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The Ecological History of the Central Western Ghats in the Modern Period: A Preliminary Survey

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The Ecological History of the Central Western Ghats in the Modern Period: A Preliminary Survey

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This paper deals with the historical origins of the serious ecological situation which now prevails in the Central Western Ghats region of peninsular India. The present alarming state of things has evoked considerable attention, and efforts at popular mobilization, on the part of ecologically conscious people (including scientists) and movements in the recent past. But historical research on the subject is only at the beginning stage. Very substantial work has nevertheless been done these last few years on the ecology of one the most interesting forest areas of the region, namely Uttara Kannada (formerly North Kanara) district, including research on historical aspects[1]. The rest of the region has hardly been studied from this last point of view. An interdisciplinary research programme has recently been started at the French Institute, Pondicherry, with this object in view[2]. The present paper only aims at presenting a preliminary overview of the field of study, and at outlining an agenda for research to come.

THE STUDY AREA

The region under study consists of the two coastal districts of present day Karnataka (Uttara Kannada and Dakshin Kannada), and of the districts of Kodagu (also in Karnataka) and Kasaragod (today the northernmost district of Kerala). Before Independence, the area was

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Abbreviations used in the notes:

NAI: National Archives of India (New Delhi)

IOR: India Office Records (London)

1. Thanks mainly to Prof. Madhav Gadgil and his team at the Centre for Ecological Sciences, Indian Institute of Science, Bangalore, and to Prof. M.V. Nadkarni and the Ecology Economics Unit of the Institute for Social and Economic Change, Bangalore.

2. This programme has been approved by the Indira Gandhi National Centre for the Arts (IGNCA), New Delhi, as part of its national programme on "Human ecology and cultural heritage".

comprised within the three British districts of North Kanara, South Kanara (of which Kasaragod was then a taluk) and Coorg, all of which initially belonged to the Madras Presidency (including Coorg, which had been annexed by the British in 1834). North Kanara alone was transferred to the Bombay Presidency in 1862. The three districts bordered on the princely State of Mysore.

North Kanara, from West to East, included three distinct geographical zones: a narrow alluvial coastal plain, the range of the Western Ghats, and an eastern belt of highlands which formed the beginning of the Deccan plateau. In South Kanara, the crestline or scarp of the Ghats formed the eastern limit of the district, leaving room, between the steep cliffs of the range and the coastal strip, for a broken laterite plateau with a general slope towards the sea. Coorg, which was bounded on the West by South Kanara district, had an almost wholly mountainous configuration, its Western part consisting of a continuous chain of hills from which several long ridges branched off towards the East, gradually merging with the Mysore plateau[1].

In spite of their sharply contrasted topography, these regions had two crucial natural features in common: a high rate of humidity and heavy average rainfall on the one hand, and a broken surface, intersected by deep valleys, which rendered circulation difficult at all times of the year, and often virtually impossible during the rains[2], on the other. As a result of their climate and soil characteristics, these districts bore a luxuriant vegetation cover, and were two centuries ago (as they still wrongly appear to be according to official land utilisation statistics)[3] predominantly forest areas. The difficulties of access and cultivation, coupled with the widespread prevalence of malaria[4], partly

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1. For a good geographical introduction to coastal Karnataka and Coorg, see LEARMONTH 1962: chap. 1 and 2.

2. At the time of Independence, most of the periodic village markets in the coastal regions as well as in the Ghats still ceased to function during the monsoon: cf. DESHPANDE 1941: 332.

3. The official percentage of area under forests in the three districts concerned was as follows in 1981:

Uttar Kannada	80.6
Dakshin Kannada	59.8
Kodagu	30.1

4. Malaria was extremely virulent in the forest areas of all three districts. In the 1870s, the yearly average of deaths officially returned as due to "fever" in North Kanara was 57.5% (CAMPBELL 1883 (I): 221). The disease remained widely prevalent until Independence (see for instance PILLAI 1938: 270), and constituted locally a constant source of labour shortage, as well as an obstacle to land colonization. It has been largely eradicated since then and was under check until recently, but there is a danger of its making a comeback owing to the increasing resistance of mosquitoes to DDT.

explained the low density of the local population until modern times[1], and the exceptional longevity of the forest cover.

THE MODERN TRANSFORMATIONS OF THE FOREST ECOSYSTEM

The forests before 1800

We know from Pliny, Ptolemy and the *Periplus of the Erythraean Sea* that the coast of Kanara in Roman times, like Malabar and Konkan, though it was infested by pirates, was already the site of an international maritime trade not only in spices (particularly pepper) but in woods and other forest produce such as resins and aromatics. The woods exported were mainly sandalwood, teak, blackwood and ebony. Teak-wood from the West coast of India was highly valued for shipbuilding, and was widely used for this purpose, notably in the Persian Gulf[2]. This export trade went on through the centuries. The Europeans who began setting up factories on the Canara coast from the 16th century onwards were not mainly attracted by the wood trade. But the Portuguese, after the conquest of Goa, did use local teak on an extensive scale for shipbuilding. We have little precise information about the modes and degree of intensity of forest exploitation until the advent of the British in 1799. The stray references to the state of local forests which we have in the numerous European travel accounts which appeared from the 15th century onwards are merely impressionistic. Deforestation necessarily occurred around the human settlements in response to the demand for fuel and timber and as a consequence of grazing, as also for protection from wild animals (but the population was sparse, except along the coastline). Shifting cultivation (*kumri*) was common practice in the Ghats forests. It is also known that much forest was cleared by the Mysore sultans towards the end of the 18th century in the course of their wars against the Coorgs[3]. Finally, one source mentions that about 3000 teak trees were felled every year in

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1. The population density per sq. kilometer in 1901 and 1981, according to *Census of India* figures, was as follows:

	1901	1981
North Kanara	44	104
South Kanara	110*	282
Coorg	44	113

*(excluding Kasaragod taluk, which was transferred to Kerala in 1956)

2. See for instance WARMINGTON 1974: 113, 213-214; DAS 1969: 245.

3. According to an 18th century chronicler, Kirmani, quoted by BAYLY 1988: 138.

North Kanara around 1800[1]. All this, of course, amounts to very little information, and much research remains to be done on the precolonial history of the forests of the area.

One fact at least seems reasonably certain: the area under study was in a state of relative depopulation at the time of the British conquest, as a result of oppression and overassessment by the preceding Mysore governments, and in consequence of the century of wars and internal strife that had desolated the country. The two main testimonies we have on this point are the celebrated reports sent by Thomas Munro, the first Collector of Canara, to the Madras government on 31st May and 9th November 1800[2], and Francis Buchanan's survey of Mysore, Canara and Malabar, which was based on a journey effected through those regions in 1800-1801[3]. In the words of Munro,

"The evils which have been continually accumulating upon (Canara) since it became a province of Mysore have destroyed a great part of its former population (...). There is scarcely any saleable land, even on the sea-coast, anywhere to the northward of Cundapoor or anywhere inland from one end of Canara to the other, excepting on the banks of the Mangalore and some of the other great rivers. In the vicinity of the Ghauts, the lands are not only unsaleable, but the greater part of them is waste and overgrown with wood. It is reckoned that the population of the country has been diminished one-third within the last forty years."[4]

Buchanan, on his part, gives abundant evidence in his travel diary of deserted villages, of abandoned gardens, of formerly cultivated lands that were lying waste and reverting to forest, of the ubiquitous threat of wild animals, both in South and in North Canara[5].

These rather bleak depictions of the state of the region in 1800 must probably be taken with some caution. Munro had to justify in the eyes of his superiors the comparatively low rate of assessment to which he was to submit the landowners of Canara[6]. As for Buchanan, he had been appointed to survey Mysore by the Governor-General Lord Wellesley, whose action against Tipu Sultan had been disapproved in London, and who needed to prove that the overthrow of Tipu's regime

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1. HAMILTON 1820: 259.
2. The relevant extracts figure in FIRMINGER 1918: appendix 24. See also Munro's letter to his sister in KRISHNASWAMI 1947: 153.
3. BUCHANAN 1807.
4. FIRMINGER 1918, vol. 3: 308-309.
5. BUCHANAN 1807, vol. 3: 9-250, *passim*. Also HAMILTON 1820: 254-256.
6. See STEIN 1989: 72.

and its replacement by British rule were a boon to the country[1]. Yet it is beyond doubt that population at that time was at a low ebb, that the extent of waste agricultural land was much greater than it had used to be, and that the forests had gained ground in the area for the last time in history.

The progress of deforestation until the beginning of modern forestry

"In the beginning of the century, an immense, almost unbroken forest covered the Western Ghats, from near the watershed to the most elevated ridges - left to nature, thinly peopled, abounding in wild animals, and all the higher portions without exception covered with timber. Now the passing traveller, looking down from the higher peaks of Coorg or Malabar, conceives that an inextinguishable forest lies below him; but as he descends the ghats, he finds that the best timber has been cut away, and that the wood contractor is felling in more remote localities. I refer especially to teak, blackwood and poon spars, which are every year becoming more scarce in accessible situations."[2]

These words were written in 1861 by the first Conservator of Forests of North Kanara district. The state of things he described had its origin in the very first years of the 19th century. The forests had then been viewed with a single objective in mind: to obtain a regular supply of timber for public purposes, with a particular interest in teak timber, which was needed for shipbuilding, military and other purposes. Yet the mode of extraction practised by the forest proprietors and timber contractors had proved so appallingly destructive that a Conservatorship of Forests had been created in 1806, with a view to control the extraction of timber for Government purposes and to regulate private trade. But the mounting discontent of the proprietors and merchants, and of the peasants, whose rights to cut fuel had been curtailed, led to the abolition of the Conservatorship in 1823. The commercial appetites let loose by this reversal of policy led to reckless exploitation of the forests, of which vast areas were devastated beyond recovery, beginning with the more accessible zones, which in many cases were totally denuded[3]. Simultaneously, shifting cultivation continued on the slopes of the Ghats with at times destructive consequences, though it was increasingly restricted by the authorities.

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1. VICZIANY 1986: 627-629, 633-634. My thanks are due to Dr. Venkata Raghotham for drawing my attention to this article.
2. Quoted from H. CLEGHORN, *The Forests and Gardens of South India* , London, 1861, in GADGIL & CHANDRAN 1989: 15-16.
3. STEBBING 1922, I: 68-72.

In the second half of the 19th century, the region could still boast of a magnificent forest cover. In North Kanara district, 91% of the district area was still under forest in 1882[1]. In South Kanara in the early 1890s, the slopes of the Ghats remained fully wooded, and though the dense forest area generally began only from 20 to 30 miles from the coast, there were patches of degraded forest everywhere in the district, which contained a very large area of waste land[2]. Moreover the sacred groves (*kans*) (about which more will be said below) had been rather successfully preserved in both districts as well as in Coorg. Yet in the 1860s, the supply of blackwood was already nearing exhaustion, and first class teak had become scarce, even in North Kanara where it grew in abundance, because of thoughtless depletion[3].

Coorg, which had been occupied by the British in 1834, was still almost wholly covered with forest or (to the East) with thick jungle twenty years later[4]. It was only after the advent of the European coffee planters that the large-scale felling of forest began. The first European plantation was started at Mercara in 1854. Land being cheap and profits substantial, a veritable rush developed during the following years. Thus 20 000 acres of dense forest were cleared in a little more than a decade. A Commissioner was appointed in 1868 to investigate the ravages of the "borer" (a pest) in the coffee plantations. He reported that forest destruction was already provoking rapid soil erosion, a drier climate and recurrent failures of drainage, and also induced unforeseen imbalances in the fauna, all of which largely explained the proliferation of the "borer"[5]. The ecological blunders committed by the planters were particularly glaring in the case of the estates situated on the slopes of the Ghats:

> Originally covered with primaeval evergreen forest, these tracts possessed a splendid soil, whose fertility was heightened by a heavier fall of rain than on the Mercara plateau, and also by a variable condition of atmospheric humidity. But the extensive felling of forest, followed by burning, which destroyed a great deal of the valuable surface soil, converting the humus into ashes which were blown or washed away, and a faulty system of weeding in order to show a clean surface, all added to the impoverishment of the soil. The exposed trees, thus left without nourishment during successive seasons of drought, fell an easy prey to the borer, and also suffered severely from bug, leaf rot, and leaf disease. The abandoned estates have been overrun

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1. CAMPBELL 1883, I: 21.
2. STURROCK 1894: 15.
3. STEBBING 1922, I: 305.
4. THORNTON 1854: 18.
5. NAI, India, Home (Public) Dept., 6 June 1868, part B, n° 153.

by the *Lantana*, a shrub introduced in 1863, which has covered the hill-sides with an almost impenetrable bush[1].

The evil was aggravated by the deep commercial slump which set in at the turn of the century, due to the competition of Brazilian coffee. Many planters were ruined and the number of abandoned estates increased. The proliferation of the *Lantana* gradually assumed such proportions that the Government in 1914 had to pass the *Coorg Noxious Weed Regulation*, which empowered the authorities to make the clearing of the shrub compulsory[2].

Finally, as is well known, a new menace was hanging over the forests of India, and particularly on the teak forests, namely the development railway construction, which began in 1853. For the building of the Indian railway network, about one million sleepers were required every year, and the sleepers, on an average, had to be changed every ten years. The pressure thus put on the forests of India was evidently considerable, and this was one of the major reasons for the creation of the Forest Department. An exact measure of the tribute paid by the forests of the Central Western Ghats to the railway Moloch, and particularly to the Southern Maratha Railway, still remains to be taken[3].

THE BRITISH STRATEGY OF FOREST MANAGEMENT

The principles of management

Such was the position when Dr. Cleghorn was appointed Conservator of Forests in the Madras Presidency in1856, nine years after Dr. Gibson had himself been appointed to the same office in Bombay. Both officers made representations regarding the seriousness of the situation created by years of overfelling in the forests under their jurisdictions. They advocated the adoption of strict principles of forest conservancy and an equally strict limitation of shifting cultivation, and they above all recommended that Government should clearly take over as public property all the forests that were not proven to be the property of private individuals. Their exertions, unfortunately, were of little effect, mainly because it was widely believed that the cost of such a policy to Government would always be higher than the gains to be

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1. RICE 1908: 306.

2. UNITED KINGDOM 1920: 12.

3. For a recent summary of the literature on the development and economic impact of railways in India, see HURD 1983. A case study of the ecological impact of railway construction is outlined in TUCKER 1983: 158-161.

expected from it. The idea of a concerted policy of forest management was nevertheless gaining ground about this time in governmental spheres. Lord Dalhousie had laid down in 1855 some basic principles of forest policy for India. It was given to Dietrich Brandis, a German forester first appointed in 1856 as Superintendent of Forests in P·ırma, to bring them to fruition with great energy, in the face of considerable opposition within the ranks of the colonial apparatus itself, when he became in 1864 the first Inspector-General of Forests to the Government of India[1].

Settled agriculture in our region, as everywhere else in India, was traditionally based on a close association between cultivation and cattle-raising, and between field and forest. Contrary to a widespread cliché, the forests were not an entirely desert and virgin space, except in the more inaccessible areas. In many ways, they constituted a sort of wooded extension of the cultivated space, criss-crossed by pathways, and daily frequented by peasants who came to graze cattle, to hunt, and to collect fuel, timber, litter, green manure, and all sorts of other vegetable produce which often constituted important adjuncts to their diet or to their sources of monetary income. The uses of the forest were regulated by customary usage, which itself belonged to the oral tradition, and involved neither the written word, nor the reference to figures. Once the short-lived illusion that the forest wealth of India was inexhaustible had vanished, it gradually occurred to many of the British rulers that this precious capital was melting away under the uncontrolled pressure of a growing peasantry, while a massive and regular supply of timber was required for imperial purposes, and the wider environmental benefits of the forest cover were being increasingly realized[2]. The way in which the European foresters looked upon forest management was modern in the sense that their fundamental object was to disciplin forest use in the interest of the state. This was one of the multiple aspects of the "disciplinary" tendency which Foucault, as is well known, has shown to be characteristic of the modern state, and which was so obvious in the case the colonial state in India[3]. Along with the forester's view of rational forest management went a will to impose from above a new structuring of space in terms of strict legal categories, and to

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1. RIBBENTROP 1989: 70-76.

2. This new ecological consciousness was rooted in the current of opinion which had been developing along these lines in Western Europe for more than a century, concurrently with the rise of the modern State, and which constituted the ideological foundation of the development of State forestry . On the "pre-ecological" discourse in 18th century Europe, see CORVOL 1987a, and CORVOL 1987b: 67, 76. On the conflict between social forestry and State forestry in 19th century France, see KALAORA & SAVOYE 1986.

3. FOUCAULT 1977.

master the development and exploitation of the forests over time, with precise (mainly commercial or governmental) objectives in view. These objectives, as a rule, had little in common with the requirements of the local peasant, and in many ways ran counter to them. Hence the long story of forest grievances and forest crime, which constitutes the socio-political obverse of the history of modern forestry in India.

Forest legislation

During the early period of British rule in our region, it was held by the government that the state had never exercised any proprietary right, except on the waste lands that were unclaimed by anyone (including of course vast areas of forest). This view was first put forward by Munro in his reports on Canara, and became for many years the official view of the Madras Board of Revenue[1]. A large percentage of the forest lands of the area were thus at first admitted to be the private property of the local landholders (known as *wargdars*). This view, however, gradually changed as years passed. As no forest settlement was ever made because of the expenditure involved, the precise extent of the public forests could not be ascertained. Thus the rights of government proved impossible to enforce, while the *wargdars* kept encroaching on ever widening areas of forest beyond what was considered to be their legitimate domain or right of user, and even sold lands on which they exercised only doubtful rights of property. It was decided in 1844 that the landholders' rights of property on the waste lands attached to their estates concerned only those lands which had been formerly cultivated but had fallen out of cultivation. Lands that had never been cultivated were the property of the state, and on these lands the *wargdars* could only be conceded rights of user which could be revoked at the will of government. But while proprietary rights were thus limited, the government failed to impose strict rules of conservancy applicable to the forests where rights of user were recognized, which led to their virtual plunder by the landholders and other right-holders for commercial purposes. Fine trees were cut down in numbers in order to collect honey, cultivators who were allowed wood free for agricultural implements engaged in the trade of the said implements, etc.[2] Things however began to change in North Kanara after its transfer to Bombay, as the Bombay survey settlement system was gradually introduced in the district from 1862 onwards. The passing of the Indian Forest Act, 1878, which was adopted in Bombay, later set the basic legislative

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[1]. See FIRMINGER 1918: 296-299, 311-312, 331-332; Munro's letter to Read in KRISHNASWAMI 1947: 159-160; and BEAGLEHOLE 1966: 46-48. For a modern critique of Munro's stance, see STEIN 1989: 70.

[2]. PEYTON 1870: 7, 11.

framework of forest conservancy. In South Kanara and Coorg, it was the passing of the Madras Forest Act, 1882, which led to the enforcement of stricter official control.[1]

The Indian Forest Act, as is well known, provided for the constitution of "Reserved" and "Protected" forests. Reserved forests were State property in the full sense of the word. Before any area was declared Reserved Forest, it was surveyed, demarcated and subjected to a regular settlement carried out by a Forest Settlement Officer. Access to these forests was restricted, and no one could use their products unless under official privilege granted by the government. These forests (which, as a rule, were of high commercial value) could only be exploited commercially by the Forest Department itself. The Protected Forests were Government forests which remained to be surveyed and settled, and which were temporarily left open to public use with certain restrictions, particularly regarding the felling of valuable timber, any class of tree being liable to be declared as reserved. Any part of the Protected Forests could be officially closed for periods of upto 20 years (upto 30 years after the passing of the Amendment of 1918), and certain pursuits such as clearing, quarrying, or collecting any particular class of forest produce, could be prohibited within their limits. "Briefly, new rights (could) spring in Protected but not in Reserved Forests; and while in a Reserved Forest everything (was) an offence which (was) not permitted, in a Protected Forest nothing (was) an offence which (was) not prohibited". [2] The Madras Government declared that the Act could not be extended to the Madras Presidency because the rights of the villagers over the waste lands and jungles were such as to prevent the formation of exclusive State Reserves. Yet the Madras Forest Act, which was passed in 1882, was actually framed on the same general lines as the India Act, but the procedure relative to the constitution of Reserved Forests (particularly as regarded the formal disposal of claims) was made more logical and simplified. The Indian Forest Act, 1878, was extended to Coorg in 1887.[3]

Commercial forest exploitation

From then on the processes of forest settlement (the main object of which was to fix the extent of State proprietary rights in the forests and waste lands), of demarcation of Reserved Forests and of forest

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1 . See particularly CAMPBELL 1883: 24-25, 168-177; STURROCK 1894: 15-21, 125-130.

2. UNITED KINGDOM 1920: 12.

3. The modalities of the extension are detailed in *The Coorg Forest Manual*, Bangalore, 1922.

surveying went on everywhere in India. The era of Working Plans for the systematic working and exploitation of government forests also began in the 1880s. These and other tasks such as development of communications in the forest areas, protection from fire, sylviculture, etc., entailed a significant increase of work for the Forest Department. Yet this department was expected to furnish substantial amounts of surplus revenue to the Imperial exchequer every year, so that it remained chronically undermanned, and was consistently unable to secure from the government a proper understanding of its organisational needs[1]. The Department badly lacked qualified foresters, and did not have by far a sufficient subordinate staff to work and protect the forests properly, to regulate grazing according to the rules, to carry out the improvements decided upon. The forest districts, ranges and beats were very often too extensive for efficient management. In Coorg around 1890, there was only one professional forester for 850 square miles of reserved and protected forests. In North Kanara in 1882, there was one forest guard for every 60 square miles of reserved or protected forest[2]. From the beginning of this century, on the strength of the *Annual Forest Administration Report* for the Madras Presidency, the Madras Board of Revenue conveyed pressing recommendations to the Government on this account almost every year, but to no avail. The Conservator of Forests for Madras Central Circle bitterly complained in 1917 that "the Forest Department in the Madras Presidency (...) is so seriously undermanned that it is quite impossible for any of its officers to engage in serious research work", that "the Government is content to keep it in a constant state of struggling inefficiency", and that "there seems to be a deeply rooted objection on the part of Government to permit the growth of the forest organization in this country to keep pace with the times"[3].

Logically then, the main efforts of the Forest Department were directed towards the commercial exploitation of the forests, because its means were limited, and the Government considered the forests first of

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1. This is particularly obvious from the evidence given by the foresters of Madras before the Indian Industrial Commission of 1916-17: see INDIA 1918, III: 242-249, 520-521. See also VOELCKER 1893: 146-147.

2. VOELCKER 1893: §173; CAMPBELL 1883: 23.

3. INDIA 1918, III: 242, 244.

all as a source of revenue[1]. The main objective of most of the working plans was the extraction of timber and firewood for sale. The methods of extraction and disposal of forest products used were those that were the most highly paying. In North Kanara, for example, timber was either sold by standing coupes, or extracted by contractors financed by the Forest Department, or extracted by the Department itself, which directly hired labour and assembled the wood for sale at one of its timber depôts. The last two modes of exploitation were the less costly[2]. Departmental extraction was less destructive than when the work was done by contractors, but it could not be widely resorted to because of the paucity of available staff. The techniques of extraction were extremely wasteful on account of lack of expertise and adequate equipment and of insufficient supervision[3].

Of all the woods, and especially hardwoods, which the Forest Department exploited, the species in greatest demand was teak, which had been extensively used for shipbuilding, and for which the construction of the vast railway network of the Indian Empire had generated an immense market since the 1850s (mainly for the supply of sleepers). A large proportion of the first generation of working plans in our area had for their main object the exploitation of the teak forests. Many of the later ones were devised for the artificial plantation of teak at the expense of the natural forest, as the resources in natural teak had already been largely depleted by the time of the First World War. This policy of selective overexploitation followed by systematic plantation of teak, conducted even in the fragile evergreen forest zones on the hills, bore heavily on the ecological balance and prospects of the forest areas[4]. Teak was planted far and wide outside its zone of natural growth, which implied a heavy risk of soil degradation[5]. The plantations often entailed also a deterioration of the conditions of agriculture in the adjoining areas, teak being found to have a deleterious effect on soil fertility, and failing to give good leaf-litter, which the

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1. This priority, of course, was not unanimously accepted even in the official spheres. The Madras Board of Revenue, for instance, in their recommendation to the Government appended to the Madras *Annual Forest Administration Report* for 1913-14, insisted that "it must be remembered that the main object of forest conservancy is not to amass revenue but to conserve for the public, both for present and future generations, the valuable property enshrined in the forests. For this purpose, money has to be freely spent on establishments, on communications, and buildings..." (quoted in INDIA 1918, III: 248).

2. INDIA 1918, IV: 335-336. For details on the working of the contract system in North Kanara in the 1880s, see CAMPBELL 1883: 25-29.

3. VIART 1963: 84-89.

4. GADGIL & CHANDRAN 1989: 17-28, 154-155.

5. VENNETIER 1978-79: 17-18 and Chap. 2.

agriculturists vitally needed - two allegations which the Forest Department did its best to disprove[1], but which gave rise to waves of popular protest to which the Government ultimately had to yield.

The Forest Department also extracted firewood and bamboo for sale, as well as a variety of minor forest products such as pepper and cinnamon. The right of exploitation of these was sold by auction every year to contractors, whose methods of collection were often damaging to the forests concerned.

THE IMPACT ON THE ANTHROPIC UTILIZATION OF THE ECOSYSTEM

The extinction of shifting cultivation

It is often said that the modern indictments of shifting cultivation as a threat to the survival of tropical forests are unfounded, and that the forest people of India have been made the scapegoat for the destruction of India's forest wealth, while they have exploited the forests for thousands of years without causing ecological damage[2]. This is no new controversy, and the debate was almost as passionate at the end of the 19th century as it is now. As B.H. Baden-Powell wrote in 1882, severe critics of the Forest Department were then already throwing on "ignorant and unsympathetic forest officers" the responsibility for the plight of the dispossessed hill people, the only effect being "to inflame the official mind with departmental and personal feeling, instead of directing it to the grave and dispassionate study of the question"[3]. On the one hand, there were obviously cases where shifting cultivation was locally harmless (though it did inevitably alter the composition of the primeval forest), and where the material destroyed was either valueless or impossible to exploit. On the other, there were cases where this type of cultivation had to be prevented, for instance when it was practised on slopes which were at the head-waters of streams, and when it entailed high risks of denudation, soil erosion, drying up of drainage, etc.[4]

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1. See DHARESHWAR 1941: 72-74.
2. See for instance MORRIS 1986.
3. BADEN-POWELL 1882: 176.
4. On the modes of shifting cultivation practised in the South and North Kanara areas at the beginning of the 19th century, see BUCHANAN 1807, III: 71-72, 147-149. For a general approach of the techniques of shifting cultivation and their effects on soils and vegetation in South India, see VIART 1963: 51-55.

The dominant view among the foresters of our area was that shifting cultivation (or *kumri* as it was locally called) was dangerous, and had to be discontinued as far as possible. Gibson in 1846, when he was Interim Conservator of Forests of Bombay, reported on "the rapid destruction which is going on amongst the forests along the whole length of the district (of Kanara) by the process of Cooneri (*kumri*) cultivation"[1].. In 1847, *kumri* was officially prohibited within nine miles of the sea-shore and three miles of the river banks. Its practice was forbidden to persons not belonging to the "jungle tribes", its area was reduced, and certain trees were reserved. But these interdictions were not very thoroughly implemented. Thereafter, the policy followed by the Goverment was to discourage *kumri* little by little (as it could not stop it altogether without causing distress), and it was consequently already on the wane during the last quarter of the 19th century. For example in North Kanara, the Collector prohibited it at first in places from which timber could be conveniently exported or in which the reserved kinds of timber grew. In 1860, it was entirely forbidden in holdings, as well in forest tracts producing valuable kinds of timber and again on the river banks where valuable plantations could be raised, and it was allowed only to those hillmen who had no other means of livelihood. The number of shifting cultivators went down from 3269 (cultivating 7785 acres) in 1864-65 to 1288 (cultivating 844 acres) in 1878-79[2]. In South Kanara, *kumri* was similarly forbidden on the holdings of the *wargdars* in 1860, and was prohibited in Government forests without previous permission. These permissions, it was directed, were to be granted only in cases when *kumri* could not be forbidden without causing hardship among the forest tribes, and never for spots in the timber forests. From then on it was practised only in parts of Coondapur, Uppinangadi and Kasaragod taluks[3]. Similar policies were followed in Coorg, and rewards were given to the Kurumbas, who practiced shifting cultivation locally, for weeding and raising teak plants on spaces that had been used for *kumri* [4] (teak often grew on patches of evergreen forest abandoned by shifting cultivation)[5]. This type of cultivation had virtually disappeared by the end of the 19th century, and was finally stopped in 1920.

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1 . Quoted in BAYLY 1988: 139.

2. IOL, Madras, Board of Revenue Proceedings, 16 April 1859; NAI, India, Revenue and Agriculture Dept. (Forests Branch), January 1880, N° 122-126, part B; CAMPBELL 1883: I,189 and II, 14..

3 . STURROCK 1894: 123-124, 208-210. There were 172 108 acres of *kumri* in Kasaragod taluk in 1905 (MADRAS 1905: 27).

4 . RICE 1908: 309.

5 . VENNETIER 1978-79: 27-28.

Apart from the fact that shifting cultivation was far from being uniformly harmful, the underlying tenets of this policy may be questioned on at least two accounts. For one thing, the British themselves practised shifting cultivation of a sort when they clearfelled vast areas of evergreen forest in Coorg in order to make room for coffee plantations which were later abandoned, with disastrous ecological consequences. The same thing could be said in the case of the ubiquitous teak plantations, which also presented serious ecological defects. Secondly, one cannot but remark that the conversion of the hill cultivators to settled agriculture presented a distinct advantage from the point of view of labour supply in the forest areas. The Forest Department was chronically handicapped by labour shortage, and this constituted a serious obstacle in the way of the development of the output of forest produce. In North Kanara particularly, as a Divisional Forest Officer said before the Indian Industrial Commision in 1917, "the labour supply (was) barely sufficient for extracting all the "possibility" (*i.e.* the annual increment) of timber and other products for which a market (was) already established"[1]. The only people who were willing to undertake forest work were the hill people. Moreover, they were invaluable as guides, beaters and trackers for big game hunting, and they constituted a welcome source of labour as carriers, road-workers, or agricultural labourers in a region where labour, as a rule, was scarce[2]. Most of the Arers of North Kanara, who were formerly shifting cultivators, were employed in these capacities in the 1880s[3]. The Kudubis of Coondapur taluk in South Kanara, who were said to have migrated from the Maratha country in the 17th century and had been shifting cultivators ever since[4], were forced, when *kumri* was curtailed, to take to paddy cultivation under local landlords. A minority of them still practised shifting cultivation in the authorized areas, but in return they were bound to supply labour on payment whenever wanted by the Forest Department. They were employed on creeper cutting, fire protection works and catechu manufacture. As a District Forest Officer of South Kanara said before the Indian Industrial Commission, the Kudubis are good at the art of boiling catechu, "but it is very difficult to attract them to work. They are a class without ambition and extremely lethargic and ignorant. They do not want money but generally yield to

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1 . INDIA 1918, IV: 336.

2 . The Deputy-Conservator in charge of Canara Forests wrote thus in 1870 about the difficulty which the Forest Department experienced in getting labour: "This difficulty appears to increase yearly in Canara, owing to the important works going on, and even when found, it takes fully Rs 100 to do the work of Rs 50 a few years back" (PEYTON 1870: 17).

3. CAMPBELL 1883, II: 3.

4. STURROCK 1894: 178.

pressure"[1]. One cannot say more clearly that if forest conservancy was the main factor behind the suppression of shifting cultivation, there were also other types of economic incentives at work, such as the requirements of the Forest Department in cheap labour for forest work, which the hill cultivators had no means to oppose except by passive resistance (of which this "difficulty to attract them to work", this "lethargy" were undoubtedly manifestations). Similar kinds of pressure were brought to bear on the Betta and Jenu Kurubas and on the Yeravas of Coorg:

> The Kurubars of the Betta and Jen classes as well as the Yerrawas who are the forest labourers and live within the forests have been deprived of all *kumri* cultivation and have been forced to cultivate low-lying grassy swamps given to them on easy terms (free to begin with, but subject to assessment after seven years) with advances for the purchase of plough-cattle. The areas form part of the Reserved Forests, and the people work for the Department. They still have a strong leaning towards their old style of cultivation, and they are specially anxious to obtain plots of land to *kumri* , in which they can grow vegetables and crops other than rice. It sems feasible to induce them to accept almost any conditions in return of the privilege.[2]

The disruption of the agriculture-forest linkage

Traditional agriculture, as is well known, is dependent on the forest for a multitude of reasons. The forest is a source of timber for house construction and for the making of agricultural implements, it supplies firewood for the domestic hearth, leaves and twigs as green manure and litter, grass and grazing space for the cattle, and a great variety of minor products such as fruits and flowers collected for food, for dyeing or for medicine, bark collected for tanning and for fibre, thatching material, thorns, brushwood and stakes for hedges, canes, reeds, wild honey, wax, gums and resins, earth, clay and stones, etc. In the working plans and in the correspondence of the Forest Officers, the peasant often appears, implicitly at least if not overtly, as a nuisance, as an obstacle to the sound management of the forest capital[3]. Yet the peasant mode of utilization of the forests was not necessarily wasteful or destructive, as these constituted a vital complementary resource for agriculture, and had to be preserved. The close observation

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1. INDIA 1918, III: 366. On the fate of the Kudubis, see also KRISHNASWAMI AYYAR & HALL 1938: 302.
2. HILL 1890: 14.
3. BUCHY 1990: *passim*.

of peasant practices often showed that the principles of sustainable use were carefully adhered to[1].

The drafters of the Forest Acts and the Forest Department were of course well aware of the importance of the forests to the cultivators. The text of the Forest Act of 1878 actually began with a relatively detailed list of the multiple types of forest produce which were commonly used by the local people[2]. The Act provided for the constitution of Village Forests according to the model of the "communal forests" of France and Germany, in which the rights of the village communities would be protected in the same way as those of the State were preserved in the Reserved and Protected Forests. The forest areas concerned were the forests traditionally owned or enjoyed by the village communities. These forests were first to be constituted as Reserved Forests and settled, and then restored to the villages subject to prescribed management and use[3]. This rather cumbrous procedure unfortunately proved difficult to carry out, mainly because the owners were reluctant to bring their forests under professional management. As a consequence, this chapter of the law was never implemented[4]. The Madras Forest Act contained no provision of this kind, as the Committee (headed by Brandis) which drafted the Bill was of opinion that there were no Communal Forests in the Presidency[5]. In North Kanara, the needs of the villagers in forest produce were provided for by setting apart specific areas of Reserved Forest which came to be officially called (from 1897) "Minor Forests". The Protected Forest area was ultimately restricted to two categories of forest which designated strictly speaking forests set apart for cultivation, namely the *kumris* (or what remained of them) and the *bettas* , which were patches of hill forest left for utilization by the owners of areca nut orchards, who had specific needs of green manure[6]. The sacred *kans* (evergreens) remained strictly reserved[7]. In South Kanara, the forests left for the use

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1. See for instance VOELCKER 1893: §169. Similar observations relating to Old Regime France in CORVOL 1987b, notably pp. 67-68.

2. The Indian Forest Act, 1878, chap. I, sec. 2.

3. The Indian Forest Act, 1878, chap. III, sec. 27.

4. BADEN-POWELL 1882: chap. 7.

5. STEBBING 1922-26, III: 20

6. In North Kanara District between 1881 and 1911, the area of Reserved Forest increased from 466 to 3115 square miles, while the area of Protected Forest correlatively declined from 3048 to 133 square miles (ENTHOVEN 1904: 12; HARDY 1913). On the lopping of trees for green manure by areca growers, see the report sent by the Assistant Collector of Canara to the Collector of Canara, 7 May 1864, in IOL, Bombay, Revenue Dept. (Forests), December 1864, A, prog. n° 70.

7. BOMBAY 1923: 1-5.

of the villagers were the "Unreserved Forests", which were in charge of the Revenue Department (only the Reserved Forests, which covered 798 square miles in 1915,[1] being run by the Forest Department). In the "Unreserved Forests", as in the Minor Forests of North Kanara, the villagers exercised privileges in the way of grazing cattle and cutting timber, other than certain specified trees, for fuel, building, and other agricultural or domestic purposes. Free felling for sale was not allowed to anyone[2]. In Coorg, the requirements of the population in the vicinity of the Reserved Forests were provided for by *urudves* (forest lands allotted to villages and managed by the Revenue Department), especially in the north of the district. In the south, where villages were few, waste and forest land was as a rule allotted with land taken up for cultivation, and the local people experienced little difficulty on this account[3].

The people's rights of access to the forests being restricted to limited areas of (generally) degraded forest such as "minor" or "unreserved" forests, these areas inevitably soon became overexploited. Not only were they submitted to an ever increasing pressure of population, but their management was in the hands of the State, which meant that there was no sense of collective responsibility to prevent them from being overused. The "wasteful" and "irresponsible" use of the forests by the villagers was in turn vehemently criticized by the forest officials. In North Kanara, for instance, one Range Forest Officer deplored in 1941 the "further deterioration of an already impoverished minor forest brought about by indiscriminate hacking by the privilege holders, overgrazing and constant fires, (which) lead to heavy soil erosion during the monsoon", and had noted earlier that the scrub forests in his district were the relics of good forests classed earlier as minor forest, the degraded condition of which was "obviously due to the abuse of privileges by the villagers who are mainly dependent upon it for drawing their supplies for agricultural use"[4]. The District Forest Officer of Mangalore North (South Kanara) wrote similarly in 1938: "The people do not show any interest in protecting these unreserves which are left for their benefit (...) they are systematic in destroying it"[5]. Remarks of this kind were as commonplace in the writings of the foresters then as they are now. It is an indisputable fact that the ever increasing demand of the peasantry on the forests for firewood and grazing, not to speak of other forest produce, disrupted the formerly balanced relationship between agriculture and forest, and

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1. MADRAS 1915: 16.
2. STURROCK 1894: 18; PILLAI 1938: 272-273.
3. COORG 1876-77: 2.
4. DHARESHWAR 1939: 411; DHARESHWAR 1941: 72.
5. PILLAI 1938: 276.

tended everywhere to jeopardize forest regeneration. But this only served as a pretext for further restrictions of the privilege areas, and it was only when popular protest took alarming proportions that the Government yielded and conceded extensions of the privilege zones[1].

The idea of involving the villagers themselves, by way of village forest councils, in the management of the forests which they were allowed to use, an idea which is still often advocated today as a possible solution to this problem, was already debated during the 19th century, and was actually tried in the Central Provinces and in other parts of India (including various districts of the Madras Presidency), but seemed hardly applicable in regions where strong traditions of village solidarity did not appear to exist[2]. A few village forest councils were established in North Kanara in application of a section of the Indian Forest Act of 1924. But the idea remained a pious wish for the greater part of our area[3]. Its appropriateness is still being questioned by many foresters on the grounds of past experience[4].

When a growing rural population, mostly living at the subsistence level, is left with a reduced area of forest land to satisfy its basic requirements of biomass consumption, the rest being appropriated by the State and devoted to commercial exploitation, the results are not far to seek, especially when no real efforts are made to raise the productivity of the area left for the use of the people[5]. On the one hand, the natural biomass base is massacred. On the other hand the people are subjected to increasing hardship. Employment in forest-based activities dwindles[6]. The gathering of biomass for daily requirements becomes increasingly difficult, to the particular detriment of women, who usually have to bear the brunt of the work. And the severed link between agriculture and the forest at large gives rise to an endless story of petty resistance and crime on the part of the peasants against the forest regulations and the local subordinates of the Forest Department, which may occasionally degenerate into severe outbreaks of collective anger, with political consequences.

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1. GADGIL & CHANDRAN 1988: 50.
2. See for instance VOELCKER 1893: 162, 166.
3. DHARESHWAR 1939: 413; DHARESHWAR 1941: 76.
4. SHYAMSUNDER & PARAMESWARAPPA 1987: 336.
5. For a synthetic evaluation of the socio-economic effects of this policy in the 19th and 20th centuries on two adjacent districts of Karnataka, namely Uttara Kannada (formerly North Kanara) and Shimoga, see NADKARNI 1989: chap. 3 and 4.
6. NADKARNI & SAMUEL 1984.

Was there a social regulation of biomass use in pre-modern India?

Before addressing the question of popular resistance, a very interesting hypothesis concerning the relationship between man and the forest ecosystem in pre-British India must be examined[1]. The hypothesis, in the words of its most eminent proponent, is that

> the Indian society is made up of a large number of endogamous castes each with a restricted geographical range and each with a hereditary profession. This hereditary profession is so specialized that the different castes, directly dependent on natural resources utilize the different resources with little overlap with other castes of the same region. Thus any particular resource of a given region used to be utilized over generations by a small homogeneous breeding group which expected the same resource to sustain its future generations as well. These conditions were particularly favourable for the evolution of cultural traits ensuring long-term sustainable utilization of the natural resources[2].

This hypothesis should not be mistaken to imply a wholesale interpretation of the caste system in terms of the functionalist and substantialist conception of caste derived from the British Victorian conceptualization of Indian society[3]. Neither does it question the generally recognized fact that environmental determinism is not a sufficient explanation for social morphology (and for that matter, there is no reason why the critique of "cultural ecology", as represented by J.H Stewart and his school, by anthropologists such as Marshall Sahlins should not be valid in the case of the Indian caste society)[4]. It only highlights, and suggests an explanation for, one major fact: though the deforestation of the Indian subcontinent has been a millenial process, which the existence of the caste system has not prevented, it is a fact that there was sustainable use of biomass resources in many forest regions of India before the beginning of the modern commercial (mainly colonial) system of forest exploitation, and this had necessarily something to do not only with the supposedly low intensity of demographic pressure on the environment, but with the social values and the worldview of the people concerned. Quite evidently, the relationship of a social group to its natural environment cannot be reduced to a set of empirical survival strategies aiming at striking a balance between the supply and consumption of biomass. It

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1. See particularly GADGIL & MALHOTRA 1983, GADGIL 1985 and GADGIL & IYER 1989.
2. GADGIL 1985: 135.
3. See PANT 1987, and the now classic contributions of Bernard Cohn to which she refers, which have been recently reprinted in COHN 1987: chap. 7 and 10.
4. STEWART 1976; SAHLINS 1980.

viewed, if it is to be fully understood, as (in the words of Marcel Mauss) a "total social fact", the symbolic and ideological dimensions of which are not the least decisive. The great merit of the present hypothesis is that it raises important questions in a hitherto insufficiently explored area of Indian social studies, namely that of the relationship between social organization and its natural setting, and more generally between nature and culture in the Indian context. It invites comparisons with other societies on which this kind of study has already been conducted, particularly with indigenous American societies, on which so much anthropological work has been done along these lines[1]. An interesting example of the type of intensive enquiry which is called for in this perspective as far as India is concerned is already available in the form of an intensive field study of nine castes of the Sirsi taluka of Uttara Kannada (formerly North Kanara) District, which has been published in 1983[2].

One very fascinating and revealing aspect of this approach of historical ecology is the study of the history, biological role and socio-religious significance of the sacred groves. Sacred forests, groves and trees have existed in most cultures from the remotest periods of history, and South Asia is no exception to the rule[3]. But the scientific study of the sacred groves in India from the socio-religious as well as biological point of view has just begun[4]. Their preservation until Independence has been one of the few undisputably successful results of British forest management in the Western Ghats region[5]. As far as North Kanara was concerned, the preservation of the *kans* became an object of stringent policy only from 1923, but in Coorg the *devarakadus* were counted, registered, and their boundaries fixed as early as 1873, and coffee cultivation, which had been started in some of them, was henceforward prohibited within their limits[6]. The sacred groves are one of those multi-dimensional objects of study which can provide far-reaching insights on the close intertwining of material and symbolic factors which make up the relationship between a given society and its natural environment,

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1. See also, for instance, CORVOL 1985 on the history of the man-forest relationship in pre-modern and modern France.

2. GADGIL & MALHOTRA 1983.

3. SHIVA 1988: 57.

4. For recent anthropological studies of sacred groves and forest deities, see for instance CARRIN-BOUEZ 1986: 46-47, LECOMTE-TILOUINE 1987, KUCHELMEISTER 1989. In the field of scientific ecology, see GADGIL & VARTAK 1976, VARTAK & GADGIL 1981, CHANDRAN & GADGIL 1989, BOURGEON & PASCAL 1986, PASCAL, RAMESH & BOURGEON 1988, all of which relate to the Western Ghats.

5. GADGIL & CHANDRAN 1989: 57-58, 159

6. COORG 1873-74: 3-4.

and they presently constitute one of the most promising subjects of research in the field of the ecological history of the Western Ghats.

POPULAR RESISTANCE TO BRITISH FOREST POLICY

The take-over of forest management by the modern State has given rise all over the world to endless manifestations of peasant resistance. In Old Regime France, for example, State restrictions on the use of natural resources, and specifically on forest resources, became a cause of daily frustration, resentment, stealing, grazing offences, trafficking, black-marketing, and even individual and collective violence, sometimes over long periods of years, ever since Colbert passed his Forest Code in 1669, which brought part of the French forests under State monopoly for the sake of the Royal Navy, until the creation of the "communal" forests[1]. British forest policy gave rise to the same kind of popular response in the forest areas of the Indian Empire. This response, either in the form of what James Scott has called "everyday resistance", or under the shape of outright rebellion, has begun to attract the attention of the historians of modern India[2].

In the Central Western Ghats, acts of popular resistance against the Forest Department have also become a feature of daily life as a consequence of the estrangement of the rural people from forests which they had been used to consider as their own. Cases of trespass, of theft of forest produce, of cattle trespass, of forest fires (either accidental or meant to improve the grazing or to drive away wild animals), of unauthorized practice of *kumri* cultivation, were of frequent occurrence from the later part of the 19th century, and abundant material on this category of crime is available in the records of the Revenue and Forest Departments of Bombay and Madras. As always when the modern State extends its control over the functioning of agrarian life, the peasants are confronted with the authority of its lowest representatives, whom they both fear and dislike because they embody the new order of things, and because they often take undue advantage of their position. In our area, one grievance of the peasants was that they were victims of the tyranny and unscrupulous methods of the (low-paid) forest-guards, who used to blackmail them and to cook up false "crimes" in order to extort money from them. The attitude of the Government in these matters

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1. On these forms of peasant resistance and on State repression in Old Regime France, see for instance CORVOL 1984: 267-427.

2. See SARKAR 1980, BAKER 1984(on Madhya Pradesh), BHATTACHARYA 1986 (on Punjab), GUHA 1989 (on Garhwal and Kumaun).

consisted as a rule in the strict but not harsh application of the Forest Laws, and enquiries were instituted into the peasant grievances when they seemed well founded. It was actually a complaint of the Forest Department that the Government paid more attention to the grievances of the peasants than to the needs of forest conservancy. As one Conservator of Forests of Madras put it before the Indian Industrial Commission,

> there must be more sympathy with the real objects and aims of Forest conservancy in this country on the part of Government, and a little less sympathy towards the ignorant susceptibilities of the peasant population. Forest conservancy can never really hope to be popular in any country, still less in a country like India where the education of the people is so backward; and the most fallacious pose that the Revenue Officer of the country is the saviour and protector of the ryot against the oppression of the Forest Officer must be altogether swept away and a harmonious working together of both officers must be insisted upon.

Speaking of forest conservancy, the same officer added in his oral evidence: "Practically it is like the case of a doctor giving medicine to a child. Of course the child very often does not like the medicine. The same is the case in the ignorant ryot"[1]. The real question, of course, was that while the cure might be good for the child, the doctor was part of the system which provoked the illness. The grievances of the peasants, limited though they were in scope and intensity, pointed to the general problem of the colonial situation.

The political dimension of those complaints became obvious when they were taken over by the local nationalist élite, mainly (for reasons which remain to be explored) in North Kanara, from the 1880s onwards. Occasional conferences on forest grievances were organized in North Kanara, the first one being held at Sirsi in 1886 and the second one in1887 (where it was decided that a delegate would be sent to the Madras session of the Indian National Congress that was to follow)[2]. Newspapers like the *Kaanada Vritta* and the *Kaanada Dhureena*, which were published in Kumta from 1916 and 1918 respectively, gave vent to these peasant grievances. So did occasionally the *Bombay Chronicle*. The Congress had to gain the confidence of the local people, because it was believed at first by many to be a movement aiming at reestablishing the rule of the Peshwa or of the Brahmins[3]. Ganapat Rao Masur of Kumta, in association with the District Congress Committee of Kanara, published a series of pamphlets relative to the grievances of the local peasants, in which forest grievances were prominent. Campaigns were

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1. INDIA 1918, III: 245, 250.
2. KAMATH 1985: 165.
3. KAMATH 1982: 14-15.

launched in favour of reforms such as the extension of the area of Minor Forest (and correlative reduction of Reserved Forests), which often met with some amount of success[1]. Forest satyagrahas were organized during the Non-Cooperation and Civil Disobedience Movements. During this last movement, the satyagraha in Sirsi and Siddapur taluks of North Kanara was started on the 4th of August:

> Women gave a touching send-off to their menfolk with garlands and arati, bidding them carry on the service of the country unflinchingly. As the procession went on, people in hundreds came from the villages and joined it; so that when it reached the forest, there was a multitude which staggered the authorities who had gone to put down the satyagraha. Sandal trees were cut down, the wood was loaded in carts, and everyone carried branches, the return procession giving the appearance of a moving forest[2].

These symbolic actions had a deep psychological impact on the peasantry. They were staged by the local élites, including rich peasants and merchants. All the sections of the local population were affected by the forest management policy of the British government, but not in the same way and not to the same degree. The local élite proved able to mobilize the whole of the rural population on those common grievances, while lower castes and tribals were more prominent in similar agitations in other parts of India[3]. This élite operated within the framework of the local Congress organization. Many important questions are now open to future research: the processes (material, ideological, symbolic) through which the mobilization of the subaltern sections of the rural population was effected, the forms and intensity of their actual participation in the agitations, and the amount of benefit which they derived from it.

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1. PILLAI 1938: 275; DHARESHWAR 1939: 414; DHARESHWAR 1941: 71, 74.
2. RAO & HALAPPA, II: 183.
3. NADKARNI 1989: 56-59.

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L'histoire écologique de la région centrale des Ghâts occidentaux à l'époque moderne : étude préliminaire

Cette étude expose d'abord les étapes et les facteurs de la régression de la couverture forestière dans la zone centrale des Ghâts occidentaux depuis deux siècles. Bien que les dangers écologiques d'une déforestation incontrôlée soient connus de bonne heure, c'est surtout l'exigence d'une gestion centralisée du capital forestier pour les besoins de l'Etat qui conduit à la mise en place, a partir des années 1860, d'un Département des Forêts, et d'une législation qui restreint considérablement les droits d'usage dont jouissaient traditionnellement les populations locales. Le *Forest Department*, cependant, est tenu par le gouvernement de réaliser des profits, et sa stratégie de gestion met l'accent sur l'exploitation commerciale des forêts et sur le développement des espèces les plus rentables (teck notamment), au détriment des intérêts des usagers paysans et tribaux.

Les effets d'une telle politique sur les modes de vie ruraux sont considérables. Le *Forest Department* décourage de façon progressive mais résolue l'agriculture itinérante, qui est finalement abolie en 1920. Et surtout l'équilibre traditionnel du rapport entre agriculture et forêt (dont la composante symbolique, illustrée par le souci général de la préservation des "bois sacrés", joue un rôle important) est sérieusement compromis, du fait de l'étroitesse des espaces boisés dévolus aux collectivités villageoises. La délinquance forestière qui se développe sur ce terrain est stimulée par les comportements souvent vexatoires des fonctionnaires subalternes du *Forest Department*. Cette délinquance tourne périodiquement à la résistance de masse, particulièrement à partir des années 1920, lorsque s'effectue la conjonction entre ce mécontentement et les campagnes d'agitation du mouvement nationaliste.

Mots-clés : Inde, Karnataka, Ghâts occidentaux
Colonisation, Législation
Environnement, Forêts
Systèmes agraires, Agriculture itinérante
Mouvements populaires

Jacques POUCHEPADASS: The Ecological History of the Central Western Ghats in the Modern Period: A preliminary Survey
Pondy Papers in Social Sciences, n°6, Pondichéry, 1990, 32 p.

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