of none. The civil engineers in charge of canal irrigation systems are professionally interested in design and construction (Jayaraman and Jayaraman, 1981) for which they have been trained, less interested in maintenance for which they have less training, and least of all in the operation of canals and the distribution of water, for which they are scarcely trained at all. Their attention is mainly at the headworks and the major controls. For their part, agricultural engineers are engaged only at the lower levels, below the outlets, close to and on farmers' fields. Agronomists too are preoccupied with the field level where crops are grown. Sociologists also concentrate low down, at the community level. There is no profession for which the management of the main canal system is a priority. It is a blind spot (Wade and Chambers, 1980). Farmers privileged to be at the headreaches receive abundant water while those deprived at the tail receive little or none, and receive it unreliably and late. The opportunities for improved equity and productivity are immense (Bottrall, 1981), but are not seized, not least because of the design and construction biases of the training of civil engineers, and the common chasm between Departments of Irrigation and of Agriculture.

Missing disciplines, professions and departments

Other gaps are left because disciplines, professions and departments are not represented, or are very poorly represented,

in rural development. Two examples are management and law.

Management is a discipline or profession which has yet to make its major contribution to rural development. Overwhelmingly, it has had an urban, industrial, and commercial character. Academics have come towards rural management through studies in public administration, though with a persisting reluctance to see procedures as having intellectual as well as practical interest. Practitioners have come towards it through hard experience and improvisation and inventiveness to meet problems and needs as they have arisen. There are now quite numerous studies which combine empirical analysis with practical prescription.[7] Institutes of Management which include rural and agricultural management have been set up, and in India there is an Institute of Rural Management in Anand. All the same, a body of practical theory for rural management is only now beginning to emerge, and it is rare indeed to find people who would describe themselves as specialists in rural management. Rather few academics see rural management as intellectually exciting or as a realm for action research; and practitioners still have a long way to go in recognising how management can contribute to rural development.

Law is a profession which, like management, has a strong urban, industrial and commercial orientation. One does not find a rural Legal Department equivalent to a Department of Community Development or Agricultural Extension. Yet there are many laws in many countries which, if enforced, would help the rural poor. As it is, the laws of property, invoked by the 'haves' against the 'have-nots', maintain and defend gross disparities of wealth. In famines, as Amartya Sen has argued, the law stands between starving people and food: he concludes his book *Poverty and Famines* (1981) with the words 'Starvation deaths can reflect legality with a vengeance.'

The need is to reverse this tendency: with patience and courage, step by step, to invoke the law to enforce measures which should favour the poor – to enforce land reforms, the payment of legal minimum rural wages, the access of the poor to services and programmes designed for them, and low interest rates from moneylenders, and to prevent illiterates being cheated into signing documents accepting ruinous interest rates for debts, surrendering their land, or forcing them into bonded labour. Legal aid for the rural poor has a history of isolated successes (e.g. Bagadion, Espiritu *et al.*, 1979; Mehta, 1979). But in most places it is a gap, a void crying out to be filled.

Neglected modes of analysis

Modes of practical analysis were discussed in Chapter 6 – in terms of costs and choices, of causes and constraints, of finding and making opportunities, and of political feasibility. To these may be added two more which touch matters critical for poor rural people.

The first is seasonal analysis. The tropical wet seasons are a gap. Urban-based professionals visit rural areas most during the dry seasons when travel is easiest and most congenial and people are at their healthiest, happiest and best fed, and least during the rains when travel is difficult and uncomfortable, people are most liable to be sick, under stress, and short of food, and ratchets of impoverishment are likely to be most common. Wet season interventions are therefore neglected, and wet season conditions under-represented in rural analysis and planning. Yet there are many opportunities in this gap: organising seasonal crèches for children while their mothers work in the fields; stocking clinics with medicaments according to seasonal needs, and ahead of breaks in communications with the rains; developing cropping systems to produce food earlier after the start of the rains; seasonal credit; and so on.[8] Such measures are found, but are still far too rare.

The second mode is to reverse analysis, from top-down to bottom-up. The top-down mode starts with disciplinary specialisation and uses its tools to examine rural situations. Bottom-up analysis starts with the condition of poor people, their resources, aspirations and problems. It might better be described as within-poverty analysis, for it entails trying to see from within, to adopt a diametrically opposite world view in order to see what might and ought to be done. At once, this will give a more holistic view, cross-cutting outsiders' disciplines, than the top-down approach. It is likely to identify needs and gaps which, interacting with specialised knowledge, show new opportunities. Moreover, just as with seasonal analysis, so with analysis which starts from the concerns, world views and knowledge systems of rural people, outsiders are provided with new frameworks of categories which may make their interdisciplinary collaboration more feasible, more exciting and more useful.

Conclusion: gaps as centres

Often for the poor, gaps are central. The resources and developments which are main line concerns of established

disciplines, professionals and departments are usually linked to and taken up by commercial interests and by those who are better off. Priorities are set by conventional specialised analysis and influenced by political forces which usually favour the strong. Opportunities for the poor lie precisely where resources have been protected by 'first' biases and by the narrowness of specialisation. It is here that new economic niches and new livelihoods can be generated by exploiting slack resources and using new technology. A great practical challenge is presented by the proviso that during critical periods of competence (pp. 158–9), poor people must be enabled to establish secure rights to the resources and the flows of income from them.

The new professionalism that is sought will, then, reverse tendencies to exclusive and increasing specialisation. There will always be a case for highly trained professional competence and for rigorous research. Nothing here should be construed as an attack on that. But many of the better chances for the poor lie elsewhere, and can be found and seized through wider and more open-minded observation, discussion, learning and analysis than that of any one discipline, profession or department. Narrowness among outsiders is a luxury poor people should not be asked to afford. Professionals should neither confine themselves to their own disciplinary territory nor fear to trespass in that of others. If they are to see the gaps and help the rural poor to exploit them, outsider professionals have to be explorers and multi-disciplinarians.

Political economy for all

Political economy is more a set of questions than a discipline. In practical rural development it is concerned especially with who gains and who loses. These questions have usually been left to social scientists. But they are too vital and too universal to be confined. One high cost of the gulf between the two cultures is that these questions are asked mainly by negative social scientists and much less by positive physical and biological scientists and practitioners. This needs correcting; political economy is too important to be left to the social scientists.

There are two reasons for this: first, who benefits is affected by many decisions which appear technical or neutral; second, awareness of who gains and who loses is a precondition for realistic interventions to benefit the poor.

On the first point, the technical and neutral appearance of many decisions and actions is deceptive. A decision by a

bureaucrat or politician to instal a Modern Rice Mill in a South Asian country can be presented as entirely technical, based on considerations of milling out-turn efficiencies, benefit-cost ratios, and the like. But Barbara Harriss has calculated that running at effective capacity, one such mill in South India would put some 300 people out of work (1977, p. 295), many of them very poor and vulnerable women. In such circumstances, an aid agreement for a Modern Rice Mill can be a death warrant. Those who sign such warrants 'know not what they do'. They make 'technical' decisions, lacking the knowledge, insight and imagination to realise what they will mean to the distant, weak, silent, poor. But the reality is there. The causal chains follow through from the ink on the agreement to the poor woman who once made do but who now finds no work, no money, no food, and no hope. So much negative social science has failed here; concerned more with class, quantification, and the macro-level, it has rarely laid bare the personal detail of these causal chains in their blind awfulness.

Or again, as is now much better recognised than a decade ago, decisions taken in agricultural research affect who benefits. Larger and more prosperous farmers can afford and obtain fertilisers, pesticides, irrigation water, and hybrid seeds. To many smaller and poorer farmers these are out of reach. Agricultural scientists have often regarded production as an end in itself, but they increasingly recognise that *who* produces is at least as important as *how much* is produced. Many decisions in agricultural research affect the *who*: decisions to work on biological nitrogen fixation (available to more, smaller, farmers) as against responses to chemical nitrogen (available to fewer, larger farmers); or work on inbred biological resistance to pests as against pesticides, or on crops and varieties sensitive or resistant to stress from water shortage, which is more likely to occur in the fields of the poor. Such decisions affect who produces how much and with what risks, and thus the food supplies and incomes of millions of poor people. If the scientists who make such apparently technical and 'neutral decisions could always envisage the ramifying effects, over the years, of their choices, they might be astonished and appalled at the power they have to give or to take away.

Examples could be multiplied to include decisions about R and D in other fields, in other choices of technology, and in elements in the design and implementation of programmes and projects. Moreover, there are many other decisions – on devaluation, on pricing policy, on regional development, on the siting of infrastructure – which more obviously affect the rural

poor and who gets what. The decisions as between tertiary, secondary and primary education; between resources for central hospitals or for peripheral primary health care; between capital-intensive or labour-using techniques for building and maintaining roads – are now frequently debated; a mark of progress over the past two decades.

But many decisions critical for the rural poor remain hidden and lost in the dark and labyrinthine places of government. The general point can be illustrated with one instance. It is taken from Zambia, but examples could be found in any country, rich or poor, in the world. In Zambia in 1980 it was reported that women in the remote Chambeshi Valley were doing a day's work threshing paddy by hand for a payment of about 100 grams of salt. At the nationally controlled price for salt, this was equivalent in value to about one-hundredth of the statutory minimum urban wage (ILO, 1981, p. 23). But there was an endemic salt shortage in rural areas, so that its black market value to the rural poor was very high. Now Zambia's salt is imported and requires a foreign exchange allocation. If an inadequate foreign exchange allocation was the reason for the salt shortage, the question is how this could occur. There are several possible explanations: the political impotence of peripheral people; corruption, since the black market must have been very profitable to some; muddle and inefficiency – getting the arithmetic wrong, or implementing decisions slowly; allocating cuts where the political price would be lowest; sheer lack of awareness; or some combination of these. Had the officials and others concerned been exercising their imaginations, and asking who gains and who loses, they might have seen that it would be the poor who would lose. There is also the awful possibility that they were aware, saw this, and still acted as they did, preferring Mercedes Benzes for the few to salt for the many.

The second reason why the questions 'Who gains? Who loses?' are too important to be left to social scientists is more tactical. The discussion of political feasibility (pp. 160–3) used the image of the brick wall of political will, and explored different distributions of benefits between groups. This suggested two types of approach: those which are piecemeal and oblique and those which are frontal.

Most rural development plans, programmes and projects intended to benefit the poorer people are non-frontal. Both 'spread-and-take-up' and 'last – first' interventions can quite often enable the poor to benefit without constituting a direct threat or direct loss to the rich. Depending on local conditions, a school, a health post, a road, may be to the advantage of all. This is the Chinese 'all boats float higher', a game where all gain, even if

some gain more than others.

The use of natural resources can also be analysed to search for ways in which all can end up better off. The tendency is to regard land, water, forests, fish and grazing as resources to be appropriated so that one household's gain is another household's loss. This is by no means always so. With canal irrigation water, scheduling is sometimes possible so that all gain: those at the top end gain by using less water delivered in a more reliable, timely and controllable manner (with less flooding, less waterlogging and less consequent salinity), while others at the tail end gain from having more water also delivered in a better manner (Valera and Wickham, 1979; Early, 1980; Chambers, 1980; Bottrall, 1981). With common property natural resources – common land, forests, fisheries, and grazing lands – similar questions arise. On the one hand there are dangers of appropriation by the powerful: large-scale enclosers with common land, timber contractors with forests, trawlers with fisheries, and 'big men' (owners of large herds or flocks) with grazing. On the other hand, there is the great challenge to overcome the tragedy of the commons and so manage these common resources that production will be maintained and increased in ways which enable all to gain.

The search for non-frontal approaches like these should not undermine those who work for frontal approaches where they are needed. Nor should it weaken those who seek to push benefits more and more to the poor where the less poor must lose. It is an argument, rather, for all professionals concerned with rural development to worry about and think through the implications of their decisions and actions, and for all – politicians administrators, magistrates, lawyers, agricultural scientists, foresters, community developers, health staff, veterinarians, animal husbandry specialists, educators, and others – to shift their sights and priorities from rich to poor; to ask, again and again and again, what the effects of their decisions and actions will be on those who are poor, physically weak, isolated, vulnerable and without power.

New professionals

These arguments make a case for a new professionalism of putting the last first and for new professionals to develop and practise it. This could be dismissed as an Alice in Wonderland fantasy, or as an unattainable saintly ideal. But hard experience shows that it is possible, that there is space in which to move. New professionals already exist. They are those whose choices of where to work and

where to allocate resources and authority reflect reversals towards the periphery and the poor; whose analysis and action pass the boundaries of disciplines to find new opportunities for the poor; and who test policy and action by asking who gains and who loses, seeking to help those who are deprived to help themselves. They are those who recognise small farmers, artisans, and labourers as fellow professionals and set out to learn from them. They are those who abandon disciplinary boundaries, and those who span the two cultures of academia and practice, taking the best from each – criticism from the one, and vision and action from the other. They are those whose values and actions put the last first.

It is easy to write about what ought to be. The hard question is how, in the real, messy, corrupting world to encourage and enable more people to move in these directions; how to multiply the numbers of committed outsiders – politicians, government staff in the field and in headquarters, voluntary workers, religious leaders, researchers, teachers, trainers – who see the need to put the last first, and how to stiffen their courage and will to act.

Notes

1 To the best of my knowledge. There is a *Journal of Peasant Studies* but I do not think that is quite the same thing. The *Economic and Political Weekly* in India publishes many articles on rural poverty but this is only one of the subjects it covers.
2 See Chapter 4, pp. 81–2. Goat droppings are, however, predictable within limits, and visible, even if they often pass unseen.
3 See for example Byres, 1972; UNRISD, 1974; Palmer, 1976; Dasgupta, 1977; Farmer, 1977; Hameed *et al.*, 1977; Pearse, 1980; Harriss, 1982.
4 Respectively the International Livestock Centre for Africa in Ethiopia; the International Rice Research Institute in the Philippines; the Centro Internacional de Agricultura Tropica in Colombia; the International Institute of Tropical Agriculture in Nigeria; and the International Crops Research Institute for the Semi-arid Tropics in India.
5 The Cell for Application of Science and Technology to Rural Areas.
6 For an outstanding illustration of this point, see Leela Gulati's book *Profiles of Female Poverty*.
7 For example, Hunter, 1970; Uphoff and Esman, 1974; Lele, 1975; Leonard, 1977; Hunter, 1978; Korten and Alfonso, 1980; Korten, 1980; Esman and Montgomery, 1980; Moris, 1981.
8 For longer lists of counter-seasonal interventions see Chambers, 1980, and Chambers, Longhurst and Pacey, 1981.