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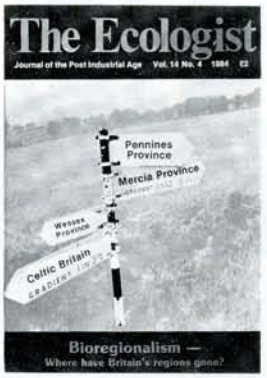
World Bank vs the people of the Cordillera



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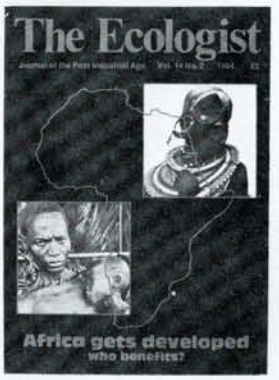

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Editorial

Feature Articles

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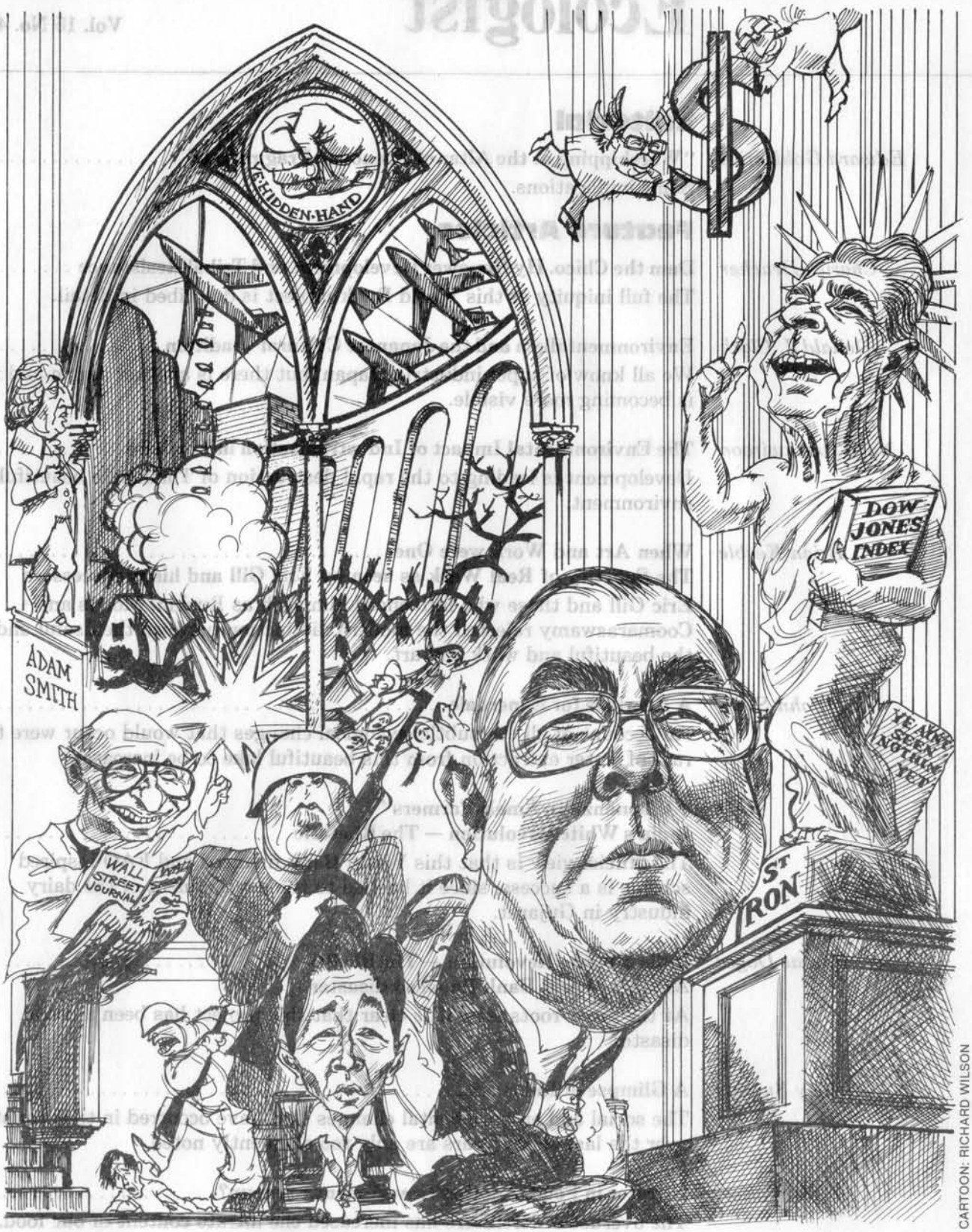

CARTOON: RICHARD WILSON

"Worshipping at the Altar of Economic Pragmatism"

The World Bank has agreed to suspend, on environmental grounds, a loan of 256.1 million dollars to Brazil to fund the highly destructive Polonoroeste Project in Amazonia. This is truly wonderful news, for, as Bruce Rich of the Natural Resources Defence Council (NRDC) notes "it represents the first time the bank has ever halted disbursements for environmental reasons."

Much credit is due to Bruce Rich and the NRDC who are largely responsible for making the World Bank come to its senses on this issue.

Much credit is also due to Senator Kasten, Chairman of the Sub-Committee of the Senate Appropriations Committee that is responsible for financing multilateral development institutions.

The World Bank claims to have taken this decision as early as March. However, it is generally agreed that their hand was forced when Senator Kasten was

shown the President of the World Bank's shameful answer to the very important letter addressed to him by Bruce Rich and a host of other leading environmentalists from all over the world asking him to stop further funding for the Polonoroeste Project (see *The Ecologist* Vol. 15 No. 1).

Senator Kasten wrote to Clausen, told him how shocked he was by his derisive reply and insisted that he invite his critics to a discussion of the environmental implications of the Polonoroeste Project on which the World Bank had already disbursed 178.3 million dollars, after which discussion Clausen clearly decided to suspend the funding.

There are many reasons however why it may be premature to celebrate. To begin with, the funding has not been cancelled, it has only been suspended until such time as the World Bank receives the necessary assurances from the Brazilian Government that all the appropriate measures have been taken to minimise the environmental impact of the scheme and to safeguard the rights of the local Indians.

Readers of *The Ecologist* will know only too well that such assurances are not worth the paper they are written on. Indeed the way the Brazilian Government has totally failed to implement past assurances of that sort has been well documented in a recent issue of the journal, *Environmental Conservation.*

Clausen is well aware of this, but he is nevertheless likely to take such assurances as an excuse for going ahead with the loan.

One must remember that in 1977, the World Bank suspended another loan, that time to the Government of the Philippines for the financing of the construction of four large dams on the Chico River.

In this issue of *The Ecologist,* we publish an article by Charles Drucker of Friends of the Earth in San Francisco, which describes in some detail the full iniquity of this, unfortunately only too typical, World Bank project.

In this case, it must be noted, the funding was not suspended for environmental reasons, but because the project, if it had gone ahead, would have given rise to a veritable civil war.

Indeed, the Kalinga, Bontoc and Kankanai people who inhabit the area that was to be flooded, simply refused to give up their ancestral lands and sabotaged efforts to build the dam. This led to a very brutal response on the part of the Government. The military was introduced. The head of the opposition to the dam, a Kalinga tribesman called Macli-ing Dulag, was gunned down in his house by a squad of soldiers, while other anti-dam protesters were hunted down by the military and forced to go underground.

In spite of this repression, opposition to the dam grew and there were more and more armed confrontations and more and more casualties.

It was under these conditions that the World Bank suspended its loan. It must be noted that it has not been definitely cancelled. Indeed, there is every reason to suppose that Mr Clausen is simply waiting for conditions in the area to settle down so that the loan can go ahead without earning him too much outside criticism.

There are at least three good reasons why this appears to be so. To begin with the World Bank, horrifying as it might seem to the outside observer, *continues to finance irrigation works downstream which could never be fully made use of unless the Chico dam were actually built.*

Secondly, the National Power Company of the Philippines recently wrote to us. That corporation had heard that we proposed to publish Charles Drucker's account of the Chico Dam in Volume II of the *Social and Environmental Effects of Large Dams* (due out this autumn) and asked if we would be interested in publishing a "more balanced view". That organisation would clearly not have taken the trouble to make that kind of offer if the project had been scrapped.

Thirdly, all sorts of other destructive projects threaten the Cordillera where the 500,000 tribesmen live, including a massive 200,000 hectare logging operation to be conducted by the Collophil Resources Corporation (CRC). Plans are also afoot to exploit its important gold and copper deposits.

These massive schemes and the industrial and urban development associated with them badly require the electricity that the dam would provide. It also appears that Mr Marcos and his business associates have a considerable financial interest in these ventures, and they are not the sort of people to allow a few hundred thousand primitive tribesmen to stand between them and the millions that are at stake.

This being so, it is thus not surprising that Mr Marcos's army has launched (June 27th 1984) a major assault on the Chico Valley. T28 planes have bombed the Kalinga village of Bugnay, while helicopter gunships and mortars have been made use of in attacks on neighbouring villages. An old man in the Kalinga village of Ngitant is said to have remarked "it is like the Japanese invasion all over again." (*Survival International Urgent Action Bulletin*/PHIL/3/Jan85).

A Survival International Press Release (June 27th 1985) informs us that "several communities are under siege-like conditions surrounded by troops who are intent on capturing the ringleaders of tribal resistance. Bugnay, in the Kalinga-Apayao region, has been surrounded by troops of the 1st GHQ Battalion since 19 April."

The tribesmen have sent a petition to President Marcos in which they complain of the way the military has taken over their area. "We are hindered from roaming our own forests for game" they point out. "We can no longer freely tend our fields . . . If this continues Mr President, we will surely starve."

To send such a petition to Mr Marcos is clearly a waste of time. He is interested in one thing only: that the land be cleared of its obstinate inhabitants so that all his schemes may go ahead. If he is willing to murder their leader, bomb their villages, mount a veritable military operation against them why should he be any more scrupulous about starving them to boot? In any case many are already leaving the area to join the New People's Army, whose eventual victory might offer some hope of their retaining their lands, while others are drifting off to the slums of the closest cities to join there the throngs of the victims of other large-scale development schemes.

Now it would seem again to the outside observer that the Chico dam is no longer something which a

serious and responsible banking institution could conceivably support. Indeed, to do so would be to be party to the whole catalogue of crimes committed by Mr Marcos and his business associates against the inhabitants of the Cordillera. It must be remembered in this context that even the US Government has now recognised the full horrors of Mr Marcos's dictatorship to the extent that it has recently announced its refusal to supply his army with further armaments.

Clearly, the World Bank to have any credibility whatsoever, must definitively cancel its funding for the Chico Dam and any other large scale projects in this sensitive area.

In reality, the time to celebrate must surely be when the World Bank has totally changed its priorities and has officially recognised that the only way to assure the welfare, indeed the survival of Third World people, is to put an end to the systematic destruction of their societies and their environment by the sort of large-scale schemes that it continues to finance.

Unfortunately, the decision to suspend further funding for the Polonoroeste Project in no way indicates that there has been such a change in priorities, it merely suggests that the World Bank wishes to remain on good terms with the Appropriations Committee of the American Congress. For us to believe that such a change has really occurred, Mr Clausen would have to announce that he has *definitely cancelled* the loan for the Polonoroeste Project, for the Chico Dam and for other equally, if not even more socially and environmentally destructive projects, that he still continues to fund, such as the Narmada Dam in India and the Transmigration Programme in Indonesia.

However all this is being a little utopian. Mr Clausen, in the discussion following his key note address to the 18th Annual Conference of the Society for International Development (SID) held in Rome of July this year, made a highly significant announcement. He said "I have no ideology, I only worship at the altar of economic pragmatism". This to one brought up on the aberrant values of our industrial society, may seem to be a perfectly reasonable thing to say, but few people have really considered what it implies.

"To worship at the altar of economic pragmatism" is to believe that it is the God-given right to put all resources that a man or an institution may possess to the best economic use—which in fact means to assure that it gives rise to the *maximum* financial return.

To do this means that nothing can any longer be done because it is desirable on social, ecological, aesthetic or spiritual grounds. It can only be done because it is *economic,* and, unfortunately, as can easily be demonstrated, none of those things that must be done in order to prevent the transformation of our planet into a wasteland full of starving people *are in any way economic.*

"To worship at the altar of economic pragmatism" is, in fact, to refuse, on ideological grounds, to take that action which everybody knows to be absolutely essential to prevent that transformation, which is already well under way from being completed.

Thus, America is considered today to be the breadbasket of the world. More than half the world's cereal imports are derived from it, yet as it is now well established (see James Krohe, *The Ecologist,* Vol 14, No. 5/6) most of its agricultural land, some of which is considered to be the most fertile in the world, will, on current trends, be turned into a semi-wilderness within the next 30 or 40 years.

The reason is that ecologically-sound farming is *not economic.* But is it not in the farmer's interest, it might be asked, to spend the requisite money on soil conservation? The answer is no. In the words of Earl R. Swanson and Earl O. Heady "an adequate soil conservation plan—as defined by meeting soil loss tolerance levels for 20 years into the future—would increase annualised private net farm income by only about one per cent . . . it is only natural that farmers don't always find that soil conservation competes with other more profitable investments that can be made in the farm business." In other words *soil conservation is not economic.*

But surely they must be forced to conserve their land, because it belongs to posterity? Unfortunately not. If one "worships at the altar of economic pragmatism" as do those who govern America today, then one must accept that farmers have a sacred right indeed a sacred duty to do whatever is economic even if this means progressively transforming their land into a desert.

The same is true at the level of the nation state; that is why B.B. Vohra's programme for restoring the fertility of India's land in order to prevent the mass starvation with which that country is faced (see *The Ecologist,* Vol. 5, No. 8) has never been implemented even though Mrs Gandhi, at the time, agreed to do so. Unfortunately, such a programme *would not be economic.* Nor is a serious reafforestation programme, even though everybody knows that it is alone capable of preventing the further drying up of much of the tropics. It is only economic to finance plantations of fast growing exotics that provide few ecological benefits and that have to be cut down and sold for cash as soon as they have reached maturity 10-15 years later, in order to assure their economic viability.

We can continue this catalogue indefinitely. What is certain is that if economic pragmatism is to govern policy in the Philippines then clearly the Cordillera must be cleared of its inhabitants who are an impediment to the economic development of that area. If it is not, then, in terms of today's current wisdom, the government would be failing in its duty to its citizens, by depriving them of all those economic benefits that would be made available to them were the resources of the Cordillera to be put to the best economic use.

Lester Brown, in considering the current crisis in Africa, where practically the whole continent is threatened with starvation (see Reversing Africa's Decline, *Worldwatch Paper* No. 65, June 1985) writes "Narrow economic criteria, such as the rate of return on project investments, are no longer adequate. The continuation of a 'business as usual' approach to Africa by the international development community is to, in effect, write Africa off"—to sacrifice it, in fact, "at the altar of economic pragmatism."

Edward Goldsmith

Dam the Chico

Hydropower Development and Tribal Resistance

by Charles Drucker

PHOTO: DOZIER

A Kalinga Village

In 1973, the Philippine government announced an ambitious plan to develop the hydropower resources of the mountainous interior of Luzon, the archipelago's principal island. The Chico River Basin Development Project called for the construction of five dams: four large impoundments to generate an aggregate of over 1,000 megawatts, and a smaller diversion dam to irrigate 52,000 hectares of downstream agricultural land.

Twelve years later, the Chico Project is in total disarray. One of the power dams has been cancelled; the other three have been postponed at least until the 1990s; the irrigation dam is under construction, but in a dramatically scaled-down version that will service little more than a third of the land area specified in the original design.

The Philippine Martial-Law government—and President Ferdinand E Marcos himself—made numerous, heavy-handed attempts to get the dam project underway, over the strenuous objections of the Chico region's indigenous, tribal inhabitants. The dams would inundate ancestral lands and threaten the tribal peoples' traditional way of life. Their opposition has, over the past decade, escalated into an armed, bloody struggle that the government must somehow resolve before the dam projects may proceed.

One of the tribal peoples' principal allies in this confrontation is a nation-wide revolutionary movement, which provides arms and guerrilla training. The Chico Dam issue has become so politicised that many observers see it as "the most important conflict yet between the Marcos administration and the communist insurgents."[1] As we shall see, the project is also one of the Philippines' most blatant manifestations of enforced, misguided development.

Charles Drucker *works for Friends of the Earth, San Francisco, California, USA and is a contributor to the forthcoming second volume of "The Social and Environmental Effects of Large Dams".*

The Price of Power

The Chico Dam Project was spawned by the widely-held belief that national economic growth requires increased consumption of energy, particularly in the form of electricity.[2] Although the Philippines is abundantly endowed with natural resources, inexpensive energy from fossil fuels is not among them. Historically, the country has been dependent upon imported oil for 95 per cent of its energy supply,[3] and three-quarters of its electricity.[4] Even before the OPEC price hike of 1973, the Philippines' oil import bill had risen to a troubling $231 million (US) annually.[5] Although oil then cost only one-tenth what it does today, both the government and the World Bank perceived the development of domestic energy sources as a virtual economic necessity.[6]

The country's most accessible, conventional energy resource is hydropower, with a theoretical potential five times greater than the present electricity demand.[7] From the development planner's perspective, dam projects are doubly attractive because they serve both the energy demands of the Philippines' prominent, extractive industries, and the irrigation needs of its plantation agriculture.

As early as the 1960s, the Chico River Valley, in the highlands of northern Luzon, was singled out as a possible site for hydropower dams. For most of the year, the Chico River is shallow enough to be waded, and along its entire length, rarely exceeds fifty metres across. But the season of heavy monsoon rains transforms the Chico into a deep, swift torrent. On its northward journey, from the peaks of the Central Cordillera mountains, to its juncture in the lowlands with the Rio Grande De Cagayan, which empties into the straits of Taiwan, the Chico River has carved a winding series of steep-sided, narrow gorges.

Despite centuries of high-intensity food production, the Igorot rice terraces show no signs of exhaustion. For generation after generation of highland farmers, they have produced consistently abundant harvests—without chemical fertilisers, herbicides, insecticides, or elaborate farm machinery.

A technical feasibility study, financed by the World Bank, and conducted in 1973 by Lahmeyer International, of West Germany, identified four gorges in the Chico River Valley as candidates for thin-shelled, concrete arch, high dams. The generating capacity of the four dams would be 1,010 megawatts, making the Chico Dams the largest hydroelectric facility in all of Southeast Asia.[8] Even in industrialised nations, where thousand-megawatt nuclear and thermal plants are fairly commonplace, hydropower projects of this magnitude are rare. And although the Philippines had ten hydro-electric plants operating in 1973, the largest of these was only 212 megawatts. The Chico Dam Project, once completed, would triple the country's installed hydroelectric capacity, increase the power available to the Luzon grid by 50 per cent, and, by itself, could run most of the city of Manila, where the majority of Philippine electricity is consumed.[9]

Table 1

CHICO RIVER BASIN DEVELOPMENT PROJECT

Dam	Capacity	Municipality	Province
Chico I	100MW	Sabangan	Mountain
Chico II	360MW	Sadanga	Mountain
Chico III	100MW	Basao	Kalinga-Apayao
Chico IV	450MW	Tomiangan	Kalinga-Apayao
Irrigation	50,000hcts	Tabuk	Kalinga-Apayao

By any reckoning, the Chico Project would be a monumentally ambitious undertaking, with an equally monumental price tag: at 1983 prices, it will cost over 1,000 million (US) dollars, the bulk of this in foreign exchange.[10] The Lahmeyer study did not include a detailed, economic cost/benefit evaluation of the Chico Dams, though it recommended that such an assessment be the project's next phase. But the Philippine government, lured by the Chico's vast potential to reduce foreign oil imports, ignored the recommendation. It secured preliminary project funding from the World Bank in 1974, and wasted no time in signing another contract with Lahmeyer International, this time to design the dams.[11]

Rising Waters

With equal insouciance, the government ignored the protests of the Chico River Valley's indigenous inhabitants, for whom the dams spelled disaster. The Central Cordillera mountains of northern Luzon, which are drained by the Chico, are the ancestral homelands of several strongly traditional, ethnic minority cultures, known collectively as Igorots, or "people of the mountains". Unlike their lowland neighbours, the Igorots of the Chico area remained fiercely independent during the centuries of Spanish colonial rule in the Philippines, and the eight decades of American administration and economic domination that followed. Although the modern market system has, in the last decades, made significant inroads into their non-industrial economy, the Igorots retain their distinctive language, dress, religious ritual, and village social organisation.[12]

At the heart of the Igorot way of life is a form of subsistence agriculture that revolves around the intensive cultivation of rice in irrigated terraces. Chiselled from the rocky slopes, with retaining walls up to ten metres in height, the rice terraces in some places ascend a thousand metres from the river bed, forming an unbroken stairway to the peaks of the Cordillera. The terraces dominate the mountain landscape, and the lives of the Igorots who occupy it. Bishop Francisco Claver, himself an Igorot, maintains that the culture of his people "is linked inextricably

PHOTO: PHILIPPINES SUPPORT GROUP

Igorot tribespeople demonstrate for self-determination, Manila, 1984.

with the land: with their fields, their burial grounds, their sacred groves, hence with the particular piece of land their villages are built on."[13]

Despite centuries of high-intensity food production, the Igorot rice terraces show no signs of exhaustion. For generation after generation of highland farmers, they have produced consistently abundant harvests —without chemical fertilisers, herbicides, insecticides, or elaborate farm machinery. Impeccable maintenance, and the complex ecology of the pondfield, combine to make the Igorot subsistence system stable, self-perpetuating, inherently conservative, and nearly indestructible. Even high population pressure does not damage the terrace, because rice yields can be increased by more intense cultivation practices.[14]

The only way in which this stable alliance of culture and environment could be disrupted is by the physical destruction of the terraces themselves. This is the threat posed by the Chico Dam Project. It would create four immense reservoirs, inundating the land upon which Igorot life is based. Sixteen Igorot villages would be partially or totally destroyed, and 2,753 hectares of prized rice terraces would disappear beneath the rising waters.[15] All told, as many as 90,000 Igorots, principally from the Bontoc and Kalinga ethno-linguistic groups, would be affected. Many of them would be forceably resettled "in some other environment where they fear their folkways would be irrelevant, their traditions meaningless, and their future that of cultureless refugees."[16]

Tribal Protest

The plight of the Bontoc and the Kalinga—their lands encroached upon, and their traditional way of life endangered by a national government eager to expropriate and exploit their resources—is the shared condition of many of the world's remaining tribal populations. The Philippine situation is especially critical, because most of that country's remaining natural resources are concentrated on the ancestral lands of the national minorities.[17]

Throughout the country, national minority groups now find themselves pitted against the machinery of the state. What makes the Igorots' story unique is the intensity of their opposition, the nature of the political alliances they have formed, and their dramatic success in postponing the dams' construction.

The National Power Corporation (NPC) of the Philippine government intended construction of Chico II Dam, in Mountain Province, to initiate the project. In February 1974, survey teams arrived in the provincial capital of Bontoc amidst a storm of protest. Clergy, Municipal Councillors, and Provincial Government officials publicly objected to the dam project in letters to the NPC and to President Marcos. The official position, then as now, is that the displacement of tribal peoples for the sake of development is an unfortunate necessity. According to Dr Placido Mapa, Minister of National Planning and Development (now head of the Philippine National Bank), "there is a greater good to be derived from the setting up of the dam, for the benefit of the society . . . and each group has to be willing to make some sacrifice for the benefit of the entire society."[18]

The Bontoc and Kalinga people, though, were well aware of the government's poor record in assisting those tribal people who had sacrificed for the "greater good." Every instance of dam construction in northern Luzon has involved displacement without adequate

compensation or resettlement. The residents of Anabel and Betwagan wrote, in an open letter:

> "We have of our own accord quietly gone to check on the govenment's performance at Pantabangan, Binga and Ambuklao regarding the promises made to the former inhabitants of those places. At Pantabangan, we saw people without a will to live. They are still crying over the loss of their land. At Ambuklao we spoke with householders who up till now, twenty years later, are still waiting for promised compensation for destroyed property. How can we deal with a government that promises everything, but whose word cannot be trusted?"[19]

When their peaceful appeals to halt the Chico Dam Project failed, Bontoc villagers began harassing the survey teams by dismantling their campsites and equipment. Finally, NPC crews were attacked by the villagers, whose long tradition as warriors limited their tolerance for insult and abuse. With the banks of the Chico River no longer safe, the survey work had to be completed from the air.

Even though only a few Bontoc villages would lose property to the dams and undergo the trauma of displacement, the entire province mobilised behind the resistance effort. A long history of village intermarriage contributed to their mutual concern, and the Bontoc people also recognised that economic and environmental disruption in one municipality would affect the region as a whole. Political organisation of the opposition effort followed the lines of the traditional "peace pact" system, or *bodong*. This was, historically, a network of non-aggression agreements between individual villages, intended to prevent hostilities and foster trade. In the face of massive, external threat, the *bodong* was transformed into a consortium of mutual defence treaties, designed to create a united opposition front.

In fact, the Chico irrigation dam will not work to the advantage of small farmers, nor was their benefit its original intention. The principal aim of the national irrigation programme is to increase the productivity of corporate plantations, which export the vast majority of what they grow.

With the entire province of Bontoc in an uproar, the National Power Corporation shifted its attention to the Chico IV Dam site, in the province of Kalinga-Apayao. This time, the Philippine Constabulary accompanied the surveyors as they went about their work. Five delegations of Kalinga elders travelled to Manila during 1974, hoping that by direct appeal to President Marcos they could forestall construction, but they were not received. Their peaceful protest frustrated, the Kalinga villagers followed the lead of the Bontocs, and began dismantling the surveyors' camps.

The next year, at a chuch-sponsored conference in Manila, religious and human rights groups listened to the arguments that the nation's president had refused to hear. These meetings ended with peace pact ceremonies, among both Bontoc and Kalinga villages, which prohibited cooperation with the NPC, and stripped those Igorots who dared to work on the dam project of their customary peace pact protection. This regional peace pact, staged with the assistance of non-Cordilleran groups and institutions, marked the entry of the Chico Dam issue into the national political arena.

The ceremony that sealed the Bontoc-Kalinga pact included a butchering and feast, as is customary when alliances are forged. The liver of the sacrificial pig, scrutinised for omens and portents, proclaimed that "the struggle will be a protracted one, but the people will triumph in the end."[20]

Divide and Conquer in Kalinga

A few months later, the National Power Corporation received instructions from President Marcos to terminate its work in the Chico River Valley. But the battle for the Chico, far from being over, was only entering a new and more dangerous phase. Moving in the wake of the departing NPC, the Presidential Assistant on National Minorities (PANAMIN) came to Kalinga in the Autumn of 1975.

> "PANAMIN started out in 1968 as a well-meaning if paternalistic effort to help tribal Filipinos . . . Today, PANAMIN has become the primary instrument in the Marcos regime's attempt to move tribal Filipinos out of their lands to make way for agribusiness expansion and the government's ambitious hydro-electric projects. It is PANAMIN that is herding tribal Filipinos into Native-American-style reservations."[21]

PANAMIN'S ambitious and self-aggrandising head, Manuel Elizalde, Jr. arrived by helicopter, with a convoy of freight trucks, buses, jeeps, and a PANAMIN entourage of some 60 assorted armed soldiers, doctors, lawyers, film-projectionists, hostesses, and magicians. Elizalde induced villagers far from the Chico IV site to endorse PANAMIN as their representative in future dam negotiations. Other villages followed suit, after receiving bribes or promises that contruction would not be resumed.

Their first encounter with PANAMIN divided the Kalinga, and shook the inter-regional peace pact against the dam. At a meeting of Chico Valley leaders, just after the PANAMIN intrusion, Bontocs castigated their Kalinga counterparts for having given PANAMIN so much power and authority.[22]

The debate over PANAMIN'S intentions heightened when the agency arranged a meeting between Kalinga representatives and President Marcos. Once in Manila, the delegation was sequestered and not permitted to see Marcos until they had signed blank sheets of paper, even though they had not been empowered by their villages to enter into binding agreements. When they were finally taken to the President, the blank sheets had become statements consenting to the construction of Chico IV Dam.

To add to the confusion in Kalinga, PANAMIN embarked on an intimidation campaign against the most active villages within the anti-dam movement. Their traditional enemies were organised and armed

with 40 high-powered rifles, reviving feuds that had simmered since the days of uninhibited inter-village conflict. Numerous people, including several local leaders, were injured and killed in the PANAMIN-initiated conflict. And to futher suppress the opponents of the dams, the government moved a battalion of 700 Philippine Constabulary to the site of Chico IV, to back up the 150-man Provincial force. Not since the final days of World War II had the Igorots seen so many soldiers.

By mid-1976, Kalinga had become an armed camp, with dam opponents set against both government forces and PANAMIN'S civilian militia. The next few years saw sporadic violence erupting throughout the Chico River Valley. The Philippine Constabulary, subject to periodic sniper fire, became increasingly repressive, until they began to resemble a foreign occupation force. PANAMIN was out of its depth, and in August of 1978 was removed from Kalinga, leaving the Constabulary in charge of dealing with the local resistance.

According to human rights attorney, William Claver (brother of the Bontoc-born Bishop), "the military abuses which naturally followed so hardened the Bontoc and Kalinga opposition to the Chico Dam Project that we, the indigenous natives of the Cordillera, did finally understand that the government had come here with no other purpose but to make our lives more oppressive."[23]

New Alliances

In response to the government's intransigence over the Chico Dams, and the increased militarisation of the Cordillera, the dam opposition movement took on a broader, anti-government perspective. Contacts with outside activist and revolutionary organisations began in 1976, when the first cadres of the New People's Army (NPA) appeared in the Chico River Valley. The NPA was established in 1969 as the armed, guerrilla wing of the Communist Party of the Philippines. The Party, in turn, is integrated into a coalition of anti-government organisations, known as the National Democratic Front, which draws much of its support from peasant groups, labour unions, and elements of the Catholic Church. The NPA offered the Bontoc and Kalinga support in their fight against the dams,

> "while at the same time winning them as allies in the broader struggle against the Marcos regime. Long resistant to any ties with outsiders, the Kalingas gradually responded to the NPA appeal, because it seemed to offer them hope in the face of the overwhelming forces arrayed against them."[24]

By the summer of 1978,

> "NPA songs could be heard around village campfires and in children's playgroups, while old men chanted verses against the dams and the government."[25]

For the next three years, the Chico Dam Project remained at a virtual standstill, while the opposition movement grew stronger. The majority of the Bontoc and Kalinga villages to be affected by Chico II and Chico III established local militia units, which were armed and trained by the NPA and its affiliate groups. Together with the NPA, and independently as well, the village militia staged periodic attacks on the Philippine Constabulary and on National Power Corporation crews. The military retaliated by harassing, arresting, and ultimately assassinating, suspected NPA members and supporters.[26]

By 1980, the Chico Valley had become a virtual war zone. The *Asian Wall Street Journal* reported that at least six NPC employees had been killed as of June of that year, along with eight government soldiers in the previous four months.[27] This continued, violent conflict between government troops and NPA-assisted villagers made it unsafe and impractical for the National Power Corporation to proceed with Chico IV, or any of the other power dams. When the Philippines' Five-Year National Energy Programme was announced in mid-1981, no mention was made of the Chico Dams. Placido Mapa, the Minister of National Planning and Development, commented:

> "The controversy related to the Chico River Dam Project prompted the government to revise its plans. Instead of forcefully, and over the objections of the people involved, going ahead with the project in Chico, the government instead has decided to postpone it, although that would have been an ideal project from a technical point of view."[28]

The Philippine government had, however, proceeded with the Chico River Irrigation Project (CRIP) dam, some 40 kilometres downstream from the Chico IV Dam site. Near the junction of the Chico and the Cagayan rivers, this fifth dam of the original Chico Project was designed to contain, and divert into canals, the water that passes through the power turbines of Chico IV. With this large reservoir behind it, CRIP could irrigate some 52,000 hectares of agricultural land in the Cagayan Valley. As a run-of-the-river project, without Chico IV, the area irrigated falls to about 19,000 hectares.

All told, as many as 90,000 Igorots, principally from the Bontoc and Kalinga ethno-linguistic groups, would be affected. Many of them would be forcibly resettled "in some other environment."

The Philippine National Irrigation Administration, uncertain as to when the Chico IV reservoir would be built, scaled CRIP down accordingly. At the same time, though, it drafted plans for a second project stage that assumes the prior existence of Chico IV. The World Bank, which has provided principal funding for CRIP, maintains that the first stage is "economically viable on its own and is not dependent on a storage dam or on a second stage irrigation development." Philippine government officials, however, dispute that claim[28], and National Irrigation Administration employees, interviewed at the CRIP site in June of 1982, expressed the belief that it is "only a matter of time" before the project's second stage begins.[29]

Thus the Chico River power dams have not been cancelled, but only postponed. The power lines and the irrigation canals that would feed off the Chico Dams have already begun to march across the neighbouring

lowland provinces, carrying with them the certainty of another bloody confrontation, in the not-too-distant future, between the government and the Chico Valley's indigenous inhabitants.

Energy Planning and Efficiency

The Chico Dam Project is, unfortunately, not an isolated event in the history of Philippine energy development. Over the next two decades, forty major dams are planned, almost all on lands now inhabited by cultural minority groups like the Igorots of northern Luzon. The National Power Corporation, charged with the construction and operation of these dams, has broad powers over the watersheds involved. It can restrict or prohibit farming, and it can forcibly displace residents, their ancestral lands claims notwithstanding. By one estimate, the lands and the subsistence routines of one and a half to two million minority Filipinos will be affected.[30]

Philippine planners justify the enormous social cost of hydropower development by claiming that it will "hasten the electrification of the country and reduce reliance of the electricity industry on imported oil."[31] Increasing the supply of electricity is, in fact, one of the government's principal planning goals, and one of its most costly, since it is striving toward an annual growth rate in electricity generation of 9.6 per cent. The consumption of energy in all forms is expected to increase at seven per cent per year. Despite this extremely rapid growth, the Philippines hopes to reduce its dependency on foreign oil from 84 per cent of total energy consumed in 1981 to less than 47 per cent by 1986, thereby trimming the huge 1981 oil import bill of $2.6 thousand million.

Curbing oil imports whilst rapidly increasing the energy supply will require a massive effort to develop the country's infrastructure: a major domestic petroleum exploration and production programme; the purchase of a nuclear plant (costing well over one thousand million dollars); the creation, from virtually nothing, of an entire coal industry; the installation of more geothermal capacity than any country in the world; and, a 240 per cent increase in hydroelectric capacity, all within a period of only six years. The price tag on that programme, at 1981 exchange rates, is about $6 thousand million,[32] or about $120 per capita in a country where the average annual income is little more than twice that amount.

Unquestionably, the Philippines needs to reduce its foreign oil bill, which eats up nearly 40 per cent of the country's export earnings.[33] But it is highly questionable whether massive hydropower development is the most cost-effective and most equitable way to achieve that objective. Only about one-quarter of the Philippines' oil is used for generating electricity; almost one-third of the oil is burned by internal combustion engines, and virtually all the rest is used for industrial process heat. Both of those latter uses have high inherent inefficiencies: engine exhaust pipes carry away two-thirds or more of the energy value of the fuel consumed; and heating equipment, while somewhat more efficient, still wastes more than one-third of the fuel's energy.

Over the last few years, largely in response to high oil prices, a new generation of engines, vehicle designs, and process heating equipment has matured. Petroleum-based fuels are used much more efficiently, and renewable energy sources (for instance, solar energy and biomass fuels) are substituted wherever they are cost-effective. In the industrial economies, broad dissemination of conservation and renewable energy technologies could stabilise, or even reduce, primary energy consumption (notably of fossil fuels), while permitting continued GNP growth.[34] Already, most of the economic growth in the United States is 'fuelled' not by new energy supplies but by energy made available through improvements in efficiency.[35]

The same oil displacement strategy could, and should, be followed in developing countries like the Philippines. They offer, if anything, even more fertile ground for improvements, because the existing equipment is of less efficient design.[36] They also possess a greater renewable energy resource potential, because of the higher biomass productivity of their tropical climates. The Philippine Ministry of Energy has, in fact, supported a number of programmes to investigate and develop conservation projects and renewable energy technologies. However, the World Bank and the other international financial institutions show little interest in providing funds for wide implementation of these promising energy alternatives. Even though the technologies involved are proven, commercially available, and cost-effective, they are also inherently decentralised. Loan programmes for decentralised capital investment are thought difficult or impossible to administer and oversee, so they are rarely applied for, and even less frequently approved.

Electric Power and Multi-Purpose Dams

Philippine energy planning is similarly shortsighted with respect to electricity. At least three quarters of the country's electricity is consumed in lights and motors (including refrigeration and air-conditioning compressors), for which highly efficient and relatively inexpensive technologies have recently become available. Up to fifty per cent of the power used by conventional lights and motors could be saved by retrofits, with payback times that rarely exceed two years.[37] The aggregate potential for electricity savings in the United States, using these technologies, equals the combined capacity of all the nuclear and coal plants now planned or being built.[38] In the Philippines, the savings potential is about equal to the capacity of all the hydropower dams scheduled to go on-line between 1981 and 1986, and possibly the nuclear power plant as

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The Chico conflict led to a World Bank re-assessment of its policy regarding tribal minorities threatened by development programmes. Its conclusion was that the Bank would not prevent development of areas inhabited by tribal people, and, moreover, that it would assist national governments in resettling and acculturating tribal minorities who stood in the path of development.

well. The capital cost of these savings would be one-half to one-third that of the projects that would be displaced.[39]

This high-efficiency, resource-conserving scenario, however, is extremely unlikely to be realised in practice. Conservation investments require substantial infusions of capital, albeit in smaller doses than with any of the conventional alternatives. The flow of capital to the Philippines is largely controlled by the World Bank, the Asian Development Bank, and a few other international institutions, none of which is interested in loaning the Philippine government funds for an equipment retrofit programme.

Even if financing these technical alternatives were not a problem, Philippine planners would continue to pursue massive hydropower projects for the sake of their irrigation potential. The Chico Dams, along with the recently-completed Magat Dam in Isabella Province, and all the other major hydro-electric facilities planned by the Philippines, are multi-purpose projects. They include diversion structures and irrigation canals as part of the design. The government claims that a principal objective of its irrigation programme is to help small farmers increase the yields of their lands. The National Irrigation Administration, echoing official policy, insists that the Chico River Irrigation Project—which is one of the biggest in the country—"is first and foremost for the benefit of the Kalingas themselves."[40]

In fact, the Chico irrigation dam will not work to the advantage of small farmers, nor was their benefit its original intention. The principal aim of the national irrigation programme is to increase the productivity of corporate plantations, which export the vast majority of what they grow. The Kalinga, like most subsistence farmers in the Philippines, lack the capital for irrigation fees and equipment. Throughout the country, the principal beneficiaries of irrigation projects are "landlords, businessmen, and government officials who already have substantial incomes, and surplus capital to invest."[41] In the case of the Chico irrigation dam, the advantages of irrigation will accrue to the Cagayan Sugar Company, and a few other large landowners.[42] The Kalinga and the other rural poor of the lower Chico area not only cannot afford irrigation, they indirectly stand to lose from the programme. Once irrigation is available, the small farmers' lands become more attractive to large, land-owning interests and, in many other parts of the Philippines, this has led to massive displacement and expropriation.[43]

The final irony to the Chico story is that other resource development projects are subjecting the Chico watershed to such environmental abuse that high dams no longer make engineering or economic sense. Extensive mining and commercial logging operations, now underway or planned for the next decade, will carve roads into the most remote areas, denude whole slopes, and greatly increase runoff and erosion. If the Chico Dams are ever built, the high rate of siltation will dramatically reduce their capacity and lifespan. At least one of the northern Philippines' hydropower installations has already been severely damaged by precisely this kind of land mismanagement. The 75-megawatt Ambuklao Dam, built in Benguet Province in 1952, was supposed to produce electric power for 75 years. However, its water shed is dotted with mines, which log the surrounding slopes for shoring timbers. Dumped mine tailings, together with erosion from logging activities, have choked Ambuklao Dam with silt and it is no longer fully operational.[44]

Electricity and Equity

The National Energy Programme of the Philippines, like its irrigation programme, is designed to favour the largest consumers, while the basic needs of the country's poor receive short shrift. The programme strongly stresses electrification, and even if the government achieves this goal via efficiency and renewable energy sources (rather than more disruptive, conventional technologies for expanding energy supply) the inherent inequities remain.

Table 2

ELECTRICITY CONSUMPTION BY SECTOR, 1981 (MILLION KWH)[45]

SECTOR	MANILA	REST OF COUNTRY	TOTAL
Residential	2,406	773	3,179
Commercial	2,681	312	2,993
Industrial	3,154	5,159	8,313
Others	57	893	950
Utilities & Losses	44	3,352	3,396
TOTALS	8,342	10,489	18,831

Industry is by far the major consumer of electricity in the Philippines. After subtracting transmission losses and the utilities' own uses, industry absorbs about 54 per cent of the national total. Most of the industrial energy use, furthermore, is concentrated in heavy, primary industries, such as mining, refining, and manufacturing, the majority of which are foreign-owned or foreign-controlled. In Mindanao, for example, the largest single user of electricity is the Kawasaki sintering plant.[46]

The Philippine government claims that generating more electricity, through projects like the Chico Dam, would foster rural development; it would allow farmers

to irrigate their land with electric pumps, grind their rice and corn in electric mills, and develop cottage industries. These claimed benefits, however, are rationalisations rather than realities. Rural Filipinos, by and large, lack the capital to invest in electric equipment and appliances; the majority cannot even afford basic connection charges and fees.[47]

But from the perspective of foreign-based industrialists, Philippine energy is being sold at bargain rates: less than six cents/kWh in Manila, about four cents in other parts of Luzon, and down to a rock-bottom two cents in Mindanao.[48] Such cheap rates encourage electricity-intensive industries to settle in the Philippines, but this unfortunately does little to promote national development. Few jobs are created for local workers; the manufactured and refined products are, for the most part, exported; and, the profits from these industries are either repatriated to the investors' home countries, or else retained by a small group of wealthy Filipino entrepreneurs.

Large hydropower projects like the Chico Dams are not true instruments of national development. They constitute, rather, part of an elite strategy to convert the Philippines' natural and human resources into corporate profits, through the medium of international trade. This accounts, at least in part, for the government's prolonged intransigence on the Chico Dam issue, despite the enormous social costs involved, the fervent opposition of the tribal people, and the international disrepute into which the project eventually sank. Only when the Chico River Valley had become an all-out guerrilla front, making construction work impossible, were the dams postponed.

Lessons Learned and Lost

There are a number of important lessons to be derived from the history of the Chico Dam, though in most instances the wrong lessons have been learned. The National Power Corporation should have realised that the Bontok and Kalinga people would never accept the Chico Dams, but instead of abandoning the project, the decision was only to delay it. NPC Chairman, Gabriel Itchon, commented that "the studies are there. As to when the project will be implemented the government has yet to decide."[48] The NPC mistakenly assumes that a few years of continued military pressure will break the alliance between the New People's Army and the Bontoc and Kalinga, thereby weakening the opposition movement sufficiently to permit the project to proceed.

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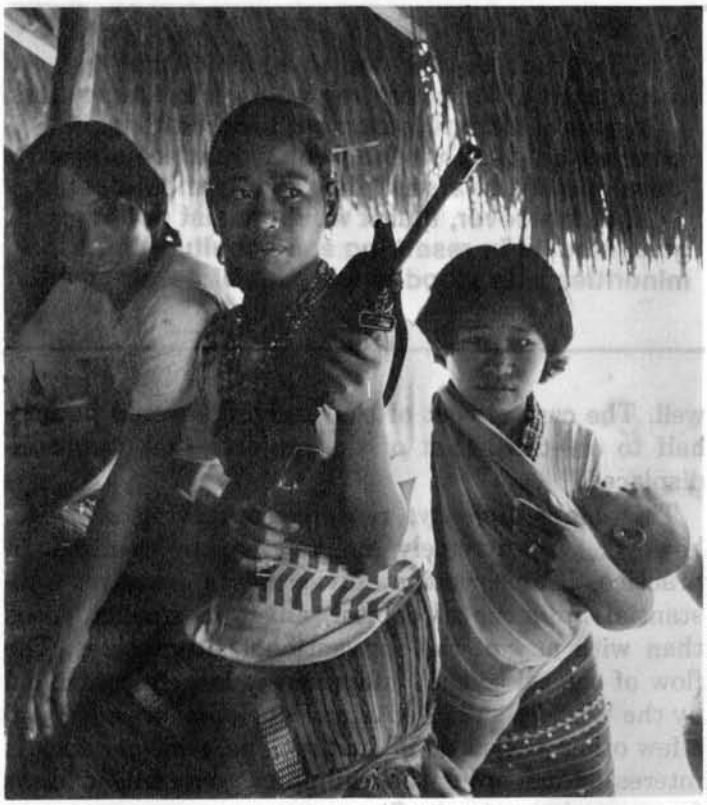

PHOTO: CHARLES DRUCKER

July, 1982. Kalinga tribespeople adopt armed resistance to the Chico Dam Project.

The National Power Corporation should also have learned from its experience in Chico that any lack of candour in dealing with people who will be displaced by development projects, leads to a violent backlash once the full effects are known. But, instead of becoming more open, the NPC has become more secretive. When work began on the Abulug Dam Project, in another part of the Cordillera, the NPC withheld the information that the dams would inundate the Provincial capital of Kalinga-Apayao, and displace thousands of tribal Filipinos.[50] A public outcry was thus avoided, but another large group of people now feel betrayed by the present government, and their support for the militant opposition is growing.

The World Bank, which played an instrumental role in the Chico Project, also "refused to draw the real lessons from the people's resistance."[51] The Chico conflict led to a World Bank re-assessment of its policy regarding tribal minorities threatened by development programmes. Its conclusion was that the Bank would not prevent development of areas inhabited by tribal people, and, moreover, that it would assist national governments in resettling and acculturating tribal minorities who stood in the path of development.[52]

Perhaps the most important lesson of the Chico conflict, according to Filipino analyst Walden Bello, has been learned by other communities "resisting development from above."[53] The opposition of the Bontoc and Kalinga people showed that it is possible to confront a misguided development policy, regardless of its domestic and international proponents; possible to bring the issue to the attention of the international community; possible to enlist strong supporters in the struggle to retain self-determination; and, ultimately, possible to achieve a significant political voice.

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The liver of the sacrificial pig, scrutinised for omens and portents, proclaimed that "the struggle will be a protracted one, but the people will triumph in the end."

Environmentalism and the Japanese Cultural Tradition

by Donald J. Clark

It is the super-industrial facade of Japan with which we are best acquainted. But behind it there is "the other Japan" which as the author tells us is still largely invisible to the outside world but which is growing fast. It includes all sorts of new vernacular associations comprising people concerned with health foods, renewable energy, simplified living, environmental protection, Third World assistance. We can only hope that this "other" Japan will develop rapidly enough to reduce the terrible destructiveness of that country's super industrialists who, among other things, have already caused the annihilation of the forests of South East Asia and have recently shifted their attention to the forests of Amazonia.

The election of a new mayor, 40 year old Kiichiro Tomino, in the small town of Zushi on November 11th, 1984, was an event of national importance.

Zushi, not far from Tokyo, is the site of the former US Navy Ikego ammunition depot. Now unused and owned by the Japanese government, the 290 hectare depot is a lovely green forest inhabited by large numbers of animals and birds, an unusual natural asset in the heavily developed area south of Yokohama. The Navy, however, needs more housing for its personnel and has worked out an arrangement with the Defence Facilities Administration Agency in Tokyo, in accordance with the Japan-US Status of Forces Agreement, to build 920 houses on this land. The arrangement has received the approval of the mayor and the town council of Zushi.

But Zushi citizens, "basically conservative, not reformist in nature" says the new mayor, "did not want the green forest taken from them without their consent." They launched a campaign calling for the protection of nature and forced the resignation of the mayor. In a special election, the mayor, seeking a ballot box endorsement of the agreement to build the houses, was defeated. Mr Tomino, a leader of the campaign, was elected as the result of an amateur effort by nature-loving citizens mostly lead by women. This, in itself, is enough to mark the event as being of unusual interest in this nation.

PHOTO: JAPAN TIMES

Kiichiro Tomino

Of particular significance, however, is that Mr Tomino and his campaign organisers are political conservatives. He calls himself a 'new right' with a liberal and democratic mind; most certainly not a member of Japan's ideologically oriented political left. He is an environmentalist and a decentralist. As such, he is also the first *de facto* 'green' elected to public office in Japan.

His election, says *The Japan Times*, "was a surprise for many political observers."

Invisible Japan

The point of the Zushi story is the surprise. Japan is a low profile society. "The nail that sticks up gets hammered down". There are social and economic dangers associated with drawing too much attention to yourself or your group. The Japan behind the super-industrial facade, the 'other Japan', remains largely invisible, not only to the rest of the world but also to Japan itself. In this election the invisible became visible in a political and therefore highly public fashion.

One has to search for those individuals and organisations which represent the alternative underside of Japanese society. This article reports the findings of one such search. It is an effort to assure the

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world that there is more to Japan than the newspapers tell. One name for this phenomenon is *The Other Japan* which exists, not alongside the public Japan as an alternative, but within the fabric of society as an ancient value system, newly resurgent, engaged in the task of maintaining a healthy tension with the assumptions, policies and values of modernised, industrialised Japan.

Field Reports

A few stories from the other Japan will be helpful. In Kyushu there is the Western Japan Waterwheel Association. Water power is a tradition in this area and a sizeable number of fine old waterwheels still stand, a few of them still operating to grind grain. The Association's purpose is to save these artefacts of appropriate technology and to get the idle ones back to work. They do and will, of course, contribute a small amount to the energy needs of Japan, but their preservation is best seen as an educational device which allows people to visualise the concept of renewable energy.

Nearby, also in Kyushu, is the Kumamoto Nosan Riyutsu Senta. This cooperative association links farming by organic methods with health conscious food consumption. In Kumamoto Prefecture with a population of 600,000, the cooperative involves 5,000 farmers and 20,000 consumers. Similar producer-consumer organisations exist all over the country.

In the countryside outside Nagoya, is the headquarters of the Yamagishi-kai. Some injustice may be done to it by calling it a 'super commune', but not much. Started in 1953 by a chicken farmer, Mr Yamagishi, it has grown to involve 1,200 people living in 30 centres throughout Japan. They are farmers, using organic methods and supplying a user network with good food. Their life is dramatically communal: everyone under assignment; all decisions made by consensus involving long hours of meetings; all physical necessities provided by the community; no cash needed or distributed; the children educated in the community's own school.

A group called Kojinsha is located in an isolated mountain village in Wakayama Prefecture with an office in Tokyo. These are well educated city people who became farmers for the sake of providing a more healthy life for their families. Their farms are rice paddies which climb up the terraced mountainsides but the water is pure and the government regulators are at a safe distance. They offer an intern programme for other families who wish to consider a similar move and assist those who decide to stay in the purchase of land.

PHOTO: JAPAN TIMES

Entrance to the unused Ikego Facility.

In Tokyo there is the Peoples Research Institute on Energy and Environment, and Jishu-koza (anti-pollution), and Shapla Neer (aid to Bangladesh), and the Seikatsu Club (organic food). There are hundreds more; consumer groups, student groups, study groups and local branches of international groups. They are mostly small and mostly poor, but their members are committed and active. Taken together, they comprise a genuine social force.

Five Concerns

One way of giving an image to the other Japan phenomenon is to describe its five faces of concern as follows:

1. Healthy Food (organic agriculture, holistic health, traditional medicine)
2. Renewable Energy (decentralised power generation, solar, water, wind, anti-nuclear)
3. Simplified Living (rural, non-consumer, economic independence, community participation)
4. Environmental Protection (nature, clean air/water, ecological urban planning)
5. Third World Assistance (appropriate technology, volunteer programmes, education)

These five faces witness to the fact that the other Japan is an inclusive phenomenon which differs in nuance but not in substance from alternative society in the West.

Underlying Difference

It is the invisible differences, however, which are more revealing, those that have to do with the foundations on which society rests. Here enormous distances open up between Japan and the West.

Second Wave Society (Toffler's term) came to the West through an intellectual and spiritual transformation which began in the minds of people like Bacon, Newton and Descartes. Modern society, as westerners know it, was the result of an organic change which proceeded from the inside out and involved every dimension of human life.

Japan's history is quite different. Traditional agrarian society, still feudal in nature, was largely unchanged when, in the 1860s, a small group of highly intelligent men surrounding the Emperor, used his newly restored powers to set in motion the modernisation of the nation. The Second Wave came to Japan like butter being spread on bread. In the century since this process began ancient societal bread has accommodated itself to contemporary technological butter; but the

changes which have taken place, enormous as they are, have been more cosmetic than substantial.

Way of Japan

The way of Japan remains intact. Recognising this fact and appreciating its significance is the key to grasping the nature and future of the other Japan.

For one thing, the spirit of Japan is rooted in nature and the 'kami', gods of the Shinto way, "settle in specific locations, which are frequently mountains and forests," writes Professor Yamaori of the National Museum of Japanese History. "This is why shrines are often built in forests or at the foot of mountains." There is an intimate unity between the land, the people, the history and the mythology of Japan. As a result there is a predisposition towards reverence, humility and respect which stands in tension with the aggressive masculinity celebrated by modern society.

Japan itself has the feel of being one large family bonded together not only by blood ties and historic insularity, but by myths, stories, attitudes, rituals and symbols. There is a profound spiritual depth to Japanese culture which distinguishes it from even the most unitary national cultures of the West. Being Japanese is the religion of Japan. All cultural imports, including Buddhism and Christianity, have been transformed and subsumed into this master pattern.

The result is a pervasive ethic of conservation, cooperation and care. Shoddy goods, shallow thinking, waste, litter, ugliness, dirtiness, undisciplined work habits, shabby appearances, obesity, tardiness and discourtesy are frowned upon because they are manifestations of disrespect towards the harmonious unity of the land, the people and the myth. Architectural and industrial design tends to emphasise appropriate scale and high quality thereby honouring the whole rather than asserting the existence of the partial.

The brash, competitive and often offensive 'official' face of Japan is what the world sees and recognises. To ecologists, this Japan is the enemy. But behind the stunningly successful political-industrial complex and its continuous violations of both nature and humanity, there is a profoundly ecological Japan whose foundations are secure and whose wisdom permeates even the strongholds of aggressive modernity. Its stubborn continuity surprises even the Japanese.

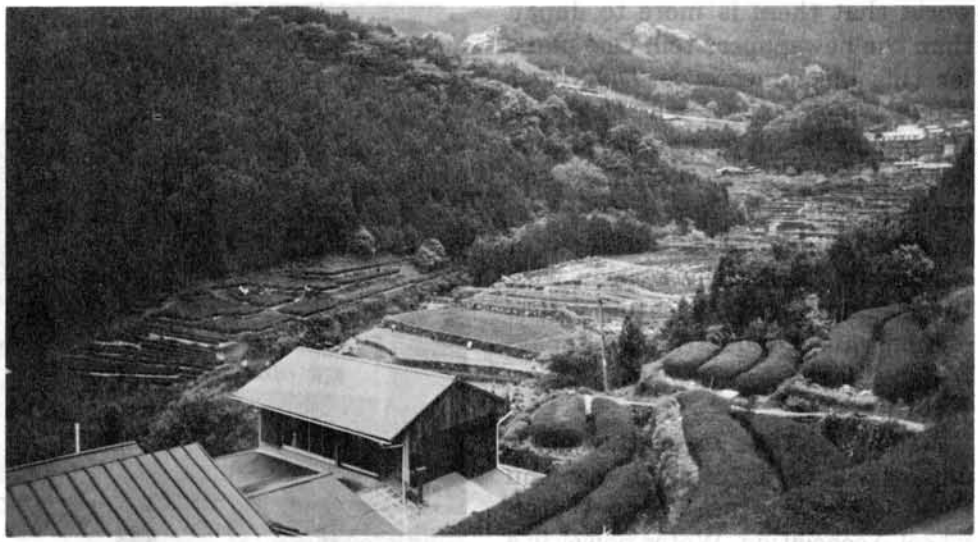

PHOTO: JAPAN TIMES

Kojinsha property at Irokawa village, Wakayama Prefecture.

The Other Japan

This is the other Japan. It is not a new social phenomenon but one which has always been present in Japanese history and has always stood in tension with attitudes and actions which destroy the harmony of life. Today's global ecological crisis as it gains recognition in Japan is awakening the other Japan, as in Zushi, to an active role as an overt and visible social force.

There are some strengths and weaknesses which should be noted. The other Japan is very personalistic. It is not highly motivated by great issues or causes. Those involved in organic agriculture are generally far more concerned about the health and well being of themselves and others than they are about the fragility of the global food base. On the other hand, lacking a 'great issue' mentality, the other Japan is also free of the 'Save-the-World' pretensions often associated with Western-based movements.

PHOTO: THAMES & HUDSON

Yin and Yang

Networking as a means of task-oriented coordination of forces has not yet developed. Japan is an intensely networked nation and vast amounts of information flow through the networks, but the practice of networking pragmatic coalitions for the sake of action is lacking. Yet the net result of the other Japan is solid achievement with relatively little energy devoted to noisy verbal protests.

Yin and Yang

In *The Turning Point*, Fritjof Capra quotes the old Chinese saying about the yin and the yang. "The yang, having reached its climax, retreats in favour of the yin." He does this by way of suggesting that the rule of the aggressive, masculine yang in western society has climaxed and we have reached the turning point where the yang retreats and the yin advances. He is not alone in sensing a turn in society towards the natural, the ecological and the feminine.

During the years of Japan's transformation into a modern industrial state, the yang of the west has assaulted the yin of the east. It continues to do so. But the yin, being feminine, has yielded without suffering defeat. Japan is still a yin society. If, in the days to come, the west is destined to witness the advance of the yin as the yang retreats, then there is a place from which valuable lessons can be learned about living in a yin-oriented society.

That place is *The Other Japan.*

The Environmental Impact of Industrialisation in Thailand

by Nart Tuntawiroon

Construction work on the Khao-Laem Dam in Thailand.

This short article was written by Thailand's most distinguished and most committed environmentalist who was recently murdered in Bangkok (see Obituary, The Ecologist vol. 15 no. 1/2). It describes the problems encountered by Thai environmentalists in their efforts to prevent the systematic pollution and desertification of their country largely by Japanese industrial enterprises. It shows how ineffective government legislation is in the face of the pressures applied on it by industrial interests. By way of illustration a case study is provided, it is that of the Kwae Wai dam project—needless to say partly funded by the World Bank—which has caused terrible environmental degradation but which has not prevented the Electricity General Authority of Thailand (EGAT) from planning another similar project nearby, the Kao Lam dam.

Environmental awareness in Thailand became very acute among students, academics and concerned citizens in the early 1970s prior to and after the students' uprising of 14 October 1973. It was largely triggered off by the deterioration of the environment in particular such phenomena as traffic congestion, deforestation, soil erosion, and air and water pollution. As far as pollution is concerned, some scientific investigations resulted in the conclusion that there are indeed real causes for concern. Most of these studies are associated with the Environmental Research Institute of Chulalongkorn University, and the Faculty of Environment and Resource Studies, Mahidol University.[1]

One of the issues singled out by these groups of students and concerned citizens was the import of pollution from industrialised countries.[2] This may be viewed within the context of the North-South confrontation and the struggle to establish the New International Economic Order. Another theme has been the exploitation of the natural resources of the South for the benefit of the North. With regard to the export of pollution, however, the argument has been reversed. Environmental resources such as air, water and soil belonging to the South are exploited in *situ* by the North. In other words the South is considered as the *sink* into which wastes can be injected by the North. To what degree the validity of this accusation can be proved is, of course, open to debate.

Japanese Involvement

Not surprisingly Japan has become the main target of

environmentalists in Thailand. Perhaps it was the aftermath of the Anti-Japanese Goods Campaign organised by the students in 1972; or perhaps it was the dominant role of the Japanese in foreign trade and industries operating in Thailand which made them the obvious target. The accusation that Japan deliberately exported pollution to Southeast Asian countries including Thailand was based on the following assumed motives:[3]

1. Shortage of land to be used as factory sites in Japan.
2. High cost of labour in Japan.
3. Abundance of cheap natural resources in Southeast Asia to feed the factories.
4. Incentives given by Southeast Asian governments which are eager to industrialise their countries. They offer Japanese industries such inducements as tax exemption, cheap electricity and water and so on. They are also willing to shoulder the investment cost of infrastructure such as road, rail, port and so forth. All these incentives in fact boil down to forcing their own people to subsidise Japanese industries and consumers.
5. Pressure from the Japanese people who demand high standards of environmental quality at home. This makes it more costly to operate factories in Japan. It is, therefore, more attractive to set up factories with low pollution control standards in Southeast Asia where obsolete machinery which could not meet standards at home could still be exported with profit instead of being scrapped.

It must be emphasised that the accusing fingers were not pointed at the Japanese people as a whole, but only to some Japanese industries and businessmen. There were, in fact, remarkable signs of sympathy and co-operation between the Thai and Japanese peoples to fight this practice of pollution export. On 14 September 1973 environmentalists in Japan organised a march against the Asahi Company's export of pollution to Thailand in the form of its caustic soda plant which discharged mercury into the environment. One year later, on 14 September 1974 the Japanese organised another march while the Thai environmentalists simultaneously organised an exhibition on pollution export at Thammasart University in Bangkok.

Thai environmentalists reacted strongly against their own people, both in business and official circles who, obsessed with their own political and financial gain, went out of their way to protect the polluters. A good case in point is the Thai Asahi Company which captured the headline news for some time with reports of mercury pollution discharged from its caustic soda plant in Bangkok. The company was accused of being a typical example of irresponsible industry willing to sacrifice public well-being in order to maximise its own profit. The following story should illustrate the point.

It is the usual practice for the proponent agency to go out shopping for the cheapest and most obliging consultants (who are mushrooming everywhere) and hire them to prepare thick, colourful and usually meaningless reports, ending with the message that in spite of some minor problems here and there, all will be well with the project, should it be given the green light.

The Ministry of Health reported that the mercury discharged from the Thai Asahi's plant was 2.718 ppm whereas the Ministry of Industry reported only 0.003 ppm. When the public expressed amazement at the striking discrepancy it was revealed that this was due to the different procedures of the two ministries for collecting water samples. Whereas the Ministry of Health's officials went to collect the samples by boat at night without warning, the Ministry of Industry's officials announced the exact time of their arrival well in advance and arrived punctually at the front gate of the factory.[4]

The environmentalists were therefore shocked when, after celebrating their successful lobbying for the promulgation of the Enhancement and Conservation of National Environment Quality Act on 12 February 1975, it was announced that among the members of the newly formed National Environment Board (NEB) one of the experts was also an employee of Thai Asahi Company. The government at that time was widely criticised for this tactic. However, this incident brought the point home to the public that the power wielded by business and industry through their financial resources was quite formidable and could penetrate through very high levels in the government. So came the sad realisation that their hard-won Environmental Law and EIA mechanisms would at best be only a paper-tiger or a deformed child.

Environmental Impact Assessment

Unfortunately, such public despondency has been justified repeatedly. Since its formation in 1975, the NEB has hardly made its presence felt. It has not achieved concrete results that are worthy of note. It has concentrated on farming out research and monitoring activities to foreign consultants and institutions, a practice that could hardly be expected to earn respect and credibility for itself. In major decision-taking events such as the controversy over the setting up of a nuclear power plant, or soda-ash plant (in which Asahi Company was once again involved) it took a notably low profile and left the major work to be tackled by the concerned environmentalists.

The main reason for the ineffectual performance of the Board is the size of the projects involved. The greater the size the more powerful the prime-mover behind it; and it is too much to expect that the typical civil servant would come out openly against it—he would fear reprisal for such a stand. In his own interests it is better to concentrate his efforts on research on wildlife and plankton; or such non-controversial matters as garbage collection or tree planting. Issues concerning large-scale projects such as nuclear power plants or dam construction could only be tackled effectively with the

support of an organised and knowledgeable public.

That is exactly the fault with the present EIA mechanisms in Thailand: it was copied from the EIA procedure of its American counterpart without full realisation of the limitations of the institutional set-up in Thailand. In America, after an EIA report has been prepared it is circulated to all interested parties including the public for comments and criticisms. Even after the government has decided to go ahead with a project, dissatisfied parties can always bring the case to a law-court in an attempt to stop the project. In other words, not only the executive but also the judiciary are involved.

There is no such provision for public hearing and court procedure in Thai legislation, as far as the EIA is concerned. The EIA has thus become a mere cosmetic. It is the usual practice for the proponent agency to go out shopping for the cheapest and most obliging consultants (who are mushrooming everywhere) and hire them to prepare thick, colourful and usually meaningless report, ending with the message that in spite of some minor problems here and there, all will be well with the project should it be given the green light. If a report does not come to this conclusion the consultant responsible will have to bear the consequences. It is likely that they will not have many clients in the future.

After having got its favourable research findings, the agency will then show the EIA report to the NEB and funding agencies such as the World Bank, to seek approval for the project. At the same time, it will try to restrict the circulation of the report as much as possible for it knows its many weaknesses. As far as public participation is concerned, that is quite out of the question. The very fact that EIA reports in Thailand are still written in the English language is a good indicator that they are not intended to be understood by the common people whose lives would be affected by the projects, but are produced solely for the benefit of the so-called foreign experts. After the project has been approved, the EIA report will be tucked away somewhere never to be looked at again. Nobody cares whether the report can really be substantiated—in many cases it cannot. Unfortunately, no lesson seems to have been learnt from past mistakes; they are often repeated. When the project goes wrong those responsible for writing the EIA report cannot be located; sometimes even the report itself will disappear.

A Case Study

A very good case study is the Kwae Yai Dam Project (originally called Chao Nen Dam and later renamed Sri Nakarin Dam), which incidentally had some Japanese connections. It was financed through long-term loans from the World Bank and the Japan's Overseas Economic Cooperation Fund. The Electricity Generating Authority of Thailand (EGAT) wanted to build this dam on Kwae Yai, a tributary of the Mae Klong river in western Thailand. It contracted the Asian Institute of Technology (AIT) to write an EIA report to be submitted to funding agencies. When the environmentalists learnt of this in 1973, they asked to see the report in order to make some comments. Surprisingly, they were told by the AIT that the report was a secret document not to be shown to anybody but EGAT.[5] After a public uproar the general manager of EGAT agreed to release the report and meet the environmentalists at what turned out to be the first and last public hearing of EIA ever held in Thailand. It was a very interesting meeting with very active public participation. The meeting hall of the Siam Society where it took place was fully packed with people; and the meeting went on continuously for four hours without anyone leaving the room. The meeting agreed that the AIT report was so shoddily prepared that it should not have been called an EIA report at all. The outcome of this was that, to save face, EGAT and AIT promised that they would prepare another report called Part II. Very few people have seen the second report and EGAT consistently pushed the project forward, ignoring environmentalists' warning of adverse environmental consequences that would be expected. The matter finally faded from public attention.

Eight years later, some problems have surfaced. Construction of the dam was completed in 1978 and the reservoir has been accumulating water since then to build up its water level for electricity generation. However, successive periods of drought, coupled with perhaps a high percentage of leakage as the reservoir is mainly limestone, made the build-up time much longer than expected.[6] Meanwhile, the holding back of fresh water caused saline water intrusion at the estuary of the Mae Klong river, wiping out some farmland in Samut Songkhram, once the richest province in the kingdom.[7] Because of successive droughts insufficient fresh water was released from the Sri Nakarin and Vajiralongkorn dams to drive out the incoming saline water from the Gulf of Thailand. As a result, coconut plantations as well as lychee plantations have been destroyed by the accumulated saltiness. The then Assistant Governor of Samut Songkhram noted that those plantation farmers affected had left their native province to look for other jobs, selling their land to rich Bangkok residents with capital to turn it into prawn farms.[8] And the people who wrote the EIA report? They have all returned home overseas!

The Japanese were also involved in the construction of the dam, Japanese manufacturers, notably Mitsubishi, supplying most of the equipment. From the very beginning, some environmentalists expressed doubt as to the real benefit of this dam considering its cost and the area that would have to be flooded. They pointed out to EGAT that the dam would be situated in the vicinity of a fault which could be dangerous since there were reports on the possibility that an earthquake generated by the sheer weight of water in the reservoir could cause a slip in the fault. Furthermore, the terrain of the reservoir is mainly composed of limestone which is soluble in water, and usually full of holes, caves and tunnels. The implication was that, at worst, this dam would be in danger of cracking; and at best, it

would only create a leaky reservoir which would not be worth its cost.

EGAT, in its defence, however, always quoted the opinion of the Japanese experts who, it was alleged, assured them that all was well. The concerned public thus tended to feel that the Japanese did not really care whether the dam was dangerous or useless and that all they were interested in was to sell the equipment.

Finally, while the problems generated by the dam on the Kwae Yai are still unresolved, construction of a new dam called Kao Lam Dam is already well under way on Kwae Noi (another tributary of the Mae Klong river). No one has seen the EIA report for this project, if indeed one exists. However, this time, it is not the Japanese but the Australian team from the Snowy Mountains who will be responsible for the outcome, which will be known in five to ten years' time.

Appendix

Samples of the findings of levels of pollution in Thailand by various investigators.

1a. Vimonratana Choensookasem, a research student of the Faculty of Environment and Resource Studies, Mahidol University, found, in 1976, that the total organochlorine insecticide residues in adipose tissue of non-pathologic victims was as high as 12ppm compared with 17ppm in pathologic victims.

b. Wijitr Kongpool, a research student of the Faculty of Environment and Resource Studies, Mahidol University found, in 1977, that the mercury content of fish from retail markets in various locations in Bangkok was as high as 253.2ppb.

c. Prayoon Deemar found, in 1978, that the levels of toxic substances in several kinds of food and agricultural commodities were fairly high. For instance DDT and its derivatives in freshwater fish (*Notopterus notopterus)* was as high as 1.324ppm. Insecticide residues in vegetables were in the range of 0.005-79.4ppm; in tobacco leaves in the range of 0.001-27.2ppm; and in animal feeds in the range of 0.0005-2.38ppm.

d. Piamsak Menasawet found, in 1977, that the average lead content in hair of Bangkok inhabitants was four times higher than that of rural inhabitants. Approximately 22 per cent of Bangkok inhabitants had lead in their hair at the level of more than 30μg/g (threshold level of lead poisoning).

e. Proesprao Kanatharana found, in 1978, that the highest concentration of daily averages of four-hourly values of air pollutants in Bangkok Metropolis were 2.9μg/m^3 for cadmium, 10.6μg/m^3 for copper, 28.2μg/m^3 for lead, and 26.1μg/m^3 for zinc. Fifty per cent of daily averages of four-hourly values of lead exceeded 20μg/m^3.

f. Supattra Srichairatana found, in 1978, that in 90 samples of lean pork the lead content was in the range of 0.1-0.37ppm, cadmium content was in the range of 0-0.16ppm, zinc content was in the range of 16.48-42.53ppm, copper content was in the range of 1.05-7.24ppm, and manganese content was in the range of 0.18-0.76ppm.

g. The Ministry of Public Health found, in 1980, that the blood and urine lead levels of main street-side people in Bangkok area were as high as 22.68μg per cent and 136.88μg/litre respectively.

On 14 September 1973 environmentalists in Japan organised a march against Asahi Company's export of pollution to Thailand in the form of its caustic soda plant which discharged mercury into the environment.

Notes and References

*This article, originally entitled "Environmental Impact of Industrialisation in a Third World Country: A case study of Thailand with particular emphasis on the import of pollution from Japan", was presented at the International Symposium on Man's Impact on Ecosystem Dynamics with the Emphasis on the Influence of Environmental Pollution held at Tokyo, Japan, on 15-17 December 1981.

1. Some of these studies are:
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2. *Polluted Japan. Part I*, published by the Nature and Environmental Conservation Clubs of various universities in Thailand (September 1974).
3. Ibid.
4. Ibid.
5. Nart Tuntawiroon, "Policy Statement of SCONTE Concerning Kwae Yai Dam and other Development Projects" (letter to the editor of the *Nation*, Thailand, 2 September 1973).
6. "Drought to cause EGAT plenty", *Bangkok Post* (Thailand), 30 October 1979.
7. *Bangkok Post* (Thailand), 12 September 1980. A front page picture had the following caption: "Denuded coconut trees stretch over the horizon in what was once a thriving plantation in Samut Songkhram Province. Thousands of rai of land have been wiped out by the drought which has dropped the amount of water being released from the upcountry dams and allowed sea water to inundate the coastal province". For details see Sonchai Nokeplub's report: "Samut Songkhram brought to its knees by 'poison' water." (p. 2)
8. Ibid.

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Dr Nart Tuntawiroon *was Dean of Mahidol University, Bangkok. He was a leading environmentalist and anti-dam campaigner. He and his wife were murdered on November 20th, 1984.*

When Art and Work were One

An introduction to the writings of Eric Gill

by Brian Keeble

Eric Gill was a philosopher, polemical writer, artist, wood engraver, type-face designer, sculptor, carver and much else—a veritable Renaissance man. Unfortunately since his death none of his writings have been reprinted. Brian Keeble felt that it was time that the most important ones be made available to today's reading public and arranged for their publication under the title of "A Holy Tradition of Working"*. We are reproducing here Keeble's superb introduction to this fascinating little book.

Eric Gill considered that all artefacts should be at once beautiful and useful and hence that there should be no distinction between the artist and the worker. The destruction brought about by the industrial revolution has led to the creation, on the one hand, of senseless and empty labour involved in producing "non art" i.e. shoddy manufactured purely utilitarian objects, and on the other of art proper to which beauty is now alone attributed, and which, in its isolation from the real world, has lost all real meaning.

The author traces the influence on Gill's philosophy of such radical English thinkers, writers and poets as Cobbett, Blake, Carlyle, Ruskin and Morris, to whom he was clearly indebted, and of his contemporaries and friends such as Lethaby and Johnston and Ananda K. Coomaraswamy, the most respected of the exponents of the "perennial philosophy".

Eric Gill was born on February 22nd, 1882 at Brighton. A talent for drawing led him to Chichester Art School, after which he was apprenticed to a London architect. Under the influence of W.R. Lethaby and Edward Johnston he took up letter carving, receiving his first commission in 1901. In 1913 Gill and his wife entered the Catholic Church, by his own admission the most important event in his life. With Hilary Pepler he formed a Craft Guild Community at Ditchling (1916-24). For four years he had his workshop at Capel-y-ffin in the Welsh Black Mountains. His final workshop community was at 'Pigotts' near High Wycombe from 1928 to 1940, the year of his death. In everything he did he was concerned to know and to live sacred principles common to man and the matter of human work. Those who knew him intimately attest to the integrity of vision and wisdom with which he realised his intention.

When Gill died at the age of 58 he left behind a dozen or so books and many shorter polemical writings, over a thousand wood-engravings, nine typeface designs, a considerable amount of sculpture, stone and wood carvings, inscriptions, some of the finest nude studies of this century, as well as designs for postage stamps, coins, books, at least one clock, a church and much else besides. No wonder that those who have written about him since cannot agree in their judgement as to the most enduring part of this legacy. About this perhaps Gill had his own ideas. David Jones reports that Gill had once said to him: 'What I achieve as a sculptor is of no consequence—I can only be a beginning—it will take generations, but if only the beginnings of a reasonable, decent, holy tradition of work might be effected—that is the thing.' Moreover, his friend and mentor Ananda K. Coomaraswamy wrote, '. . . he invented a human way of working, and found that it was that of all human societies . . . This amounts to saying that Eric's was not a personal point of view, but simply a true one, that he had made his own. He was not "thinking for himself" but assenting to credible propositions; and he was, accordingly, a man of faith.' There is a precedent then for pointing to Gill's doctrine of the norm of workmanship as the most singular part of his achievement.

Since his death, none of Gill's books has been reprinted. This has not deterred his critics, a good many

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* Golgonooza Press, 1983, £8.95.

Brian Keeble *was a founder member of* **Temenos** *and is now editor/publisher of the Golgonooza Press.*

of whom have had their own ideas of what he stood for. There is almost a folklore—in which fact and fiction are knit together—surrounding the memory of the man. Few bother to find our what he actually said. There is a consistent and coherent doctrine scattered among his writings. It needs extraction. It is time, once again, for Gill to have his say.

Eric Gill was all of a piece. You must take him whole or not at all. You can no more detach his doctrine of art from his doctrine of work than you can detach his morals from his religion. They all go together. He cannot be tried against the prevailing conditions or the 'inevitability of history' or against the acceptance of human culpability without those things thereby being seen the more clearly for what they are. His appeal is always to necessity and good sence.

Almost invariably, his past detractors have failed to perceive the level at which his thought moved. This failure on the part of many of his critics springs not so much from a mere disagreement about the purpose and direction of our civilisation as from their unwillingness to accept the degree to which Gill's views are at one and the same time 'absolute' and 'radical'.

Gill refused to put together a philosophy by way of small adjustments and accommodations to any of the modes and disguises with which the doctrine of a godless scientific and economic progress infiltrates the mental and physical life of modern society. Perhaps the more common form of capitulation to this 'progress' is the passive acceptance with which it is believed that 'machines are here to stay!' That Gill saw no such necessity, and that he saw their eventual demise as being due to their fundamental incompatibility with the proper nature of man, has caused some of his critics to accuse him of wanting to go back to the middle ages. This criticism persists in spite of the fact that he has specifically written that there can be no putting back of the clock and that we must make the best of modern conditions on the basis of sheer reasonableness. Where the critic wants the convenience of what is familiar, and the compensations of 'art', Gill simply wants truth and consistency. Gill had his sights on the heavenly Jerusalem: his critics have theirs on England today, or perhaps tomorrow. It is the perpetual clash of interests between the politics of eternity and the politics of time.

This clash of interests, having engaged Gill's critics in the past, must certainly engage his reader today. There have been two permanent stumbling-blocks between Gill and his reader. The two interlock. The first is the obvious need to come to terms with the absoluteness of his image of man: his quite literal belief in the fact that man is created in the image of God. If you believe this to be true, and you examine the consequences that follow from it as rigorously as Gill did, your conclusions as to the nature and purpose of human life must be totally different from those you would hold if you believe that man is a mere 'higher', more clever primate, a more or less haphazard system of appetites, instincts and energy drives and the like. This latter view is so obviously incompatible with the whole spectrum of Gill's thought that the reader must either learn to accommodate Gill on this point or admit

Self-portrait Engraving (1927).

that he desires other things and pass on.

The second stumbling-block—the assumption that the 'progress' of technological development is inevitable—we have already touched upon. But the following must be added. If you assume that the whole of man's experience does not go beyond the world of time and space then you must believe that all development will take place within the confines of that world. In which case there can only be an exploration of the extent of space and—since the horizontal movement of time is ever forward—development in future time. The pull of the future must seem inevitable in such circumstances. It is hardly coincidental, therefore, that the philosophy of materialism (which rests upon such assumptions) should, as Gill says, 'click' with an industrial world, and that in the nature of things it must issue in an ever greater degree of technological sophistication. But this did not prevent Gill from seeing the inconsistency of such a belief with free-will (with its concomitant of intellectual responsibility), and with the ultimate spiritual nature of man.

The two presiding principles along which, as it were, Gill guides his thoughts on the nature and purpose of human making are those of 'beauty' and 'art'. Let us look at his notion of beauty first. Here Gill's point of departure is St Thomas, quoting St Dionysios the Areopagite: 'The Beauty of God is the case of the being of all that is.' Thus beauty is an absolute and has to do with cognition. Absolute Beauty is the very cause of the perfection of things and as being is coincident with

the Good, is the end to which the nature of things tends. The Scholastic doctrine of beauty as a transcendental, an objective property in things—the splendour of intelligibility—can be traced back through St Dionysios and Augustine to Plotinus and eventually to Plato's formulation of beaty as the radiance of truth. It was this tradition that St Thomas built upon but giving beauty a more immediate and subjective emphasis when he described it as 'that which pleases when seen'. But we must not assume that St Thomas's deceptively simple description identifies beauty with that pleasure, that quickening of the aesthetic senses that is felt in common delight. Gill reminds us that what *sees* is the mind, the 'inner eye' of the mind. Though the outward senses are the channel through which what pleases must pass, nevertheless in seeing beauty the mind acts and apprehends in the selfsame act Being Itself. In that act the *thing* that presents itself is not diffused or dissolved away into abstraction. It remains in the perfection and order proper to itself, a thing of greater clarity, a thing without which no beauty is seen at all. And this perfection and clarity is nothing less than the thing's essence, its *form*, the qualitative imprint, as it were, stamped on the created thing by its creator. Thus in the measure that a thing seen reflects the beauty proper to itself, so the mind sees what that thing *is* without adulteration and privation.

By analogy the same is true of works of art as things made, since whatever is made is first conceived in the mind of the artist. It is the intelligibility of this formative process in which the work of art is made in imitation of its mental prototype that the beauty of art consists. Just as the beauty of natural things is in accordance with the perfection of their being as part of the whole of the created order of things, so the beauty of a work of art is inseparable from its occasion and purpose as a thing called forth by intelligible need. Beauty cannot be said to be a property belonging to works of art exclusively, and the artist or workman does not proceed *directly* to 'make beauty' any more than he works to 'produce pleasure'. The beauty of works of art is not aesthetic (as is our pleasure at the resultant thing), but cognitive and in accordance with the goodness and truth with which the said work fulfills what it is its nature to be.

For this reason a work of art (or nature) is inseparable from its creator's intention, always remembering that as it is not part of God's intention to create natural things for the sake of idle curiosity, but to lead us on to higher things, so it should never be the intention of the artist to create meaningless luxuries which it is beneath man's natural dignity to tolerate.

The complementary principle to beauty in Gill's thought is that of art. Traditionally and normally, the notion of art is part of a body of wisdom according to which things made attain to the proper perfection of their nature. Man, considered in the light of an inverse metaphysical analogy whereby he is the reflected image of God, in fashioning an object materially at the same time fashions himself spiritually. By the same process of analogy in the act of creating God externalises Himself, whereas the artist or workman in the act of making internalises himself—by making outwardly, in an act of pure worship, man fashions his own internal nature. That is to say, he returns to the perfection of his own nature. Here we have the perennial idea of human vocation as part of the conformity of all things to their true nature as an expression of the divine will. Only he can attain perfection who is integrated with the causes and ends of things. This way he incurs no sin—sin being defined as a departure from the order to the end. We might recall that in his *Republic* Plato described justice as the freedom of men to do and act according to what it is their nature to be. And in connection with works of art Gill wrote: 'We've got to make things *right*. Beauty consists in due proportion. We have got to give things the proportion that is *due* to them. It's a matter of justice.'[1] The artist works, then, in imitation of the true nature of things. He does not imitate God's works, for that would be to make copies of copies, but imitates God's manner of working as it is inherent in his nature so to do.

The word 'art', in the scholastic formulation of the traditional wisdom, refers to that operative habit of the intellect by which the artist possesses what is the proper perfection of work to be done. This formulation takes as its point of departure Aristotle's description —in his *Ethics*—of art as the innate condition of the mind by which a man proceeds upon a rational course of action in the making of something. Art is an inner skill, not mere outward dexterity. By the light of art the workman sees what is to be done by the operation of art he knows *how* it shall be done. As the operative agent of art the workman's only concern is for the good of the work to be done. In departing from the perfecting of his art the workman sins *as an artist*. Art, then, stays *in* the artist and is not personified by the artist. David Jones observed of Gill that he worked as though a tradition existed. He meant that Gill worked

The Burial of Christ. Engraving 1931.

assuming that these conditions and values both applied and were true.

With the division of 'art' from 'work' and 'beauty' from 'use' in the modern world, art comes *out* of the artist and gets attached, so to say, to the work of art itself. The creator of 'art', now called an 'artist', personifies art and is given the sole prerogative of its production. Beauty too comes out of the thing made to be an aesthetic sensation desired for its own sake. No longer the property of a thing that shows forth the fullness of integrity, harmony and intelligible clarity due to its being; no longer identified with goodness and truth, beauty is now associated with a select category of things made. As an aid to emotional stimulus, beauty is freed from the process of rational manufacture so that art has become 'pure' or 'fine' and as such is treated idealistically. The workman is no longer expected to be in *possession* of his art; 'art' and 'work' are distinct, even opposed, orders of making. Moreover, 'art' becomes a snob value and the word 'art' actually comes to denote the objects that comprise this artificially isolated category of things whose value is maintained in the interests of social prestige. Indeed, the modern world speaks of 'art' instead of 'works of art' because this artificial isolation makes it necessary to distinguish 'art' from 'non-art' in the category of things made.

All this Gill called 'art nonsense' and he sought to debunk it in so far as it makes a 'false mysticism' of man's creative spirit and distorts the proper order and status of intelligent workmanship.

Gill's indebtedness to the English tradition of radical thought, (see *The Ecologist* Vol. 4, No. 4), whose roots go back beyond William Cobbett to Blake and reach forward through Carlyle, Ruskin, Morris (see *The Ecologist* Vol. 4, No. 6) and on to his contemporaries and friends W.R. Lethaby and Edward Johnston, has always been acknowledged. Indeed, Gill's critique of the modern industrial world and his re-affirmation of the dignity of human labour must be set against the perspective of such thought, as his achievement must be seen to be cumulative in respect of their example.

Gill always acknowledged a degree of kinship with William Blake, though he was far from sharing Blake's visionary sense of the imagination. But just as Blake was the prophet of the then industrialising English nation, so Gill may yet be seen as the prophet of post-industrial England. Blake was an artisan engraver in late 18th century London, a time of decline in many such trades. The influx of population drifting away from agricultural subsistence in the fields and villages of rural England had come to form the mass of dispossessed and unskilled proletariat of the new centres of mechanical production. In the wake of this upheaval came the erosion of craft skills, and to Blake this fact highlighted the destructiveness inherent in the process of mechanisation. Blake saw this process not indeed primarily as destroying muscle and bone (though it did that well enough) but as destructive of the inner man—*homo faber*—the 'Poetic Genius' in every man. 'A Machine is not a Man nor Work of Art; it is destructive of Humanity & of Art', he declared in his *Public Address* of 1810. He had already, in about 1788, in his two tracts *There is no Natural Religion* and *All Religions are One,* found it necessary to point out that the nature of man is Infinite, in opposition to the encroaching philosophies of the mechanic system based exclusively upon a knowledge derived wholly from the bodily organs of perception. This bounded universe, as he saw, would be 'loathed by its possessor', for in denying man the Infinite that is connatural to him it binds him to the Ratio merely of his own ego.

In these tracts Blake settles once and for all the terms of reference for the ensuing radical debate on the destructiveness of the mechanical system. When Gill claims that 'death is the actual aim of industrialism, its diabolic direction', it is nothing new. Blake had seen it a century earlier and had spoken out against it in a powerful passage in his *Jerusalem:*

The artist: man's peculiar and appropriate activity, from *Art and Love* (1928) copper-plate engraving, 6.8cm x 11.2cm.

> . . . all the Arts of Life they chang'd into the Arts of Death in Albion.
> The hour-glass contemn'd because its simple workmanship
> Was like the workmanship of the plowman, & the water wheel

That raises water into cisterns, broken and burned with fire
Because its workmanship was like the workmanship of the shepherd;
And in their stead, intricate wheels invented, wheel without wheel,
To perplex youth in their outgoings & to bind to labours in Albion
Of day & night the myriads of eternity; that they may grind
And polish brass & iron hour after hour, laborious task,
Kept ignorant of its use: that they might spend the days of wisdom
In sorrowful drudgery to obtain a scanty pittance of bread,
In ignorance to view a small portion & think that All,
And call it Demonstration, blind to all the simple rules of life.

This passage anticipates a good deal of the thought Gill expressed a century later after the same system had consistently proven its social and human divisiveness as well as its spiritual impotence.

Cobbett rode on horse-back over the southern counties of the same England that Blake knew. A prodigious worker himself, Cobbett knew the importance to a just society of a right and responsible livelihood for its people. He witnessed the rural aspect of the social upheaval created by the drift of population to the 'Great Wen'. For him its effect was not only social but was recognisable in the fact that it laid waste the land. Cobbett had a hatred of unproductive land. For him, where beauty and utility had been put asunder there could be no natural beauty in a situation that was morally unacceptable. He poured his inimitable scorn on those responsible for the enclosure of the common land. The consequent lack of ownership of the means of subsistence meant that the dispossessed agricultural labourer was as much the slave of the 'Lords of the Loom' as was the factory worker. Cobbett saw, and knew that he saw, the germinating seeds of the modern consumer society. His denunciation of the increasing self-sufficiency of the body of '*idlers and traffickers*' who create the modern market place, keeping apart those who produce things and those who have need of them, had its basis in the observation that, in such conditions, both the producer and the consumer must gradually relinquish control over the means of production in favour of the 'middle-men, who create nothing, who add to the value of nothing, who improve nothing . . . and who live well, too, out of the labour of the producer and the consumer'. Cobbett was no less aware of the effect of all this upon the mass of city slaves. Here his analysis of the 'calamity' occasioned by the mechanic invention prefigures Gill's concern that the machine is only acceptable if wholly owned and directed by the worker himself who must also have the benefit of the profits that accrue to its working: 'We must have the machine *at home* and we *ourselves* must have *the profit* of it: for, if the machine be *elsewhere;* if it be worked *by other hands;* if *other persons* have the *profit* of it . . . then the machine is an injury to us,' he wrote in his *Rural Rides.*

Frontispiece to *Autumn Midnight* (1923) by Frances Comford. Wood engraving.

Beyond recognising the dignity it may lend, and the injustice when its fruits are withheld, that labour may occasion man, Cobbett said little about the inherent nature of work. But Thomas Carlyle went further. In the chapter 'Labour', in his *Past and Present,* he saw that 'there is a perennial nobleness, and even sacredness in work'. Moreover, 'a man perfects himself by working', for 'even in the meanest sorts of Labour, the whole soul of a man is composed into a kind of real harmony.'

Carlyle saw into the centre of the active life of the working man. Recognising a sort of platonic justice there, he wrote, 'Blessed is he who has found his work' for in 'the inmost heart of the Worker rises a god-given Force.' For him the only knowledge is that which holds good in working—the rest is 'hypothesis of knowledge'. In such thoughts Carlyle comes close to expressing the traditional notion of the marriage of wisdom and method in all vocational endeavour—Admirable is that of the old Monks, "*Laborare est Orare,* Work is Worship"—a balance of the contemplative and active life of the intelligence and the will, the harmony of reposed soul and dynamic body. In Carlyle we have a foretaste of Gill's thought that as man is the summit of nature, so his art improves on nature, and that every man is a special kind of artist. In the same work Carlyle wrote, 'He that works, whatsoever be his work, he bodies forth the form of Things Unseen; a small Poet every Worker is.' The humblest

platter, the Epic Poem, these that Nature has yet seen he creates—to Her a "No-thing!"—these the worker summons from the Unseen, 'in and for the Unseen'. He who looks to the powers of this world must ever play at the deceiving of his true self—the unspeaking voice of conscience, the silent reverberation of perfection in his nature. The worker who, for whatever reason, looks to 'the world and its wages', works at a 'Sham-thing' which is best not done. Thus Carlyle saw, before Ruskin, that the tragedy of industrial work, 'under bondage to Mammon', was the enforced idleness of 'the rational soul' it induced in the worker, stopping the springs of charity and thus destroying the moral basis of human intercourse.

If the ultimate nature of Carlyle's religious notions was somewhat vague, there was no mistaking the 'true Deity' of his age: 'Mechanism'. Under this secular god men no longer feel the pull of the 'internal perfection'; their faith, as he wrote in his essay 'Signs of the Times', is 'for external combinations and arrangements, for institutions, constitutions,—for Mechanism of one sort or other, do they hope and struggle. Their whole efforts, attachments, opinions, turn on mechanism, and are of a mechanical character.'

The well-springs of faith in the 'Deity of Mechanism' had been pinpointed by Coleridge in his *Statesman's Manual* of 1816 some 13 years before the prophetic text of Carlyle's essay. The mechanic philosophy, Coleridge wrote (elaborating on Blake's tracts, as it were), 'demanding for every mode and act of existence real or possible *visibility*, knows only of distance and nearness, composition (or rather juxtaposition) and decomposition, in short the relation of unproductive particles to each other; so that in every instance the result is the exact sum of the component quantities, as in arithmetical addition. This is the philosophy of death, and only of a dead nature can it hold good.' This 'philosophy of death', founded on the mechanism of Hobbes, the empiricism of Locke and the economics of Adam Smith, had issued in a 'commercial spirit, and the ascendancy of its experimental philosophy which . . . combined to foster its (the discursive understanding's) corruption. Flattered and dazzled by the real or supposed discoveries, which it had made, the more the understanding was enriched, the more did it become debased; till science itself put on a selfish and sensual character and *immediate utility*, in exclusive reference to the gratification of the wants and appetites of the animal, the vanities and caprices of the social, and the ambition of the political, man was imposed as the test of all intellectual powers and pursuits. *Worth* was degraded in to a lazy synonym of *value;* and value was exclusively attached to the interest of the senses.'

Carlyle, in his moment of vision in 'Signs of the Times' caught an echo of the warning sounded by Coleridge: that the mechanical model by which men hoped to shape the world shapes man in its turn. Men come to conceive and understand themselves on the model of external circumstances. Cultivated on exclusively mechanical principles, the inward is finally abandoned and the mind is emptied of any significance other than that of evincing the mechanical method.

Gill at work on Prospero and Ariel (1931).

This undue cultivation of the outward overrides and considers as nothing the 'Dynamic', as Carlyle called it, in man's nature: 'the primary, unmodified forces and energies of man, the mysterious spring of Love, and Fear, and Wonder, of Enthusiasm, Poetry, Religion, all which have a truly vital and *infinite* character.' More and more, development comes to mean something external and measurable; social virtues are equated with political and economic expediency.

'Men are to be guided only by their self-interests.' The cash nexus that binds the worker to his employer becomes the standard by which men measure all effort and reward. When the sufficiency and corruption of public laws prove their inability to maintain an effective balance of 'self-interests'—for it is the law of the new political economy that property should be concentrated and protected—exploitation comes as naturally as fruit to the tree.

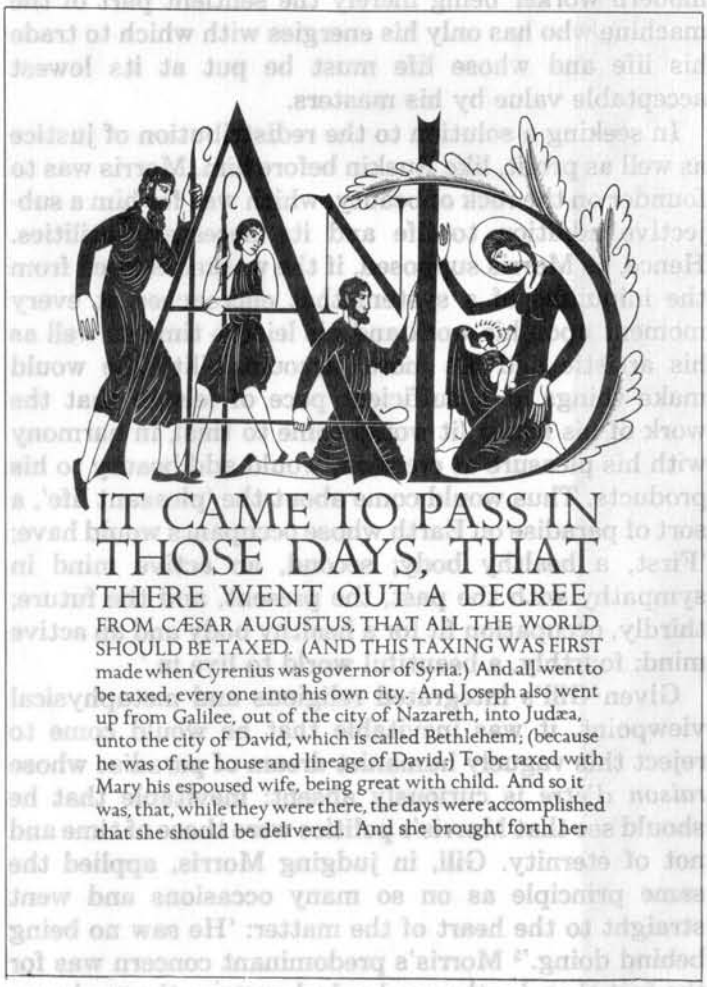
With regard to the ethical neutrality of a system of manufacture in which work had atrophied to a mere mechanical function, Ruskin, as Gill acknowledged in his essay devoted to him, saw 'clearly that the roots of human action, and therefore of human art, are moral roots.' Just as, in the face of the rapid advance of the new system, Carlyle had found it necessary to point to the contrast between the 'Dynamical' and the 'Mechanic' Method, so Ruskin in his turn points to the moral contrast in the division of society inimical to the 'Mercantile Economy'; the economy of 'pay' signifies the legal, moral and social claims made by the few upon the labour of the many: poverty and debt on the

one side, riches and right on the other. But for one who had seen that 'there is no wealth but life' the iniquities of the disproportion in reward between employer and employed were less important than those of a system that could manufacture anything 'except men'. It was not so much the division of labour or the 'degradation of the operative into a machine' that the system had achieved but the division of men themselves, 'broken into small fragments and crumbs of life', as he put it in *The Stones of Venice.*

Like Carlyle before him and Coomaraswamy and Gill a century later, Ruskin had glimpsed the truth that every man was a special kind of artist and thought the task of the reformer was to rekindle in every labourer that 'power for better things', the '*thoughtful* part' of him which must be prized and honoured even in its imperfection 'above the best and most perfect manual skill' such as the mechanic system produces. This way he would be 'made a man', whereas before he had been a mere 'animated tool'. In *Unto This Last* Ruskin had castigated his uncomprehending contemporaries for their unquestioning reliance upon the modern political economy itself built upon the premisses of Mill, Malthus, Ricardo, etc. What the new science had left out of account was precisely the 'motive power of the soul'. It was this very unacknowledged quality, the soul, that seeped into every quantitative calculation of the political economist's equations, without his knowledge, and falsifies every one of their results. Work is best done, not for pay or under pressure but 'only when the motive force, that is to say, the will or spirit of the creature, is brought to its greatest strength' by the 'social affections'—precisely what the political economist is likely to see as merely 'accidental and disturbing elements in human nature'. Blake, Coleridge, Carlyle, and then Ruskin, each struggled to keep open a sense of the soul's worth in the face of its gradual occlusion by the closed system that accepts as its sole province the domain of what can be measured and weighed.

But Ruskin, though he had seen that the work of mere utility—the 'dishonour of manual labour'—must be done away with altogether, showed the impotance with which Gill charged him when it came to the question of the beautiful. With the eye of an aesthete whose vision is formed on an inverted materialism he wrote in *Modern Painters;* 'Any material object which can give us pleasure in the simple contemplation of its outward qualities without any direct or definite exertion of the intellect, I call in some way, or in some degree, beautiful.' For Ruskin the beautiful was always something incidental, something added, like a sheen or gloss to the being of a thing, not a light within it. Never a cognitive principle, beauty is always an effective impulse and is sensational as to its object. It is thus not surprising that 'art' for Ruskin, far from being the rational principle of normal workmanship, was not much more than whatever elicits his deepest feelings at delighted observation—and the artist is, for him, one who can depict such feelings. Attempting to unite beauty and workmanship, in a passage in *The Two Paths,* he wrote: 'Beautiful art can only be produced by people who have beautiful things about them, and leisure to look at them; and unless you provide some elements of beauty for your workmen to be surrounded by, you will find that no elements of beauty can be invented by them.'

William Morris's wrestling with the divisive monster of beauty on the one hand and utility on the other took a different form yet again from that of his predecessors. He saw through the fallacy of the Protestant ethic—used as an expedient to bridge the divide—that work, *any* work, because it serves 'the sacred cause of labour', is good in itself. This same fallacy Carlyle had come close to advocating. For Morris, the evil shadow of the industrialised system obscured the light of an obvious truth: there are, he wrote in *Useful Work Versus Useless Toil,* 'two kinds of work—one good, the other bad; one not far removed from a blessing, a lightening of life; the other a mere curse, a burden to life.' The work it was manly to do has hope in it, a threefold hope—'hope of rest, hope of product, hope of pleasure in the work itself'. All other work 'is slave's work—mere toiling to live, that we may live to toil'. Such was the heritage of the dispossessed peasants of the 18th century who became the proletariate of the 19th—'a great mass of slaves, who must be fed, clothed, housed, and amused as slaves, and that their daily necessity compels them to make the slave-wares whose use is the perpetuation of their slavery.' This fact remained fundamental to Gill's view of contemporary society. He too saw that the tyranny of the modern market place consists in the



A page from The Four Gospels (1931), wood-engraving with Golden Cockerel typeface.

fact that the buyer, far from being an enlightened patron (which he could still in a measure be at the country fairs Cobbett saw must be destroyed by the increased trafficking of middle men in shops), is no more in possession of an educated taste and discretion than any other consumer of those goods which are called into existence for no other reason than to serve as the very life-blood of the system of their production. For Morris the smart of injustice was in the enforced degradation of man at this 'tax of waste', this treadmill futility that is a trading on the ignorance of the productive masses by the profit-gathering minority who have 'the power of compelling other men to work against their will'. For Gill (who transposed many of Morris's observations into the terms of his own philosophy), no less than for Morris, this imposition upon the worker to labour against his will was by necessity inherent in the mechanical system; the necessity to destroy in the worker any real intellectual responsibility he might have for what he makes. As Morris put it in *How We Live and How We Might Live:* 'they do not know what they are working at, nor whom they are working for, because they are combining to produce wares of which the profit of a master forms an essential part, instead of goods for their own use. Moreover, 'they will be in fact just a part of the machinery for the production of profit; and so long as this lasts it will be the aim of the masters or profit-makers to decrease the market value of this human part of the machinery.' This is easily recognised as the foundation of Gill's mature view of the question of the modern worker being merely the sentient part of the machine who has only his energies with which to trade his life and whose life must be put at its lowest acceptable value by his masters.

In seeking a solution to the redistribution of justice as well as profit, like Ruskin before him, Morris was to founder on the rock of beauty, which was for him a subjective addition to life and its necessary utilities. Hence, as Morris supposed, if the worker is freed from the iniquities of a system that encroaches at every moment upon his work and his leisure time as well as his artistic and his moral accountability, he would make things at a sufficient pace of leisure that the work of his hands (it would come to this), in harmony with his pleasure at creation, would add beauty to his products. Thus would come about the 'pleasant life', a sort of paradise on Earth whose occupants would have; 'First, a healthy body; second, an active mind in sympathy with the past, the present, and the future; thirdly, occupation fit for a healthy body and an active mind; fourthly, a beautiful world to live in.'

Given Gill's integrated religious and metaphysical viewpoint, it was inevitable that he would come to reject this vaguely humanist dream of paradise whose *raison d'être* is curiously absent: inevitable that he should see that Morris's politics were those of time and not of eternity. Gill, in judging Morris, applied the same principle as on so many occasions and went straight to the heart of the matter: 'He saw no being behind doing.'[2] Morris's predominant concern was for the fact that, by the mechanical system, the workman is robbed of the pleasure and satisfaction of free creative effort, and a just reward for his labour. But Gill's concern was for the fact that the worker, in being robbed of intellectual responsibility, is also robbed of the possibility of apprehending the holiness of the creation and of his own being by means of a life of work and of prayer; a norm of manufacture connatural to man's rational intelligence. Even though he was prepared to concede that art cannot flourish in the hands of a coterie of specially gifted men, Morris nonetheless thought that art must be the outcome of a vaguely humanistic aspiration towards what he called the 'beauty and true pleasure of life'. Despite his undoubted personal skills in the many crafts he practised, Morris had no proper doctrine of work. When he came to describe his vision of the social revolution he had called for—which revolution was no more than 'a stage of the great journey of evolution that joins the future and the past to the present,'—we find that vision trailing off into an increasingly attenuated generalisation: 'I console myself with visions of the noble communual hall of the future, unsparing of materials, generous in worthy ornament, alive with the noblest thoughts of our time, and the past, embodied in the best art which a free and manly people could produce.' The artist's role in the construction of such a society was to produce no more than 'beauty and interest'.

It is significant that both Ruskin and Morris believed that greater leisure and a higher standard of living would lead to the restitution of the arts among the people. By contrast Gill called for a 'holy poverty' as the only rational attitude to material things; hence his criticism of Morris that 'he saw joy in labour but no sacrifice'.[3] What is more, Gill foresaw that in the Welfare State the 'factory hand' would come to despise

Letters for the Golden Cockerel Press, 1928.

the culture of 'higher things' for which he is supposedly made free by the mechanical system.

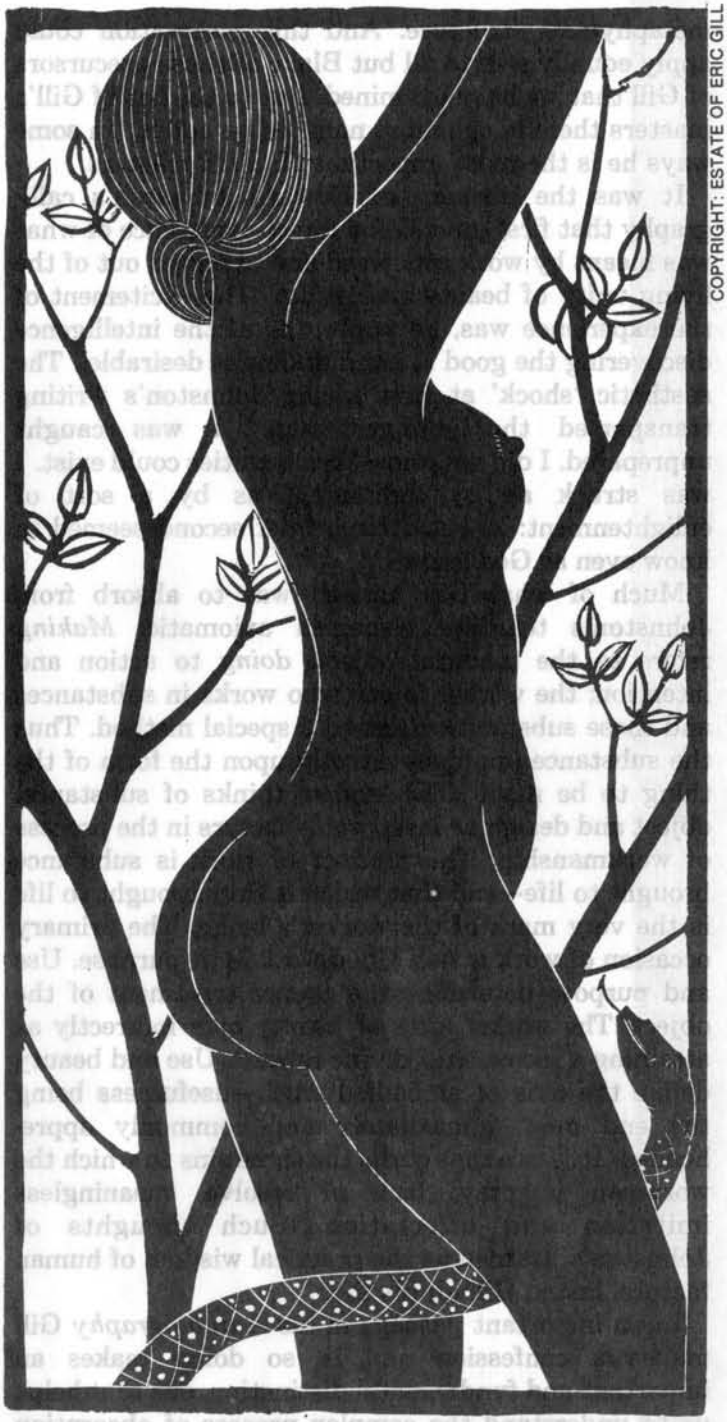
Although he had learned much from Morris, Gill rejected him. It was as much a rejection of the Arts and Crafts movement as a whole as of Morris himself. Gill also rejected the socialism that went with their vision on the grounds that they had no effective answer to the system they affected to despise; a system which perpetuated the moral irresponsibility of the capitalist investor on the one hand and the intellectual irresponsibility of the worker on the other.[4] Whereas the Arts and Crafts movement had merely established a vogue among the rich for sentimentalism, socialism, because it had failed to see anything wrong in the industrial system of production as a solution to the problem of human need, as a political movement was, as Gill wrote, 'hardly more than an attempt to re-order the distribution of factory products and factory profits'.[5]

Of this failure of socialism it fell to Morris's disciple W.R. Lethaby to make the obvious point. Now that the conditions of labour had been bettered by the rise of Trade Union power—and seeing that mechanised production cannot form a sufficient basis for human conduct—the task of the Unions must be to attend to the 'element of quality in workmanship'. Indeed; 'As work is the first necessity of existence, the very centre of gravity of our moral system, so a proper recognition of work is a necessary basis for all right religion, art and civilisation. Society becomes diseased in direct ratio to its neglect and contempt of labour.' Like Carlyle, Ruskin and Morris, Lethaby too looked for his bearings to the unified tradition of art and workmanship that was the natural expression of the mind of the Middle Ages: 'The most distinctive characteristic of the Middle Ages was the honourable position in the State then taken up by labour.'

But Lethaby went one step further along the road uniting beauty and use, art and work, by being more explicit and concrete in his definitions. In Lethaby we find a good many of Gill's mature conclusions on the nature of beauty, art and workmanship, in at least a verbal form that is close to Gill's own. Indeed, it was Lethaby who wrote in his book on Architecture; 'we need not trouble for beauty, for that would take care of itself.' Among his papers on Art and Labour (published in 1922 as *Form in Civilisation*), are aphoristic distillations of thought that might almost have come from Gill's pen: 'Beauty is that which when seen we should love': 'Beauty is the "substance" of things done': 'Beauty is the flowering of labour and service': 'Beauty has to come by the way': 'Appreciation of Beauty should be one with our judgement of essential quality . . . The sense of Beauty is the work-conscience'.

For Lethaby, art is 'the right way of doing right things'. Art is 'ordinary manipulative skill'. It is '*service* before it is delight; it is *labour* as well as emotion; it is *substance* as well as expression'. 'A work of art implies workmanship.' 'What I mean by art, then, is not the affair of a few but of everybody.'

Like Gill, Lethaby, theoretically at least, fused yet did not confuse art and utility. He was fully aware of



Eve. Engraving 1926.

the transcendental origins of human workmanship and had written widely on themes of myth, symbol and cult related to what he called in his essay 'The Centre of Gravity', 'the "revelation" of the crafts to men'. Gill, during his formative years, had been closely associated with Lethaby and would obviously have absorbed much of his teaching. Yet for all the similarity of Lethaby's final position to that of Gill in the theory of beauty, art and workmanship, there remains the feeling that it is just that: theory. We cannot find anything like the same degree of personal, manipulative as well as theoretic integrity in Lethaby that we find in the life and work of Gill. Although Lethaby could situate the proper place of beauty in art, art in workmanship and service, he lacks Gill's depth of resonance and conviction in being able to inter-relate spirit and matter, being and doing, man and society, art and utility, beauty and holiness to an adequate

metaphysical structure. And this reservation could apply equally well to all but Blake of those precursors of Gill that we have examined. But to the list of Gill's masters there is one more name to be added. In some ways he is the most important of Gill's masters.

It was the mastery of Edward Johnston's calligraphy that first gave Gill a direct experience of what was meant by work conceived and executed out of the living unity of beauty and utility. The excitement of the experience was, he wrote, 'as of the intelligence discovering the good . . . and finding it desirable'. The aesthetic 'shock' at first seeing Johnston's writing transported the younger man: 'I was caught unprepared. I did not know such beauties could exist. I was struck as by lightening, as by a sort of enlightenment: . . . and for a brief second seemed to know even as God knows.'[6]

Much of what Gill himself was to absorb from Johnston's teaching remained axiomatic: *Making* refers to the material object, *doing* to action and intention; the worker is one who works in substances and these substances demand a special method. Thus the substance impinges directly upon the form of the thing to be made. The worker thinks of substance, object and design as inseparable factors in the process of workmanship. The product of work is substance brought to life—and that which is thus brought to life is the very mark of the worker's being. The primary occasion of work is use. Good work is fit purpose. Use and purpose determine the proper treatment of the object. The worker aims at beauty only indirectly as attaining a measure of divine reward. Use and beauty define the axis of embodied truth—usefulness being the end most immediately and commonly apprehended. It is use that curbs the three sins to which the workman is prey; lack of resolve, meaningless imitation and affectation. Such thoughts of Johnston's, learned as the practical wisdom of human facture, lasted Gill all his life.

In an important passage in his *Autobiography* Gill makes a confession and in so doing makes an important and fundamental distinction, one that helps us to understand the complex process of absorption and rejection in his approach to his masters: 'my socialism was from the beginning a revolt against the intellectual degradation of the factory hands and the damned ugliness of all that capitalist-industrialism produced, and it was not primarily a revolt against the cruelty and injustice of the possessing classes or against the misery of the poor. It was not so much the working *class* that concerned me as the working *man*—not so much what he got *from* working as what he did *by* working."[7] Thus, for all their concern at the social injustice of the mechanised system, for all that they had shown themselves sensitive to the archetype of beauty, arguing for its return at the heart of human labour in the face of the increasing dehumanisation of mechanical production, Gill's precursors had not got to the root of the matter. They had not questioned consistently, deeply and vigorously enough the nature of man's being.

It is Gill's insistence on starting nearly every argument with the implied question 'What is Man?' and following up with penetrating clarity its necessary and rational corollaries that distinguish him from his masters. In recovering the norm of human workmanship on the basis of the whole meaning of life Gill avoided the fallacy (one to which modern man is particularly prone) of attempting to establish the criteria for the active life in the productive outcome of the active life itself. The depth and conviction of Gill's achievement is present in virtue of his total response to the truth of those metaphysical doctrines he made his own but which were no less the possession of the perennial wisdom that at nearly all times and places has been the normal spiritual legacy of man.

What of Eric Gill today? It would be all too easy to dismiss him as a nostalgic reactionary who, in looking back to the ideals of an earlier age, placed himself out of court in so far as the problems of late 20th century society are concerned. But such a judgement would not only be superficial, it would also be wrong. Gill, by the absolute categories of his thought and by his constant appeal to reason placed himself at the centre of things. The problems that engaged his mind are still with us. Far from being resolved, they have merely been brought, in the years since his death, to a new level of sophistry, becoming an unquestioned part of the social intellectual malaise. Time and again Gill thinks his way to the root of those fallacies and contradictions upon which modern society unwittingly rests: its social and productive system that has mass leisure as one of its main aims yet which leads to the 'tragedy' of state-sponsored idleness; its sentimentalising of art while dehumanising work; its pursuit of individualism by means that tend to even greater conformity and standardisation; its denial of the place and significance of the Infinite in a world expected to yield 'infinite' material development. Only those who have capitulated to the premisses on which the current social and economic condition of society rests can afford the specious luxury of seeing Gill as an outmoded figure.

There is now a growing body of opinion that would hold that if the industrialised world is to recover its balance it can only do so on the basis of a re-sacralisation of work such as Gill points to. A system of production, fuelled by a morally neutral capital investment that in turn fuels a technological development which is itself blind in so far as the ultimate goal of society is concerned, can give only the appearance of justice (in improved conditions, higher salaries, etc) not the reality of it. The driving force of such a society, Gill saw, can lend nothing to a vision of that final end from which man must take the meaning of his existence. If the industrial system frees man for 'higher things' by reducing his need to labour, why must there be such an outcry at the consequences of paid unemployment? As Gill observes, slavery may no more be necessarily uncomfortable than freedom comfortable.

Gill's views on economics and politics have been criticised as being naive, presumably by those who would consider the economics of industrial production, with its insatiable appetite for the Earth's resources (not to mention the attendant problems of wide-scale

Eric Gill.

dereliction and pollution), enlightened. Simple and unaffected his views may have been, but never as if unacquainted with evil. Hence, in his observation that the machine is primarily an instrument for producing profits is foreshadowed the observation that the modern economy is primarily concerned to produce *demand.* In seeing the man of business as being at the mercy of 'undisciplined fancies', Gill recognised the remorseless circularity of that unique form of modern slavery, 'consumerism'. He saw that its victim, the 'consumer'—that final triumph of 'economic man'—has no choice but to roam the market place in order to squander the 'fee' paid him for the time spent supporting a system whose very existence depends upon contriving ways to stimulate a demand for goods that can never be wholly satisfied. Such is the treadmill of 'consumer choice' and hence it comes about that men must serve 'the Economy' for the good of a society that has no higher notion of the social good than that of 'free enterprise' serving consumer demand. Already, in *News from Nowhere,* Morris had spoken of the inevitable downward spiral whereby 'the production of measureless quantities of worthless makeshifts' knew no limit since 'the only admitted test of utility in wares was the finding of buyers for them—wise men or fools, as it might chance.' Producer and consumer alike, must come to suffer the smart of tyranny when 'the Economy' has the power of Holy Writ!

In the field of 'art', too, in so far as it is a separate and specialised domain of activity in modern society, Gill's views are no less timely. By insisting on the mixture of common sensibility and pure being in the intuition of beauty Gill effectively joined what had for some centuries been artificially separated: Being and knowing, loving and thinking, living and making. His assimilation of beauty to truth and goodness, moreover, provides a path between the twin (from the traditional viewpoint) heresies of post-renaissance aesthetics. The first heresy was the seemingly irreversible persuasion of some four hundred years during which 'art' had taken the imitation of appearances as a yardstick for expression. The invention of photography 'killed' this heresy, but the countermeasure of the modern movement—an emphasis on the abstract nature of aesthetic values—opened up an equal and opposite heresy. The heresy of naturalism falsifies the nature of reality by tending to limit it to appearances, forgetting that, logically, appearances are *of* something. The heresy of abstraction falsifies the nature of intelligence in supposing that reality is all in the delight the mind feels in its own correspondence to certain values of pattern and symmetry. It is perhaps not too difficult to see that behind these twin heresies are two equally partial and unconscious theories of the beautiful—at their crudest, the one exclusively objective and the other exclusively subjective. In the objective view beauty is thought to

Two girls (1928), pencil drawing.

reside in the appearance of the things we perceive. In the subjective view the objective reality of the thing perceived is granted but beauty is thought to belong to the act of emotive assimilation. The obejctive view will not accept that the act of perception is adoptive and contributory in the assimilation of beauty, while the subjective view will not accept that beauty is not wholly attributable to emotive response. In other words, neither view can accept that beauty is in the order of being. Both forms of heresy tend to overlook the fact that the relationship between mind and beauty—utilising the simultaneous co-operation of both perception and emotion—is ultimately cognitive and depends more upon the action of the intellect than upon sensory stimulus.

On the basis of Gill's doctrine we might notice how it is hardly a coincidence that in a society which unwittingly subscribes to the notion of art as the province of a special sort of person concerned with beauty, art eventually becomes that hypertrophied banality and crudity with which we are all too familiar. Indeed, a society which unconsciously holds that the pursuit of beauty is the purpose of 'art' results in an environment unsurpassed in its dehumanising ugliness; similarly, the pursuit of leisure as the basis of the good life results in a society in which few people find the time to make what is pleasing to our innate sense of what conforms to a good life.

There can be no mistaking the directional impulse of Gill's thought; it is heavenward. Not so much a heaven 'up there' as one with a more local habitation: the kingdom of heaven *within*, which is the kingdom proper to man—that is to man the maker.

I have not tried here to represent every facet of Gill's thought, but have included only those statements that relate immediately, or are contextual to, his thoughts on the nature of art, beauty and workmanship. I have not even tried to represent every nuance of his thinking on these three questions. Nevertheless, I believe the whole of his doctrine of the norm of workmanship is essentially present and that any additions would only extend and elaborate ideas already included.

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A Reprieve for Ennerdale

by John Sears

This article was written in 1981, pending the outcome of the Two Lakes Public Inquiry. The North West Water Authority had sought to raise the level of Ennerdale and increase extraction rates by up to 200 per cent.

Later the same year the inspector turned down the N.W.W.A. application—one of the few instances where a public inquiry has come down on the side of Conservation.

The probable ecological consequences of the impoundment scheme are described in this article and were submitted by the author as evidence at the Inquiry in 1980. It has obvious implications for lakes in other regions, where insensitive attempts to extract massive quantities of water could have damaging and far reaching consequences. It is also of practical relevance if the N.W.W.A. or British Nuclear Fuels, for that matter, decide to put in a new application for permission to increase water extraction at some future date.

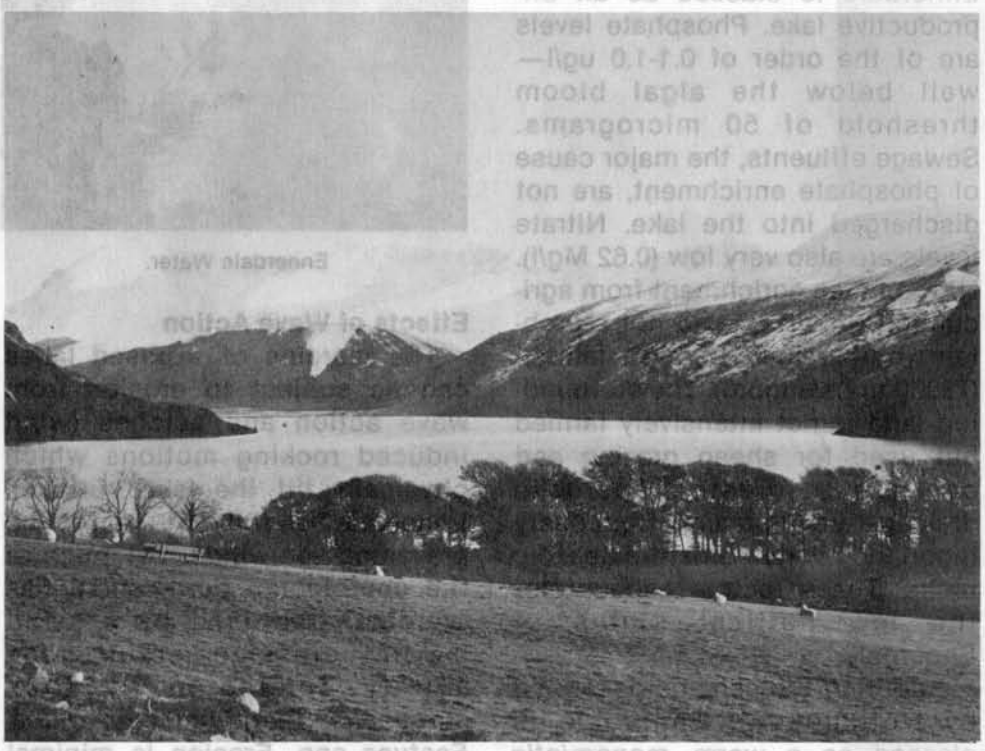

PHOTO: SEARS

Ennerdale Water is unique in mainland Britain—possessing two species of ice-age animals and a distinct race of char which has evolved in isolation from those in other large lakes.

Ennerdale, or more correctly Ennerdale Water, is a freshwater lake lying in north-west England. The nearest industrial town is Whitehaven, situated on the Irish sea coast some 10 kms west of Ennerdale. The lake lies 120 metres above sea level and for many years a gravity feed has supplied neighbouring Whitehaven with high purity water needing only sparse fitration (to remove leaves etc.) and minimal chlorination and hardening with calcium hydroxide. The present treatment buildings, situated near to where the lake overflows into the River Ehen, are silent in operation and blend unobtrusively with the magnificent wild country around.

The same cannot be said of the Marchon Chemical plant situated on the cliffs above Whitehaven. This detergent manufacturing complex has been the town's main industry since the 1940's. In the 1970's, considerable expansion took place and the plant now makes its own sulphuric acid and many tons of imported finite phosphate resources are annually consumed in the thirst for even more soapless detergents. Residents of nearby housing estates have long complained bitterly of the corrosive acid fumes and detergent residues, which leave everything covered in white spots, emitted by the plant at any time of the day or night. Predictably, in an area which saw some of Britain's grimmest unemployment in the 1930s and even today has a rate standing at 10 per cent) official efforts at pollution control have been abysmal. In the past, threats by the company to close the plant and go elsewhere should too many restrictions be placed upon them—have been sufficient to tame the opposition: in people whose fathers remember the mine closures between the wars, the grim realities of those days die hard.

With their continuing expansion, Marchon Products have been one of the principal lobbyists for flooding Ennerdale to procure more water. The North West Water Authority (N.W.W.A.) have sought a planning application to build a dam which would raise the level of Ennerdale by approximately 1.2 metres. In the spring of 1980 this became one of the subjects of the Two Lakes Public Inquiry at Whitehaven. (The second lake, Wastwater, is limnologically similar to Ennerdale and was the subject of a separate planning application for impoundment by British Nuclear Fuels Ltd, who seek high purity water for continuing expansion at the Windscale Reprocessing Plant.) An alternative, and far less environmentally damaging scheme, would involve abstracting water from the

mouth of the River Derwent near Wokington. The additional cost has been estimated at £3 million; also the water would need further purification. Yet ecologically, this is a sane alternative, and could more than meet the needs of industrial and domestic consumers for many years ahead.

Ennerdale: its Chemistry

Ennerdale, at present, occupies an area of 2.91 KM^2 and has a maximum depth of 45.1 metres. The full impoundment scheme would flood some 8 hectares of forest track and rough grazing land.

In terms of water chemistry, Ennerdale is classed as an unproductive lake. Phosphate levels are of the order of 0.1-1.0 ug/l—well below the algal bloom threshold of 50 micrograms. Sewage effluents, the major cause of phosphate enrichment, are not discharged into the lake. Nitrate levels are also very low (0.62 Mg/l). Nitrogenous enrichment from agricultural run-off is also not a problem in this area of high rainfall (72000 mms/annum). The surrounding land is not intensively farmed but used for sheep grazing and coniferous forestry. The lake drainage area is mainly from peaty moorland overlying hard paleozoic rocks. These factors account for the low nutrient status of Ennerdale.

Adopting the scheme described by Hutchinson[1], Ennerdale is classed as a warm *monomictic* lake. In the early Summer it stratifies into an upper epilimnion of relatively warm water, beneath which extends a transition zone or thermocline to a lower layer of cold water of gypolimnion whose temperature varies little throughout the year. This is followed by the Autumn overturn, when loss of heat results in breakdown of the stratification and a vertical mixing of the lake water which continues until the following spring. Lakes behaving in this thermal manner occur widely throughout oceanic regions of the cool temperate zone and also at higher altitudes in warm temperate and sub-tropical latitudes. It is the nutrient cycling occuring during the vertical mixing phase which maintains lake productivity. It is of significance that *polymictic* lakes of mountainous regions of the intertropical zones, have more or less continuous mixing at temperatures around 4°C and thus have great productive potential for human use.

PHOTO: SEARS

Ennerdale Water.

Effects of Wave Action

The margins of exposed lakes can be subject to erosion from wave action and seiches (wind induced rocking motions which physically tilt the lake surface). Ennerdale lies fully exposed to the prevailing sea winds. Yet much of the unprotected north shore has become stabilised by a semi-nutural grassland/scrub community dominated by *Ulex europaeus, Pteridium aquilium & Festuca* spp. Erosion is minimal because with current moderate extraction rates of water, any drawdown is gradual; even the rise in level after heavy rains occurs only slowly and compensatory water to the river, controlled by a weir at the outflow, prevents excessive flooding of the lake margins.

The effect of the full impoundment scheme could lead to an increase of 200 per cent above current extraction rates. Hence the vertical drawdown will be markedly increased. Furthermore — this important point — the rate at which the water level fluctuates at all points between extreme high and low water marks will be far greater than at present.

It now remains to assess how rapid fluctuations in water level can adversely affect the ecology of lakes in general, and Ennerdale in particular.

Three main facets need to be considered:

1. The effects of enhanced erosion of lake margins by wave action and seiches (This is always more critical in exposed rather than sheltered lakes.)
2. The effects on Primary Producers (i.e. Lake macrophytes & phytoplankton).
3. The effects on animal populations and their ecological niches within the lake.

Erosion

It has long been known that rapid and wide ranging fluctuations in water levels along lake margins, wash away both soil and binding vegetation, resulting in an ugly scar or "dead" shoreline — virtually devoid of plant and animal life — rimming a former visually attractive lake. Observations show this to be the case with both Thirlmere and Haweswater in the English Lake District, which were first flooded in 1894 & 1939 respectivly. Rapid water fluctuations have long destroyed any stable margins round both these lakes — the bleached and ugly shorelines, picked almost clean of life, being especially evident during the summer months.

The flooding of Ennerdale would create a similar effect, further enhanced by the lake's more exposed situation. The steeper parts of the shore would be markedly undercut — further accelerating erosion of land along the lake margin. In consequence, suspension of insoluble organic matter in the lake (e.g. humic material from erosion of peat) could stain the water and reduce the depth of the euphotic zone. In the case of Ennerdale, pioneer work by Pearsall[2] showed that light could penetrate to a maximum depth of 8.3 metres. It is noteworthy that the impoundment scheme includes proposals to stabilise parts of the Ennerdale shoreline with massive banks of rubble — an untimate desecration to the contours of a lake whose

remote, ethereal beauty would be crudely destroyed.

Importance of Water Weeds

It is only in recent years that the importance of water "weeds" (aquatic macrophytes) in lake ecosystems has begun to be understood. Much of the recent work has been summarised in a review by Marshall & Westlake[3] who cogently emphasise the following:-

1. Macrophytes play a major role in energy input: indeed, they can contribute up to 51 per cent of the primary production in lakes.[4]
2. They are important in nutrient cycling. It is of significance that in nutrient poor waters — of which Ennerdale is a good example — macrophytes compete successfully with algae for available nutrients,[5] and thus may play a major role in nutrient storage and cycling. Godshalk & Wetzel[6] have shown that lake macrophytes are subject to decay for much of the year — with little production of sediment, except in nutrient — rich waters.
3. Some of the bio-mass can be utilised by herbivores — thus initiating food chains. Barber & Kevern[7] & Soszka[8] cite examples of macrophyte communities supporting larger densities of invertebrates than in situations denuded of vegetation. Plants are also important to fish populations in lakes[9] and contribute significantly to decomposer chains. From all this it is evident that lake macrophytes are not merely weeds but a vital cornerstone of the whole ecosystem.

The macrophyte communities of Ennerdale are no exception and were first studied by Pearsall.[10] They consist of two distinct vegetation zones: a shallow water community at 2-4 metres dominated by *Juncus fluitans, Lobelia dortmanna & Litorella uniflora;* plus a deeper water zone *uniflora;* plus a deeper water zone dominated by *Isoetes lacustris & Nitella,* extending down to 6 meters. My own observations tend to confirm this, together with a distinct zone of *Myriophyllum spicatum,* at the foot of the wave cut terrace, in 2 meters depth, at intervals along the north shore. This latter species with it's finely dissected leaves, is a valuable spawn plant and ecological niche for fish fry and small invertebrates in the lake.

Now if the full impoundment scheme is implemented it must result in destruction of a high proportion of the aquatic macrophytes in Ennerdale. In the event of a rapid drawdown, the shallow water species become exposed to the dessicating effects of the air and wind. Then with a rapid rise in water level, the deeper water communities could lie below the euphotic zone and seriously decline in productivity through insufficient light intensity. Wastwater has a similar littoral flora, but here the devastation would be less marked as much of the shoreline shelves very steeply into deep water which is not the case at Ennerdale.

It could be argued that past periods of prolonged drought (e.g. summer 1976 and spring 1980) resulted in exposure of considerable areas of Ennerdale's shallow water communities with no apparent ill effects: but let us remember that with current moderate extraction rates, any drawdown would be gradual so the growth of the plants could keep pace as the water level went lower.

PHOTO: SEARS

Rapid fluctuations in water level would destroy the stabilised shoreline, leaving an ugly scar.

Effect on Invertebrates

Work by moon,[11] on Lake Windermere, has shown that invertebrates can migrate in response to small fluctuations in lake level. The small benthic invertebrates of Ennerdale — such as Stonefly nymphs and Molluscs — could never migrate with sufficient rapidity in response to wide ranging fluctuations in water level. Hence impoundment could destroy a high proportion of them. Could this then adversely affect the lake population of brown trout *(Salmo trutta),* which only rise for flies on calm sunny days? Frost[12] showed that growth rates of this fish actually increased in Haweswater during the years immediately following impoundment. However, since 1949, growth rates of Haweswater trout have declined: impoundment would appear to bring only a temporary increase in productivity — presumably resulting from nutrient enrichment and terrestrial food supplies from the flooded land.

The Ennerdale Charr

A remarkable fish, related to the trout and salmon, is to be found in deeper, cooler lakes in northern Britain, Ireland, Iceland, Scandinavia and even Austria. This is the Charr *(Savelinus willughbii)*

whose ecology was studied extensively by the late Dr Frost of the Freshwater Biological Association, Windermere, England for many years.[12]

The British & Irish charr are lacustrine & non-migratory; yet have probably evolved from ancestral migratory forms present in previous interglacial periods. The Ennerdale charr is not a distinct sub-species; rather it can be regarded as one of several biological races of this magnificent fish. It is smaller, darker and with a far redder belly than the Windermere charr. This could be explained in terms of isolation of the gene pool following formation of the present Ennerdale lake at the end of the last glacial period 10,000 years ago; subsequent genetic drift within a small breeding population has favoured variation.

Frost[13], has described how the breeding behaviour differs from the Windermere charr (the latter lake has two distinct populations — spring breeders in deep water and autumn breeders in shallow water). The Ennerdale charr breed in November, the eggs being laid between small stones in shallow water. The main breeding place place is the last 100 metres of the River Liza (the locals call it "Charr Dub") before it enters the lake.

Butterfield[14] has suggested that the charr also lay their eggs among the stones in the shallow water round the lake margin. Now charr eggs take nearly 3 months to hatch, so that if spawning along the lake margin occurs then rapid fluctuations in level could destroy large numbers of eggs. Also raising the lake level would flood Charr Dub altering its total ecology so that many of the population would fail to spawn successfully there. Indeed, flooding could lead to the gradual extinction of the charr in Ennerdale.

Frost,[15] also showed that Ennerdale charr have a high occurrence of fish in their diet. These would be mainly sticklebacks, small eels, trout and charr fry. However, the stomachs of two of the charr examined contained specimens of *Mysis relicta,* a shrimp-like animal, which together with another crustacean, *Limnocalanus macrurus,* occurs only in Ennerdale water in mainland Britain. Both these animals are regarded as ice-age relict species.

Mysis is essentially an Arctic estuarine organism found also in Northern Canada, Greenland and Scandanavia. It was not discovered in Ennerdale until 1941. It has been seen only a few times since, so it's distribution must be pretty sparse (I searched unsuccessfully for it in 1972, using baited traps in the deepest part of the lake and trawling a plankton net at night). How *Mysis* came to be in Ennerdale is something of a mystery. One theory is that it became dammed in glacial lake Ennerdale by retreating ice over 10,000 years ago. Another is that it is a rare survivor from an earlier inter-glacial period. But we do know that it has disappeared from some of the Finnish lakes in recent years — following nutrient enrichment. It must be very sensitive to even low mineral concentrations — so could the nutrient enrichment attendant upon raising the lake level, spell the end of an animal whose origions and ecology in Ennerdale we have hardly begun to understand?

Conclusions

1. Impoundment of natural lakes as reservoirs, with attendant destruction of habitat following flooding and rapidly fluctuating water levels, must inevitably lead to a decline in population numbers and species diversity for both littoral and terrestrial organisms. Breeding sites of importance to individual species can be destroyed: halfway along the north shore of Ennerdale, for instance, there is a sheltered lagoon where every March the toads gather for mating. Last year I counted some 20 pairs on a bitterly cold day. The lagoon could soon disappear, leaving only wave-cut "dead". Macrophyte communities could be destroyed by rapid fluctuations as well as eggs and fry of fish that breed in shallow water. e.g. Ennerdale charr.
2. Much destruction could be averted by a detailed analysis of all the known ecological implications of an intended impoundment scheme. Comprehensive and unbiased ecological surveys of the plant and animal communities both in and arround the lake are an essential pre-requisite to all this. Unfortunately, industrial and municipal authorities frequently lack both ecological expertise and any sensitivity regarding environmental impact. Civil engineering

PHOTO: SEARS

The shallow water aquatic macrophyte communities play a major role in nutrient cycling and contribute up to 51 per cent of the primary production in lakes. Their destruction would markedly reduce species diversity.

considerations and hide-bound economic thought are often the sole factors chosen in arriving at a decision. The Ennerdale scheme would involve supplanting the present silent gravity feed with noisy and obtrusive pumping machinery in an area renowned for its wild natural beauty.

In Spring 1980, following a period of drought, the N.W.W.A. decided to air their high technology hardware at Ennerdale. A battery of twelve costly diesel pumps hammered incessantly by day and night, pumping compensation water to the River Ehen over the sill of the outlet weir. Soon the river bed below became littered with the dead bodies of salmon parr and minnows — I counted over 600 in 30 minutes — yet showing no signs of disease or injury. Bureaucracy could never conceive that small fish do not usually survive being sucked up through large mechanical pumps; yet a little ecological planning — with fine mesh screens — could have avoided such a catastophe.

3. As industrial moguls increasingly cast covetous eyes on remote and beautiful lakes and upland valleys — as a source of cheap water — then conservationists must rigourously work towards ensuring that sane ecological alternatives are adopted. Consuming industries should, for example, recycle more water and use some of their profits to pay a realistic cost towards additional purification.

One does well to remember, too, that there are those who sit in offices, abstracted from reality, all too frequently get their sums wrong. Thus, it is now realised that Cow Green reservoir, created in Upper Teesdale in 1969 with the attendant flooding of unique late-glacial plant communities, need not have been built at all. for the water demand of industrial Teeside could have easily been met by the Kielder reservoir scheme.

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The Rhetoric: India's White Revolution "A Bonanza to Small Farmers"

Both the World Bank and the Food and Agricultural Oganisation of the United Nations (FAO) stubbornly refuse to publish serious assessments of past projects they have respectively financed and inspired. To do so would reveal how economically, socially and ecologically disastrous they really are, to what extent they contribute to the bankruptcy of Third World countries and to impoverishment and starvation among their inhabitants.

In its "State of Food and Agriculture 1982" FAO published a short assessment of "Operation Flood", a World Food Programme project, largely financed by the World Bank, which aimed at the setting up of an elaborate organisation for shifting milk from the rural areas to the cities.

That the rural people must now sell their milk rather than drink it themselves is taken to be compensated for by the recycling of "some urban income to the rural areas" and the inevitable "increased job opportunities". That only the rich in the cities can afford the dairy produce is interestingly enough held to be of little account because "the majority of the poor people are found in the rural areas". The FAO does not seem to have noticed the mushrooming slum population, largely made up of peasants whose land has been taken away from them by large development schemes of the sort that they devise. The following excerpt paints a rosy picture of "Operation Flood". It would seem as if the vast problems created did not exist.

An outstanding example of change involving small farmers has been carried out successfully in India where extraordinary progress has been made in a highly integrated system of dairy development.

For more than a decade the Government of India has been involved in a large dairy development programme called *Operation Flood*. During the period 1970-81 this received $100 million in value*.

Operation Flood has been successful in building up the infrastructure for milk collection, processing and distribution. About two-thirds of all funds generated from the sale of WFP commodities have been used for this purpose. The processing capacity in the four metropolitan cities increased from one million litres/day in 1969 to 2.9 million litres in 1980, while in the rural areas processing capacities were increased fivefold to 3.4 million litres/day. Feed manufacturing has received about 11 per cent of the WFP generated funds. Sixteen new cattle feed plants, mostly with a daily capacity of 100 tons, had been completed by 1980. The network for milk collection has been enlarged considerably. No less than 27 district unions have been organised containing ten thousand village cooperatives and 1.36 million milk producer members. These village cooperatives procured 800 thousand tons of milk in 1981.

The programme has successfully circumvented caste and sex discrimination. Its benefits are available to all livestock owners, irrespective of caste and the village women, who are primarily responsible for the husbandry and management of the buffalo, participate in cooperative acitivities.

In the cities, dairy products are largely consumed by the wealthier part of the population. In 1980 households of the poorest income segments accounted for about a quarter of the total population in the four metropolitan cities but bought only between 7 and 16 per cent of the total milk supplies. Thus, although *Operation Flood* may have helped somewhat in increasing the milk consumption of the city poor, the effect has probably been small. For some time to come milk and milk products in urban areas will probably continue to be mainly consumed by the higher and middle income groups. However, in developing countries, the majority of the poor people are generally found in the rural areas. Dairy development programmes such as *Operation Flood* can, therefore, assist in recycling some urban income to the rural areas where the poor will benefit either directly as small-scale milk producers, or indirectly through increased job opportunities. The importance of the programme in job creation is considerable. Not only are a range of new service and manufacturing industries dependent upon the milk plants but infrastructure for whole areas including better roads, clinics and houses has been constructed on funds derived from milk sales.

Although hard facts are lacking, it would appear that the effect of dairy development on grain production has been mainly positive. It has been regularly observed that in those villages where dairy societies are functioning well, marked increases in agricultural production are occurring. The reason for this is that the *average* farmer sells only 25-30 per cent of his food grain production and so the sale of even one or two litres of milk each day markedly increases a small farmer's cash income. A substantial part of this increment, commonly as much as 50 per cent is spent on fertiliser, improved seed and the purchase of irrigation water**.

* Groenwold, H H and P R. Crossing. The place of livestock in small farm development: an Indian example. *World Animal Review 15*: 2-6, 1975.

** Brumby, P.J. Milk production in India. Intensive animal production in developing countries. *British Society of Animal Production, 4*: 325-330, 1981.

The Reality: India's White Revolution

Another World Bank Financed Disaster

by Bharat Dogra

On the opposite page we have presented FAO's assessment of Operation Flood. That project is supposed to have been a success and to have justified the vast sums of money poured into it by the World Bank. So much for the rhetoric. Now let us look at the reality as seen through the eyes of a local Indian critic. The latter insists that one must not be fooled by FAO figures on total milk production increases. They must have been largely invented as the data base simply does not exist. On the basis of what local information is available, it would seen that, if anything, milk production has actually fallen.

In any case, what is really important is what happens to the milk, in particular whether it is made available to those who need it, which it undoubtedly is not. Instead, it goes to the cities where much of it is processed into luxury products of doubtful value such as infant milk formula, tinned-milk powder, milk chocolates and butter which only the rich can afford.

Another problem is that traditional *ghee* is no longer produced in the villages affected by Operation Flood. This, among other things, deprives the poor of a by-product, *chach,* which plays an essential part in their diet.

Those are some of the realities—the author describes others—which make Operation Flood just one more of the FAO-devised and World Bank-financed disasters that are creating impoverishment and hunger throughout the Third World.

Milk and milk products have always been a highly preferred item of Indian diet, just as cows and buffaloes (and goats to a lesser extent) have been inseparable components of the Indian farm, where traditionally mixed farming operations combining agriculture, dairying, horticulture, poultry rearing and cultivation of various protective trees were carried out. These various activities tended to support each other; for instance, while animal husbandry provided dung as manure and bullocks as draught power for agriculture, cultivation in turn provided various commodities as food for farm animals.

In the course of time, however, several factors, specially those related to the spread of colonial rule, contributed to the decay of the traditional mixed farming system. In the case of dairying activities, a big problem arose due to the gradual degradation and ruin of the grazing lands. In addition, villages also started experiencing a big shortage of feedstuffs. The production of oilseeds and pulses and with this the availability of fodder for feeding milch animals, stagnated.

Meanwhile the processing of oilseeds (and other farm produce) was rapidly moving from villages to cities, and with this the fodder, instead of being used on the village for feeding animals, was becoming a commercial commodity that was made available to those who could pay the most, rather than to those who needed it most. Naturally the exporters cornered a big share of feedstuffs. Another big share was captured by the dairy owners living in cities and having ready access to the city milk market.

Clearly, the regeneration of village pastures and the provision of fodder to the peasants was a challenge for those formulating dairy development policy in the country. Another consideration that should have engaged their attention was that a large number of the poorer villagers did not own any cattle at all, while many of those who did own one or two cows did not have any land on which to feed them.

Unfortunately, the dairy development authorities in India were not very interested in these basic issues. Their concerns were more limited—more than anything else they were concerned with ensuring adequate milk supplies for the well-to-do living in cities.

For this to be possible, they considered, high milk-producing hybrid cattle had to be systematically substituted for the native breed; and these hybrid cattle,

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as we shall see, do not satisfy the requirements of the local villagers which is clear to all but the dairy authorities, whose priorities are of a very different order.

Meanwhile, others were also becoming interested in supplying milk to Indian cities. These were the dairy technocrats and bureaucrats of the western countries. In the tradition of previous food-aid programmes, they were thinking of donating these milk products to other countries who had gradually become more dependent on such gifts and would eventually start paying for them once they were no longer made freely available.

India's vast urban market seemed to provide a very good opportunity for these dairy technocrats and bureaucrats, especially as there was also the additional promise of selling dairy equipment and plant to this country which they were generous enough to 'aid'.

"Operation Flood" is a Dairy Development Project —it was started 15 years ago. It is based on donated milk products from EEC countries and is largely financed by the World Bank.[1]

In the first stage, Operation Flood (OFI) of the World Food Programme Authorities committed 126,000 metric tonnes of skim milk powder and 42,000 metric tons of butter oil which were to be used for making reconstituted milk in the dairies of four metropolitan cities. Rs 1,164 million obtained from this sale were to be used for dairy development in the country, more specifically for increasing milk production, organising milk cooperatives and strengthening the milk-procurement system in some selected milk-producing areas.[2]

This is the largest dairy development project in the world to which the World Food Programme (WPF) has made its biggest allocation of aid. The project was to be completed in five years (1970-75) but was extended to nearly eleven years. This was followed by the second stage, Operation Flood II (OFII) which operated on an even larger scale. Whereas under OFI, milk grids were to be set up to link Delhi, Bombay, Calcutta and Madras to their major hinterland milk-producing areas, the aim under OF II is the creation of a national milk grid connecting 27 cooperative federations with 147 major cities in India.

That the official figures have been largely invented is even clearer if one considers that the data required for making realistic estimates of milk production in India are simply not available.

Operation Flood has been in existence for nearly fifteen years now. What has it achieved?

The project documents are full of self-praise. Very impressive claims are made. Milk production has been increasing during the OF years as never before, and a substantial contribution to this increase has been made by poor peasants so that their economic condition has improved. Thus the project, as it is publicised, has both the vital ingredients of a successful aid-project, since it has led to an increase in the income of the poor and an increase in the production of a highly nutritious food.

PHOTO: FAO

Milking in rural India.

The truth, however, is very different. The milk production figures on the basis of which the success of the project is claimed are largely bogus. This is suggested by the fact that officials show production exactly at those levels of production, to the nearest rupee, that were set as State targets, suggesting that the hundreds of thousands of cows involved in the scheme can be made to yield milk to order with machine-like precision.[3]

That such figures have been largely invented is even clearer if one considers that the data required for making realistic estimates of milk production in India are simply not available.

This was pointed out, in an article in the *Economic Times* (February 12, 1982) by economist V.S. Vyas. "Up to date information", Vyas writes, "on the vital aspects of dairying is conspicuous by its absence. Even the estimates of the total quantity of milk produced in the country is based on a series of assumptions. What we ultimately get is nothing more than 'guess estimates'. Nobody can say with certainty what is the total of milk produced in a year, much less about the rate of growth in milk production over a period of time, or the precise contribution of various factors in the growth of production. On the basis of the estimates prepared for computing national income data, we find that the total production of milk has been increasing at a snail's pace."

In fact, it is more likely that milk production *has fallen instead of rising during OF years.* In the absence of any improvement in the quality of village pastures, with which OF is not concerned and which has been further deteriorating in recent years, milk production rests to a large extent on the availability of oilcake and other concentrates, and their overall availability in the country has not increased to any significant extent.

Reputed dairy experts have clearly shown that in two situations where the availability of concentrates is the same, more milk production is likely to be obtained

if the concentrates are distributed equally in the country than if it is distributed unequally (i.e. when its use is concentrated in a few selected areas). It is this latter course that OF has followed. Cattle feed plants are being set up in some selected milk-producing areas, which because of the higher feed-purchasing capacity made possible by the availability of vast sums of OF money, a very large share of the limited supply of concentrates is being attracted.

It is more likely then that the overall production of milk has not increased, and it has undoubtedly decreased in those non-OF areas where the availability of concentrates has declined. However, it is also true that during the OF period the "dairy industry" has been greatly modernised and production of infant-milk formulas, tinned-milk powder, milk chocolates, butter, cheese, which only the well-to-do in the cities can conceivably afford, has increased as never before. This means that more milk is now ending up in the stomachs of the well-to-do, leaving as a result, less milk for the poor whose nutritional status the OF project was specifically supposed to improve.

The disease susceptibility and mortality rate among the hybrid cows has been found to be much higher and hybrids also require much more feedstuff. They cannot survive on the meagre diet that is often available for the cattle in the average village. The hybrids also require very much more care, if they are to survive, since they are not as well adapted to heat and other challenges of the Indian environment.

The manufacture of *ghee* is also shifting from the villages to the cities. This means the nutritious by-product left over after the manufacture of *ghee* which is known as *chach* and which traditionally plays an important part in the diet of the poor is no longer available. It even appears that the middle-level peasants may not derive any real benefits from the OF scheme because the cooperatives tend to be dominated by the bureaucracy, as at Anul, the most publicised of the milk cooperatives. Many of these middle-level peasants also suffer, as the small-scale village based enterprises in which they were previously involved have been put out of business by Operation Flood.

It is important to note which sectors of society own the cattle in India since the ownership of milch animals is almost a necessity in this country. The All India Rural Debt and Investment Survey (1971-72) tells us that the bottom ten per cent of rural households (classified according to value of assets) only own one per cent of milch animals. Only five per cent of these people own any milch animals at all. The bottom twenty per cent of rural households own only five per cent of milch animals and among these families only sixteen per cent own milch animals. The bottom thirty per cent are in a slightly better position and own twelve per cent of India's milch animals.[4]

This means there is a vast sector of the population which does not own milch animals and their nutritional status is likely to be very much worse than that of other sectors of the population. The situation is really much worse than these figures suggest since the poorest have very little or no land at all on which to feed their milch animals and for this reason alone, many of their animals tend to go dry. When they do produce milk their yield is lower than that of the better fed animals of the better-off peasants.

Economists V.S. Vyas and N.S. Jodha have drawn attention to this fact. "It would be misleading" they write "to infer too much from the mere presence of a few milch cattle on the small farms. . . There is a close association between dairying and owned land resources. Ensuring a sizeable amount of fodder resources is essential for at least limited stall feeding. This fact tends to belie the generally held impression that owned land is not an important consideration in maintaining a dairy animal.[5]"

Operation Flood has also placed heavy emphasis on the technology of crossbreeding cows for increasing milk production. However the desirability of this technology has been questioned on several grounds.[6] According to Akhil Bhartiya Frishi Goseva Sangh, the consequences of exotic cross-breeding of indigenous breeds of cows have been disastrous as the male calves of hybrid progeny are unsuited to the rigours of Indian agriculture and invariably find their way to the beef market. This makes them unavailable to the bulk of the rural population which cannot conceivably afford beef and would not eat it in any case for religious reasons. Sangh quotes a study of cross breeding in and around Bangalore where as many as 75 per cent of the male calves were reported to have been sold to butchers.

The disease susceptibility and mortality rate among the hybrid cows has been found to be much higher. The hybrids also require much more feedstuff. They cannot survive on the meagre diet that is often available for the cattle in the average village. The hybrids also require very much more care if they are to survive since they are not as well adapted to heat and other challenges of the Indian environment. For these reasons, dairy development based on the use of these hybrid cows is only likely to benefit the relatively big farmers, who by cornering the scarce supply of feedstuffs, will further diminish their availability to the small farmers.[7]

Finally, we may refer to the passage in the widely discussed research-paper *Technological Change in Milk Production*—written by dairy expert K. Narayanan Nair, "Given the unequal distribution of milch animal holdings" Nair writes "the benefits of dairy development are unlikely, in the normal course, to benefit the poorest classes. The efforts made under the various programmes to provide state assistance to enable these segments to acquire more animals do not seem to have been large enough to make a substantial difference to the above picture. The fact that the

relatively weaker sections do not have the resources needed to maintain high quality milch animals makes it all the more likely that dairy development programmes based on cross-breeding, milk-marketing, processing and distribution would hardly benefit them, instead the benefits would mostly accrue to the better-off segments. And in the long-run, such efforts may even contribute to the acceleration of the process of concentration of asset ownership in agriculture rather than to a broad-based growth of dairying the benefits of which are more equitably shared by different segments of rural society.[7]"

The international agencies and development banks have benefited since they have found a large scheme to finance which justifies their existence, provides jobs, increases their influence and benefits the industrial communities on which they depend for their finance and survival.

Who then has benefited from Operation Flood?

Not the villagers. The production of dairy products has in certain areas passed out of their hands since they cannot compete with the capital-intensive, highly-financed cooperatives and since the hybrid cattle being made available today are of little use to them. The poorer among them have also been deprived of *chach*, the by product of making *ghee*.

Land and feedstuffs have partly been taken over by the cooperatives for producing milk and expensive milk products which are sold to the cities whose inhabitants alone are able to afford them. The villagers may eventually be faced with a shortage of draught animals as the hybrid bullocks, which have no use for this purpose are sold off to butchers in the cities.

Indeed those who have really benefited are the industrial nations and their own highly pampered dairy industry. They have managed to get rid of vast milk surpluses largely produced with the aid of unnecessary subsidies from the Common Market. Companies manufacturing dairy equipment have also benefited since the cooperatives are ready markets for the machinery they produce, which peasants can never afford. People living in the cities have profited since they now have access to a more abundant supply of expensive milk products. The politicians have profited since the cooperatives are easier to administer while they have done a favour to the peasants and the urban dwellers who generate the income they require to keep their government in power.

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References:

1. *Another Revolution Fails,* edited by Dr Claude Alvares, Ajanta International, New Delhi.
2. See various official Operation Flood documents. For instance the one titled "Operation Flood — success story of the World's Biggest Dairy Development Programme."
3. Official data on targets and achievements of milk production for the year 1981-82 (in thousand tonnes).

Name of state	Target	Achievement
Sihar	2035	2035
Gujarat	2376	2376
Haryana	2100	2100
Punjab	3514	3514
and so on		

4. Reserve Bank of India, Department of Statistics, *All India Rural Debt and Investment Survey* (1971-72) Special Table on Livestock, Agricultural Machinery and Implements.
5. "Contribution of Dairying to Rural Economy, with particular reference to small and marginal farmers" by V.S. Vyas and N.S. Jodha, included in proceedings of the XIX Dairy Congress published under the title *Dairying as an instrument of change.*
6. (a) Technological Change in Milk Production — A Review of some critical issues, with reference to South Asia, *Economic and Political Weekly, Review of Agriculture,* March 1982.
   (b) Cross-Breeding of Indian Cattle—An Evaluation, by A.R. Rajapurohit. *Review of Agriculture,* March 1979.
   (c) *Operation Flood II.* Some constraints and Implication by Surendar Singh, EPW, October 27, 1979.
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A Glimpse of India

by Sedley Sweeny

Sinking a tube well, Amarpurkashi, India.

We wrote about that very remarkable man, Sedley Sweeny, and his attempts to preserve Tibetan agriculture traditions in the September 1971 issue of the Ecologist. Fourteen years later, he tells us of his valuable impressions of how development has affected rural life in India and the life of his Tibetan refugee friends who now reside there. He also tells us of the impressive work undertaken by Mukat Singh and the Amarpurkashi Rural Polytechnic.

My wife and I first went to India in 1966 as administrators for the Save the Children Fund. Our main task was the running of a home and school at Simla for 270 orphan Tibetan refugee children. At that time the majority of the Tibetan refugees were employed on the Himalayan roads in abject poverty and hardship. But any work was better than none, and these tough, cheerful people, many of them formerly farmers or herdsmen, faced their tribulations with extraordinary courage, optimism and serenity.

The Himalayan Foothills

Our work took us to many of these wretched road camps, seeking lost parents and trying to re-unite scattered families. From Simla to beyond Kotgarh near the Tibetan frontier, up the beautiful Kulu valley to Manali and the Rhotang Pass, to Dalhousie near the Pakistan border and southeastwards via the valley of Jubbal to the hill station of Mussoorie, our 'beat' covered some of the most breathtaking scenery in the world.

The wonderfully terraced hillsides with their tiny, deep-green wheat fields, the villages clinging to precipitous rock faces, the long intricate water channels leading from far-off springs around the hillsides to irrigate the terraced fields, the village compost heaps (to be carried in baskets for all bore witness to a self-sufficient agriculture that had changed little over the centuries. But change *was* already in the air; apple orchards were being planted to feed markets in the cities, and—horror of horrors!—I saw some terraces being removed to allow potato ridges to be mechanically raised *up and down the slope* to supply another growing market.

Tibetan Rehabilitation

Our work took us frequently via Haryana and the Punjab to Delhi, through the richest farm land in India, where the husbandry was already becoming mechanised and based on cash-cropping.

In Delhi I attended regular meetings of the Central Relief Committee, an Indian organisation designed to co-ordinate relief and resettlement of the 85,000 Tibetan refugees (there are now 100,000.) American, Canadian, British and European charities and Governments, with the worthiest of intentions but woefully lacking in knowledge and experience of Indian

Sedley Sweeny, *a retired professional soldier, engineer and farmer, has worked with Tibetan refugees and on Indian rural development for many years.*

conditions, were pouring money, advice and modern equipment into a score of new Tibetan settlements, the land for which (mainly jungle) was donated by the Indian Government. This land was transformed, almost overnight, into large farming communities, not unlike Israeli kibbutzim, designed to grow crop after crop of maize or rice for sale in the cities. A semi-modern woollen mill with machinery from Bradford, a citrus plantation, a tea garden and a limestone quarry (all of which subsequently failed) were variations on this 'cash economy' theme.

At the Bhandara settlement in Maharashtra a large dam and reservoir was built to irrigate the reclaimed jungle, and since the early 1970s two crops of rice have been grown *each year!* At the Bylakuppe settlement near Mysore, where no irrigation is possible, continuous maize has been grown for a similar period. The Tibetan settlers, who are very well organised and hard-working, have been provided with a large number of 50HP tractors and heavy disc ploughs which they maintain well and use on a community co-operative basis, cultivating large tracts of the rolling countryside in single operations. The Tibetan smallholder, who owns two or three acres of this land, merely sows, fertilises and reaps his crops; the rest is done by the co-operative. In neither of these settlements can the individual make any real attempt to be locally self-sufficient.

The Hills and Plains Revisited

I have been back to India four times in 1977, 1984 and 1985, visiting my Tibetan ex-students at Simla, Mussoorie, Bhandara and Bylakuppe. During the same trips I have spent many weeks at the Indian project 'Amarpurkashi Rural Polytechnic' in the Ganges plain near Moradabad.

In the Himalayan foothills, the growth of large fruit orchards is immediately visible, as is the availability of eye-catching red apples and bottled apple juice in up-market city shops. Rashes of new luxury hotels cover the hillsides of Simla, Mussoorie and other Himalayan centres. The beautiful Mussoorie Hills are horribly scarred by limestone quarries feeding the cement factories that have sprung up between Rajpur and Dehra Dun just below.

At the Maharashtra settlement they have problems. The virgin jungle soil of 12 years ago is rapidly losing its humus. More and more artificial fertilizer is needed, with new strains of seed, to produce a diminishing harvest. Pests and diseases are on the increase, demanding more and more pesticides. On this cash-based economic treadmill, the Tibetan settlers cannot afford the time to grow their own food nor the money to buy an adequate, healthy diet.

At Bylakuppe, a similar picture emerges, but not as desparate as in Maharashtra. Although care is taken to plough on the contour and a few uncultivated headlands are left to check erosion, the soil is steadily being turned downhill by the deep ploughing and washed down further by the monsoon rains. Mono-cropping (only one crop a year watered by the monsoon) has taken its toll, and the humus level in the once-rich soil is rapidly being burnt up. Although this is one of the most successful Tibetan settlements, the prospects for the next ten years are not good unless fertility can be rebuilt and exploitation reduced. Can they afford to submit to such discipline? They cannot afford not to!

A Long-term Indian Project

The Amarpurkashi Rural Polytechnic is based on ten farming villages in the Ganges plain. Underlying the rich soil is an excellent water-table which has been exploited by tube wells over the past decade to bring four fifths of the land under irrigation. This has been sugar-cane country for many years, but the proportion of land in cane has risen rapidly to 75 per cent since tube-well irrigation was introduced. Cereals and vegetables for sale have steadily increased, as have the yields per acre under the "Green Revolution" with its exotic hybrid seeds, fertilizers and pesticides. But, as the villagers are quick to point out, "the chappatis don't taste the same as in the old days". A new and growing market for menthol has triggered a surge in mint culture, and extraction plants are springing up on all sides. A major problem of these enterprises is that the whole crop is removed to the extraction plant and nothing (except artificials) is returned to the soil.

Milk from the village cows and buffaloes is sold through the co-operative, most of it to a nearby baby-food factory. Cattle dung, mixed with straw and chaff, is dried for cooking fuel, and little goes back to the fields.

A recent examination of the top and sub-soil after three out of four years in sugar cane, shows a shortage of humus and very bad panning; the latter made worse by regular "flood" irrigation.

The villagers are generally malnourished although their land could provide a near-perfect diet for them all.

The Rural Polytechnic, conceived and founded by Mukat Singh, has a rural and agricultural thread running through every stage of education and training. Mukat is well aware of the need to reverse the exploitation and to return to organic husbandry as the basis for local self-reliance and well-being. He also realises that it is impossible to impose any system on the villagers and that all change must come from example and demonstration. His plan is to start a model family-sized dairy and poultry farm on his own land, together with vegetable and fodder-crop growing; all on organic lines. His project has been described in detail elsewhere.

Conclusion

Like so many developing countries, India has fallen prey to Western economic philosophy, and, in the process, is becoming two nations. Ten per cent are dong very nicely in the affluent, modern world, while the masses seem, at first sight, to have no option but to abandon their old skills and self-reliance and mount the cash-making treadmill. What makes it even more difficult is the fact that the sohpisticated part of India is already a very advanced nation indeed and that a 'North-South' divide is already well established within the sub-continent. But within the advanced community are many wise men, like Mukat Singh, who can see the dangers ahead and who have the courage to strike out on radical lines towards a sustainable way of life. Let us wish him and his allies well, and hope that he is not too late.

Nitrates in Food
Another Government cover-up?

by A. H. Walters

It has been Government policy to encourage farmers both by direct subsidies and via advice provided by ADAS (Agriculture Department Advisory Service) to make the maximum use of nitrogen fertiliser so as to maximise short-term returns and also presumably so as best to serve the interests of the powerful Agrochemical Lobby.

No research has been undertaken to establish the effects of the massive increase in fertiliser use either on the quality of the food produced or on the health of the people who must eat this food.

Worse still, evidence, largely from abroad, establishing that such food contains a high level of nitrates, which under certain conditions are transformed into nitrates, and further evidence that nitrates in food constitute a health hazard, have either been ignored or systematically played down.

Neither the fact that nitrate levels in certain vegetables grown in the UK have been found to be more than four times higher than the maximum permitted in the Netherlands, nor the fact that the Royal Commission on Environmental Pollution recommends that a study should be undertaken on the nitrate content of foodstuffs in this country, have persuaded our Government or its scientific advisers from changing their irresponsible policy. Indeed, a recent report by the Royal Society actually urges a further increase in the use of nitrogen fertilisers.[1]

Any mention of the nitrate controversy will inevitably involve discussing the use—and possible abuse—of artificial fertilisers. We all know that nitrate use is an essential ingredient of agrotechnimech farming. What is not generally known is that when nitrate is used to excess, the food produced becomes loaded with the chemical.

Can government policy, which has promoted the addition of increasing amounts of nitrate to our soils, be justified?

Agricultural/Environmental Research

With regard to the nitrate controversy, I attempted to sum up the present position on behalf of the Farm and Food Society in a submission to the House of Lords Select Committee on Science and Technology as follows:[2]

> British agriculture is an efficient industry with a well-defined scope and ramifications. It contributes very significantly to the British economy and is represented by comparatively wealthy and widely influential articulate commercial interests. These powerful bodies naturally exert considerable pressure on determining what is and *what-is-not* useful research.

Obviously the research of private firms is financed and directly concerned with developments in the commercial field. Government-sponsored research traditionally largely reflects this position at both the academic and technological levels. Such an orientation limits areas of research which can be considered as acceptable. It has produced an official attitude of mind which tends to exclude any projects which may be interpreted as offering criticism of, or alternatives to the traditional concepts.

The decision-makers in the various fields of research consider that their experience has taught them exactly what is needed. Hence all research must generally fit in with the present system which is designed solely to serve industry. To paraphrase Professor Bauer, it is an example of 'market thinking politicisation'. This means research with a political bias, as applied to agriculture.

By contrast, beyond the confines of the Ministry of the Environment lies an ill-defined entity which ranges over a great number of disciplines and interests. Those concerned vary from highly responsible conventional people to the extremely unconventional. Particularly among the latter, attitudes which take into consideration business and economics may frequently be hard to discern or may be totally absent. Nevertheless, in all stages of these activities, there is a monitoring element centred on public interest as distinct from commercial interest.

In the environmental field, privately funded research is conducted by firms or professional bodies directly concerned with some specific environmental activity. This applies to matters like town and country planning, waste disposal, roads and much else besides. In some instances there may be collaboration with government-funded research. Sometimes this collabor-

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ation can apply right across the board to include agriculture. However, if public groups or independent individuals call for research which touches both on agriculture and the environment, such demands are often considered irresponsible.

Such outsiders rarely have sufficient funds or facilities to conduct meaningful research. Their proposals may, in any case, even challenge the system. But the official Government view holds that the environment can be protected only at the expense of economic progress. Hence, economic progress in the short term comes first, and any long-range view concerning the environment a poor second.

Such official thinking may, in some cases, be dangerous. It does not necessarily apply only to agriculture or the environment. Sir Richard Doll, FRS, an eminent medical man has stated, ". . . new ways need to be found for providing Government with authoritative scientific opinion that can be seen to be independent of the interests involved.[3]" This could be another way of saying that Government-sponsored scientific research may be biased in the direction of short-term economics. With regard to agriculture this is certainly true, as can be exemplified by the nitrate controversy.

Independent Assessment of Research Projects

Frequently problems which arise at the agriculture/environment interface are primarily based on commonsense observation. Initially they may even appear to lie outside the market thinking politicisation of the decision-makers.

Yet farming is no longer a closed shop; on the contrary it is becoming a political hot potato. Tens of thousands regularly watch the farming programmes on television. Never before, in the history of farming, have the methods of growing food been brought into the family sitting room.

At the 1984 NFU Annual General Meeting, Mrs Mary Crocker of the Dorset and Wessex Poultry Region openly said that the public had a *right* to hold opinions about how food is produced[4].

One-sided Policy and the Mansholt Plan

A review of the past few decades of British farming indicate that Government-sponsored research has been one-sided. It has leaned over backwards in an effort to assist short-term economics. This bias accounts largely for at least three major problems we face: overproduction, environmental pollution and a potential health hazard. Meanwhile what has already happened in milk production foreshadows the shape of things to come. Among other measures, every farmer knows that for the last two decades he has been steadily encouraged by ADAS (Agriculture Department Advisory Service) and the fertiliser industry to use more and more nitrate. As a result, increasing quantities of food of all kinds are being produced, chiefly dairy products, cereals, vegetables and some fruits. Abroad the use of nitrate extends from tea to grapes.

Within the EEC, over-production has been paid for by a subsidy system which went beyond rational limits. This device put out of all proportion the normal calculations relative to cost/profit ratios. From the nitrate viewpoint, the process seems to have gone something like this: sow as closely as possible; encourage maximal growth of crops and grassland under prevailing conditions; annually add to the soil increasing amounts of artificial fertiliser, if you can get away with it. *Ipso facto,* this has led to a greater need for pesticides and herbicides. In a letter to the *Daily Telegraph* Mr Chris Rose stated: "If one is looking for villains, then it is the Ministry of Agriculture which is most to blame. It is the Ministry, more than industry, which insists that pesticide safety and environmental hazard clearance data should be kept secret, and which refuses to give the Pesticides Safety Precaution Scheme the force of law, even though companies are deliberately violating the rules.[5]"

This is just another example of one-sided Government policy leaning over backwards directly to support production, and, indirectly, the AI.

As far as the EEC is concerned, such policies go right back to the Mansholt Plan which was evolved and put into practice long before the UK became a member. True, originally, it was supposed to protect the smaller farmer. Actually what happened was the evolution of an 'industrialised, specialised, integrated, mechanised and enlarged' farming policy. In many instances, this resulted in an urge to merge or buy into ever larger units. Some university and other independent scientists perceived what was likely to happen and sounded appropriate warnings. But they were shouting against the thunder of short-term economic 'progress', and so went unheard.

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In 1970 I visited Holland, and, while there, made it my business to see the farm in which Mansholt was born. The area was as flat as a pancake. I also met scientists there who thought that there was insufficient research being done to investigate and monitor the consequences of applying the Plan on other types of farmlands. On the other hand, it must be admitted that most Government-funded scientists at that time had to toe the Party line so that their work would justify the market thinking politicisation. These scientists, together with those employed in industry, vastly outnumbered the few who wanted a check on this headlong rush into expanded agrochemimech farming. Thus the one-sided research policies went into action unchecked and unmonitored for the most part. They are still going that way, to some extent.

On my return to the UK, I wrote: "The Common Market has a Mansholt Plan which is a complete

triumph in planning for the Monoculture Society. It involves the integration of Big Business philosophy into farming, *in toto;* the elimination of small units, the take-up of even bigger units into components of an overall system. Efficiency will be increased as standardisation progresses, says Mansholt, and the Plan is designed so that the landscape will move, whenever possible, away from an expression of the individuality of many smaller farmers towards a reflection of the centralisation policy governed by the few [6]."

Mansholt Recants

Since I was among the small minority of early critics I am speaking from personal experience. However, in the fullness of time, when he realised how vested interests had used his Plan to gain commercial and financial dominance over farming in the EEC, Mansholt recanted. By then the damage had been done. He had started a juggernaut which, once it began to roll could not be stopped. And it is still rolling, hence the problems we now encounter. This juggernaut became known as CAP, the Common Agricultural Policy.

Having acknowledged that one-sided Government policies have spawned the great problems of over-production, suddenly the call is for the farmer to cut back. Easier said than done. One way might be to use less fertiliser. This would, at least, help to cut costs. If he does this, the efficient farmer may be surprised to find that he might even be able to live better on less. Another suggestion that has been made is to put a heavy tax on fertiliser as a way of reducing its excess usage. Whether such a move is practical or not depends more on the commercials and the economists rather than the scientists.

The Royal Society Report

We must now turn our attention to the next two problems, namely the effect of persistent excessive use of artificial fertilisers on the environment, and excess nitrate in foods as a potential health hazard. At this point I must refer to a Study Group Report issued by the Royal Society in London.[7] So great has the reputtation of the Royal Society become, that it is regarded worldwide as representing the acme in scientific matters. So much so, that there is no greater honour for a scientist than to be elected a Fellow of that august institution. Any publication issued under its aegis carries the full weight and authority of the Scientific Establishment.

With regard to the Nitrogen Cycle Report[7], the membership of the Study Group numbered twenty-four, only five of whom were Fellows of the Royal Society. All the members were employed at universities or Government-funded institutions of some sort, with one exception, who worked at the Fertiliser Industry Advisory Committee of the UN Food and Agriculture Organisation. The report quotes 510 references to relevant scientific work. Not one is presented which sounds any hint of criticism of UK Government-sponsored research policies. The report is the work of a closed shop.

This comes in sharp contrast to a report by the US National Academy of Sciences, the equivalent of the Royal Society.[8] For the compilation of this American Report, twenty-four named persons from research laboratories, industry and independent organisations, including myself, were invited to provide information. Thus the US report was very much the work of an open forum.

But, unfortunately, not for the first time, the Royal Society does not appear to have followed that line. For instance, in connection with another piece of research, Mr D. McPhillimy recently wrote, "We think it a pity that the good name of the Royal Society is being tarnished by allowing it to be linked to research that has such political overtones."[9]

Being composed of top scientists, Fellows of the Royal Society are not normally exposed to the rough hurly-burly of industrial life and the political lobbying that goes with it. By sheltering under the umbrella of such a body, those who have had to toe the line laid down by Government policy all these years now seek unassailable respectability. It is therefore the implications of interpretation of research results, as presented by the report that require the closest scrutiny.

Nitrogen Cycle of the United Kingdom

Annual fertiliser usage in the UK over the period 1928-1980 is shown in the Royal Society Study Group Report in a graph. From 1981-84 the trend of increasing use has continued. It reminds one of a term used formerly by physicians to describe a condition called miliary tuberculosis, namely 'galloping consumption'. When the disease had reached that stage it was usually lethal. As the graph shows, UK agriculture is now suffering acutely from galloping consumption of nitrate. (Fig 1)

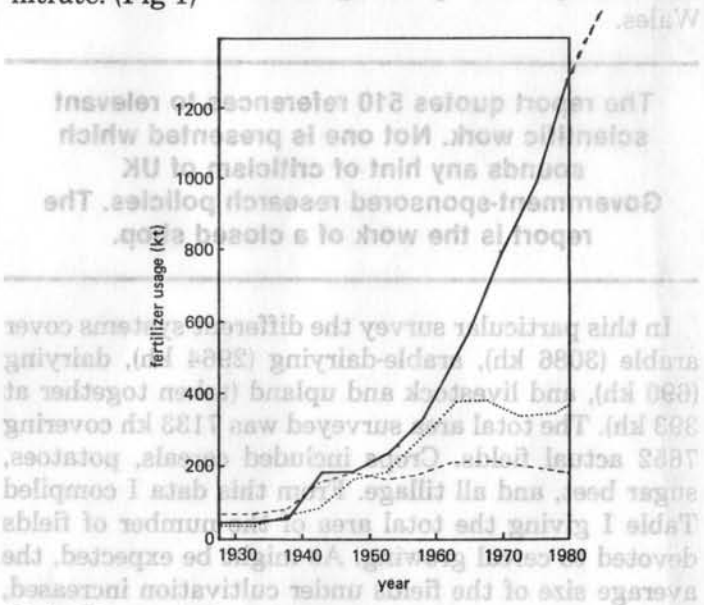

Fig 1 The trends in annual fertiliser usage in the UK during the period 1928-1980
_____, N; — — — —, P; . . . . ., K. (after (44, 45)).

Yet, in the face of such evidence, the report states: "The increased use of fertiliser N (artificials) in UK agriculture, in conjunction with the introduction of better crop varieties, livestock breeding methods, crop protection and pharmaceutical products, has played a major part in improving the quality and quantity of UK crops and livestock in the last 30 years. Despite

advances in agricultural productivity, there is still substantial potential for greater intensification of UK agricultural production. This would require, along with other inputs, the *use of more fertiliser N*, particularly on grassland." (p 43)

In the report, this commitment to ever-increasing use of artificial fertiliser is re-stated, time and again. For instance: "In the foreseeable future, this increased agricultural production will require the addition of *more fertiliser* than is applied at present." (p 53) Again, "There is still scope for *increased use of fertiliser N* on grassland, and it is calculated that in England and Wales by the year 2000 an additional 350 kilotonnes of N may be applied annually to grassland; that is, about *40 per cent more than is applied* at present." (p 66)

And yet one more example: "We conclude that fertiliser will remain the principal source of nitrogen in the foreseeable future, and that the *annual rate of application is likely to continue to rise* if maximum crops yields are to be achieved with existing crop varieties." (p 19)

It is very difficult to understand how such total official support for increased production can be made in the face of the problem of over-production. There could be no clearer proof of the Government's one-sided research policy hitherto.

Royal Society Report: some results on cereals

While much of the research referred to is primarily academic, some is of considerable practical importance. For example, Table 17 in the Royal Society Report summarises the amounts of fertiliser N and farmyard manure (FYM) applied to major tillage crops in different systems operating in 1979 in England and Wales.

The report quotes 510 references to relevant scientific work. Not one is presented which sounds any hint of criticism of UK Government-sponsored research policies. The report is the work of a closed shop.

In this particular survey the different systems cover arable (3086 kh), arable-dairying (2964 kh), dairying (690 kh), and livestock and upland (taken together at 393 kh). The total area surveyed was 7133 kh covering 7652 actual fields. Crops included cereals, potatoes, sugar beet, and all tillage. From this data I compiled Table I giving the total area of the number of fields devoted to cereal growing. As might be expected, the average size of the fields under cultivation increased, as the systems used progressed from livestock-upland to purely arable for cereal growing. In the same survey, the amounts of fertiliser (N = artificial: FYM = farmyard manure) applied to the cereal crops is shown in Table 2.

As expected, the greatest use of organic manure occurred in the dairying system. However, I doubt very much whether, in many of the arable cereal growing areas as much as 7-9 per cent FYM was actually applied, if in some instances, any at all. In fact, the actual amounts of fertiliser generally applied for cereal growing were shown in another survey issued by the Fertiliser Manufacturers Association on work done at Rothamsted by B.M. Church and P.K. Leach.

According to my calculations (I am open to correction) such quantities are roughly equal to up to one hundredweight per acre which seems very conservative. It certainly does not look like galloping consumption as shown in the first graph. How these two presentations tie in is difficult to imagine.

Two years later, in 1981, B.M. Church undertook another survey of crop areas receiving different amounts of fertiliser N in England and Wales as shown in Table 3.

Compared with the average figures quoted for the

Table 1
No. of fields & Total Areas Growing Cereals in each System

	ARABLE		ARABLE DAIRYING		DAIRYING		LIVESTOCK UPLAND	
Crops	Fields (no.)	Area Kha	Fields (no.)	Area Kha	Fields (no.)	Area Kha	Fields (no.)	Area Kha
Winter Wheat	984	621	872	512	201	81	156	55
Spring Barley	733	385	1050	546	358	162	229	97
Winter Barley	332	187	472	225	143	64	68	21

Ref: 'The Nitrogen Cycle of the UK' (1983) Roy. Soc. Study. Group.

Table 2
% Cereal-Growing Area Receiving Fertilizer (N) & Farmyard Manure (FYM)

	ARABLE		ARABLE DAIRYING		DAIRYING		LIVESTOCK UPLAND	
Crops	N	FYM	N	FYM	N	FYM	N	FYM
Winter Wheat	98	7	100	18	100	22	96	12
Spring Barley	98	9	99	22	98	37	96	18
Winter Barley	99	7	100	13	97	23	97	21

Ref: 'The Nitrogen Cycle of the UK' Roy. Soc. Study Group.

Table 3
Cereals — % Crop areas/amounts of Fertilizer Used (Kg/N/ha) 1981

No. of Fields	Crops	100	125	150	200	250	300	N/Kg/ha
69	Spring Wheat	40	19	39	1	0	0	
2065	Winter Wheat	19	18	46	16	2	0	
1915	Spring Barley	66	16	7	1	0	0	
1263	Winter Barley	29	27	35	8	1	0	
126	Spring Oats	85	1	1	1	0	0	
155	Winter Oats	69	26	9	4	0	0	
24	Mixed Corn	100	0	0	0	0	0	
21	Maize	61	20	17	0	0	0	

Ref: 'The Nitrogen Cycle of the UK' (1983) Roy. Soc. Study Group.

1979 survey, in 1981, the amounts of fertiliser applied for winter wheat appeared to be considerably higher. One wonders if the yields had similarly increased. The Royal Society Report states, "Applying N fertiliser to a wheat crop today is just as profitable in cash terms as it was 25 years ago." (p 60) Even if that were true of the past, the question is will it be true in future?

Vegetables

Compared with what appears to be the inexorable upward trend in fertiliser usage for growing cereals, the position with vegetables verges on the dramatic. The results of a survey by B.M. Church of Rothamsted quoted in the Royal Society Report are shown in Table 4. Although most experienced observers would say that the figures given are again conservative, nevertheless they speak for themselves, especially in the case of brussel sprouts. No figures are given as to the amounts of *excess* nitrate uptake into the vegetables.

Yet the extent to which excess nitrate uptake can occur was amply demonstrated over fifteen years ago in laboratories in many different parts of the world. Many references to such work were given in a paper which I published in 1970.[10] In 1972, I was invited by WHO/IRC to lecture on the subject in Switzerland.[11] Serious notice of this work was taken in Switzerland and Holland and today, in both these countries there are now legal limits in force for nitrate levels in certain vegetables. In UK, no official notice appears to have been taken of this work, and even in the Royal Society Report there is no mention of it. In view of our Government's policy that is hardly surprising. From the scientific angle, for a long time it has been well known how nitrate in plants can, after harvesting, break down to nitrite which is toxic. In this respect, the recent work of Claude Aubert in France on 'Les nitrates dans les legumes' is very revealing.

Not only does Aubert's work show how the uptake of nitrate into plants rises in relation to the amount of fertiliser applied to soil in which the plant is grown, but also how, during transport and storage, it may break down to nitrite. The rate of breakdown to nitrite will vary according to the type of plant, method of cultivation, weather, method of harvesting, and type and time of storage before sale.

In Switzerland and Holland the permitted levels for nitrate in some common salad vegetables must not exceed 4000 mg NO_3/kg in the former, and 5000 mg/kg in the latter. In lettuce on sale to the public in the UK, Dr J.R. Fletcher, Farnborough College of Technology, has found levels up to 22000 mg/kg nitrate. At the moment I am unable to say what the parallel position is in regard to cereals, but obviously the position needs looking into.

In the face of such data it is little wonder that the recent Royal Commission on Pollution considered that "Better information was needed on the nitrate content in foodstuffs as consumed, and they accordingly recommended that a study should be undertaken. The Government agree."[13] When set against the Royal Society Report, this makes very strange reading.

Table 4
Vegetables — % Crop areas/amounts of Fertilizer Used (Kg/N/ha) 1981

No. of Fields	Crops	100	125	150	200	250	300	+400	N
170	Peas for humans	96	0	3	0	0	0	0	
34	Runner and french beans	52	6	30	12	0	0	0	
40	Brussels Sprouts	21	2	14	21	17	12	14	
37	Cabbages	22	6	15	6	30	17	4	
62	Cauliflower	35	10	15	10	21	4	6	
41	Onions	43	9	22	10	14	0	0	
74	Small fruit	79	2	5	11	2	0	0	
116	Top fruit	58	20	13	1	1	0	0	
221	Oilseed Rape	2	3	4	18	53	20	0	

Ref: 'The Nitrogen Cycle of the UK' (1983) Roy. Soc. Study Group.

Human Intake of Nitrate

Since the amount of nitrate and possibly nitrite appears to be increasing in the food the farmer grows, one needs to ask what might be the human intake of these chemicals? In the Royal Society Report, the following table is taken from the Royal Commission on Environmental Pollution as shown in Table 5.[15]

All such intake figures must be viewed with considerable caution. In practice, they will vary according to age, diet and the local customs and culture. In places where high average concentration of nitrate was known to exist in the drinking water, high levels of nitrate intake have been found in the local population, as confirmed by urinary analysis. Formerly, such a situation was found in Worksop where it was noted that excess nitrate came from run-off and percolation resulting from local agricultural practices. Since then, all water authorities in the UK have striven to reduce the nitrate levels in drinking water to the WHO recommended level of 11.3 mg nitrate-N/1 (50 mg NO_3/ kg).

Moreover, the Royal Society Report acknowledges the worldwide increasing levels of nitrate in drinking water (p 175). Despite an expression of such concern, the effects of continued ingestion of increasing levels of nitrate in vegetables and other foodstuffs on the health of children and adults are unknown.

What is known is that some humans are more sensitive to toxic substances than others. Also, in some exceptional instances, ingested nitrite may in some way break down further to carcinogenic nitrosamines. A condition under which that event may occur is des-

Table 5
Calculated Human Intake of Nitrate from various Sources

Foodstuffs	Weekly intake of foodstuff	Nitrate content in foodstuffs (as NO_3)	Human weekly nitrate intake as NO_3 (mg)
Meat Products	370.00g	100mg/kg	37
Milk	2.89 litres	30mg/l	87
Cheese	110.00g	45mg/kg	5
Vegetables	1.12kg	200mg/kg	224
Potatoes	1.05kg	60mg/kg	60
Water (variable)	7.0 litres	15mg/kg	105
		Total	518

Ref: 'The Nitrogen Cycle of the UK' (1983) Roy. Soc. Study Group.

cribed in my paper on 'Nitrate Controversy and Cancer Causation: an Environmental Viewpoint'.[15]

In a contribution on nitrosamines and cancer, Dr V.M. Craddock has pointed out, "However, there are many ways in which nitrosamine levels in food and manufactured products can be lowered, *in vivo* nitrosation can be reduced, and potentiating risk factors, such as micro-nutrient deficiencies, can be remedied. These measures should reduce the incidence of diet-related and environmental cancers."[16]

It is known that excess nitrate in the plant may result in an imbalance of such micro-nutrients in food. This may contribute, either directly or indirectly, to the development of such conditions as dyslexia and/or mental retardation in some children, as pointed out by Dr E Lodge Rees.[17]

One thing is certain. If food contains excess nitrate and is constantly eaten, some people are potentially at risk in some way or another. In spite of this, an editorial in *Grower* reads: "For a long time now Dutch growers have had to deal with statutory limits for maximum nitrate contents of some leaf vegetables; these currently apply to spinach, endive and lettuce. But in Holland the list is about to be extended."[18] There are similar but more extensive regulations in force in Switzerland. The *Grower* editorial concludes, "Every grower in the UK should take careful note of what is happening and be ready to fight off any attack when it comes. The nitrate threat could be one of the most serious the industry has yet faced."

At the other end of the scale, we have the following example of under-dramatisation in the words of a MAFF spokesman, "We are aiming at a policy of agriculture for a plentiful and varied supply of food. The health of the individual is a matter for that individual. Health issues are the concern of the DHSS, not us." Could we take such a crass statement to mean that no links are recognised between good health and good food? Yet according to Drs Berry and Buss[19] ". . . In much of the work relating patterns of morbidity and mortality to diet, the principal source of information about eating habits has been the national Food Survey conducted by the MAFF.[20]" So it rather looks as though the righthand side of the Ministry doesn't know what the lefthand side is saying.

Conclusion

Historically, the development of Government-sponsored research in agriculture and the commercial development of artificial fertilisers has gone hand in hand. That close collaboration, based on meeting the need for more home-grown food, has produced a one-sided policy for UK Government-sponsored research which has been essentially geared to short-term economic necessity.

The pursuit of such a policy, together with the powerful commercial thrust from the chemical fertiliser industry, has made the farmer the victim of galloping consumption of nitrate. This has led to the uptake of increasing quantities of nitrate and nitrite in food. Warnings that this would happen have consistently been sounded for many years by independent scientists to whom the public are now beginning to listen. Only now has the Government at last conceded that it requires better information on the nitrate content of foods, but there are no signs that legal limits will be enforced, as in Holland and Switzerland.

Had successive Governments heeded the clear early warnings, then research aimed at monitoring the effects of *excessive* use of nitrate could have been instituted long ago. Had that happened, then, at the same time, further research would have been necessary to look into complementary and/or alternative methods of nitrogen supplementation in order to obtain the required yields.

Even now, I contend that it is the farmer who should be demanding such research, because it is he who will now be paying the price for the short-term economic payload policies which have precipitated the present problems of over-production, environmental pollution and potential hazards to health.

In the words of a MAFF spokesman, "We are aiming at a policy of agriculture for a plentiful and varied supply of food. The health of the individual is a matter for that individual. Health issues are the concern of the DHSS, not us."

Since these problems are not confined to the UK but affect all the EEC, perhaps the growing importance of public opinion should also be considered. I will leave the last word to Monsieur Jean-Paul Civet, Secretary-General de la Union Federal des Consommateurs, who wrote, "We need to make a fundamental reorientation which only organised consumers can bring about. These are questions that can be asked only from the outside, from another viewpoint, and it is there that the discussion and the debate is both useful and necessary."[21]

Acknowledgement

My thanks to Mrs M.A. Barnett, President, and to Mrs J. Bower, Hon Secretary of the Farm and Food Society, for encouragement and assistance in preparing this paper.

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This article is based on a lecture given to the Andover Branch, NFU, Oct. 1984.

Books

How to tackle Officialdom

HOLDING YOUR GROUND—AN ACTION GUIDE TO CONSERVATION, by Angela King & Sue Clifford. Temple Smith, £5.95.

The success of *Holding Your Ground* lies in the passion of its writers for the spiritual, historical and personal values of conserving what is dear to local people. They illustrate this with many apt quotations from verse and prose, past and present, which celebrate not only the big things but the little ones too: 'We need little, low unspectacular corners which can carry special resonances for us alone. These local views and familiar landscapes, these commonplace flora and fauna, are the more valuable for being easily accessible . . .' which Frazer Harrison wrote in *Second Nature*, an anthology edited in 1984 by Richard Mabey and Angela King and Sue Clifford.

My own Resident's Association, like many others I'm sure, is learning the importance of impressing upon those who make environmental decisions how much familiar, local things mean to locals; they form a setting, too, for the impressive things everyone is now prepared to protect. This book assembles telling arguments for that purpose which should disturb the conscience of the most indifferent of self-interested of councillors or officials.

In practical terms how does one go about tackling officialdom? On this theme the book is exhaustively informative. Although there have been many other excellent books on this theme, they have to be kept up-to-date. We are told how local government works, how to raise money and help—with the names and addresses of relevant organisations. In addition specific examples of the need to conserve are listed: buildings, historic landscapes, ancient monuments, hedges, trees and verges, 'open country'—bet you don't know how this is 'officially' defined—commons, footpaths and bridleways and much more. How to combat farming pollution.

All this is dramatically kept alive by case histories such as that of the Donyatt Railway Cutting in Somerset or the campaign for Cowpasture Lane in Suffolk—splendid instances of causes which seemed to be lost being retrieved by the fervour and efficient organisation of local groups who refused to lose heart. They often succeeded where more august bodies had failed. Which proves that conservation at this period has to be a *movement* and cannot depend simply on research, knowledge and authority; arguments must be backed by action.

Holding Your Ground is a must for all who care about their locality (and ground far afield as well) both individuals and organisations, voluntary and official.

Robert Waller

Reforming our Agriculture

FARMING IN THE CLOUDS, by Richard Body, London: Maurice Temple Smith Ltd. 1984. £3.50.

Regarding the development of agriculture in the UK, in the preface to this very interesting book, the author notes that in 1971, Enoch Powell told the Shropshire NFU what would happen if farmers allowed themselves to get entangled in the machinery of politics.

However, long before that time, astute and experienced observers like Lady Eve Balfour and others had been warning about the inevitable results of the unbridled encouragement of agrochemimech farming. Yet, since the early 1960s, the MAFF has been totally committed to it in every possible way. Finance, research, advisory services were all exclusively channelled into supporting the new 'conventional' farming. Since it was essentially a US concept it was neither new nor conventional.

The text quoted, *ad nauseum*, was, 'Whoever could make two ears of corn, or two blades of grass, to grow upon a spot of ground where only one grew before, would deserve better of mankind, and do more essential service to his country, than the whole race of politicians put together.' It was quite overlooked that this passage came from one of the world's greatest satires, *Gulliver's Travels*, with special reference to Laputa where resources were put into extracting sun out of cucumbers!

European Common Market and the Common Agricultural Policy

So now we are lumbered with overproduction of food. Mr Richard Body has provided more than adequate evidence of the craziness of the EEC/CAP and its profligate expenditure. He broadly hints at the corrupt collusion between the MAFF, the agrichemimech manufacturers and the finance houses which have eagerly supported the policy of Laputa whether or not it was economically justified. Lavish subsidies of all kinds have been handed out to farmers which has sent the price of land and food rocketing. Tax evasion schemes have enabled the rich to get richer and bigger while the small farmers have been driven out of the business.

Mr Body lists sixty-seven associations concerned with food production all of which have offices in London, the seat of power. He comments, "Some of them may never behave like the NFU and not pour the best claret down the throats of the Cabinet. But what draws them, like bluebottles to a cowpat, to the most costly part of the kingdom? There is no such thing as a free lunch." This gives some idea of the robustness of Mr Body's journalism.

Nevertheless, he presents some very well researched and intimidating statistics, and has combed the most prestigious journals and records for information from which, he finally concludes, all adds up to "Disentangling ourselves from the CAP." He finds that "New principles must be so clearly understood by the Ministry of Agriculture that it is purged of the over-riding desire, intensified in 1979-83, to urge farmers to maximum production, regardless of the cost to themselves or anyone else." Yet the official statements in the Report of the Royal Society Study Group (Dec 1983) clearly indicate precisely the opposite thinking. *The Daily Telegraph* (22.11.84) ran an item: 'A significant increase in farm incomes this year was forecast yesterday by the Ministry of Agriculture's top civil servant.'

Unfortunately, to an experienced observer, the idea of 'purging' the MAFF, CLA or NFU of excess profit notions derived from over-subsidised CAP is like tickling the dome of St Pauls and expecting it to laugh. Their confidence is based on the overwhelming financial power they possess, and only market pressures could force them to change their views. To achieve such pressure Mr Body vehemently and repeatedly advocates production cut-backs and Free Trade at World level. This would mean UK leaving the EEC. Such a step would never even be contemplated by our politicians since they

would then be open to the accusation of a return to 'colonial' thinking—and that would surely lose votes.

Transforming just cause into political force

Mr Body's book has given public opinion a powerful and well-informed thrust towards a better understanding of the lunacy and greed which appears to have brought about the present EEC/CAP position during a time of so-called 'peace'. He does not envisage what might happen to UK food supplies in time of war. His arguments on UK farming policy have very considerable substance, but when they are set into the matrix of world finance and trade in the broader sense, economically and politically, his knowledge may be a little too idealistic.

In 1970 your reviewer visited Holland. As a result an article was published, "Soil Pollution and Food Production" in which the following appears: "The Common Market has a Mansholt Plan which is a complete triumph in planning for the Monoculture Society. It involves the integration of Big Business philosophy into farming *in toto:* the elimination of small units, the take-up of even bigger units into components of an overall system. Efficiency will be increased as standardisation progresses, says Mansholt, and the Plan is designed so that the landscape will move whenever possible away from an expression of the individuality of many small farmers towards a reflection of the centralisation policy governed by the few."

"Is the aim of all this to bring down the price of food? Quite the contrary. Over-production of food is the Western farmer's main problem, and to know how to keep prices *up* in a glutted market—which is contrary to all normal economic tenets. This is what the recent demonstrations by farmers have been and will be all about. This is one of the main reasons why Britain has been kept out of the Common Market." (*Journal of the Soil Association,* January, 1971).

Mr Body is an MP. He may consider that the passage quoted, written fifteen years ago, as predictive evidence to justify his opinions which were not shared by his fellow politicians under Mr Heath as Prime Minister. In 1999, will his opinions be so accurately predictive?

To turn his just cause into a political force is the daunting task Mr Body has set himself. You must read his book and judge for yourself.

A H Walters

Another disease of civilisation

THE ALLERGY PROBLEM: WHAT PEOPLE SUFFER AND WHAT SHOULD BE DONE, by Vicky Rippere, M.A., Ph.D. Thorsons Publishers Limited. £4.95.

If you suffer from a real but unknown ailment or just feel generally and profoundly unwell, then—whether or not you know an allergy's to blame—this is a book to read. The author begins with her own case history (a terrifying one) and goes on to review the major causes of allergies—those illnesses that began to plague us after the last war, when man stepped up the development of chemical products.

Dr Rippere's case, which many allergics will identify with, is described in detail: the blinding headaches of her student days; the slide into junk food and addictive dependence on refined carbohydrates and sugar; the onset of more headaches and more depression; the medical treatment that did nothing but label her 'obsessional, hypochondriacal . . . anorectic'. As she puts it: "The experience left me very disillusioned with hospital medicine, and I would now be reluctant to enter hospital except unconscious or on a stretcher."

After telling her own story, Dr Rippere turns to cases like that of Ben C, aged nine, and his parents' struggle to keep him alive since the days when, as a baby, he proved a victim of multiple allergies and suffered from digestive troubles that would have killed a grown man plus an intolerance to knitted nylon and other synthetics ("Twice when he has had EEGs, he has developed psoriasis of the scalp at the site where the electrode paste was applied").

Dr Rippere then considers the allergens themselves and, in the body of the book, reports on the foods—and food families—which have been found most likely to cause allergies, as well as the chemical (and often environmental) triggers of respiratory and skin problems, depression and hyperactivity.

She devotes two chapters to the problems of help—self help in the first instance and, where necessary, the assistance of trained allergists or clinical ecologists. But the latter, as we all know, are few, and recourse to untrained medical practitioners can backfire. Dr Rippere spells out the social implications of an illness associated with depression and inevitable lowering of self-esteem, and with symptoms so unshakeable that they are likely to be interpreted as psychic. Barbara G., a young language teacher, was told she was in the grip of endogenous depression, given drug treatment, then turned over to a psychiatrist who gave her Valium followed by anti-depressants. It was a perceptive psychologist who suspected that the problem was somatic, not psychic, and who told her to have a glucose test. The test revealed reactive hypoglycemia. The adoption of an antihypoglycemic diet, and, further, the identification of her own problem foods, 'transformed her'. She wasn't crazy after all! Dr Rippere adds (p.99):

"The happy outcome only became possible when the allergic nature of the problem was recognised and clinical ecology methods were applied. This was true whether the clinician involved was actually a clinical ecologist or not; as long as the right questions were asked, the credentials of the person asking them was not a crucial factor. Indeed, as we shall see in a later chapter, many respondents were able to apply the concepts and techniques of clinical ecology by themselves."

The 250-page book concludes with two Appendices. The second one of these offers 'Practical Advice for Non-Sufferers who would like to Help their Allergic Friends, Relatives and Acquaintances.' Appendix A, on the other hand, is a Questionnaire for people who know or suspect that they have allergies, and which Dr Rippere invites the reader to fill in and post back to her.

Amelia Nathan Hill

Serving Gaia

GAIA: AN ATLAS OF PLANETARY MANAGEMENT. General Editor, Dr Norman Myers. Anchor Books, $17.95.

That our planet is grossly mismanaged every ecologist knows. We know, too, that the time is overdue for us to take an immense imaginative leap into planetary management; in order to do this we must have an inventory of the planet's resources and how they are being managed. This *Atlas* provides that balance sheet, so far as it is possible to do so; existing estimates are often far too crude and we are ignorant of far too much; but here we have a bold step towards improving our knowledge. It is very much more, however, than an inventory of resources. The title *Atlas* is so to some extent misleading; it is an atlas in the sense that it has world maps on almost every page, together with

photographs and diagrams that display the geography of forests, of oil, of poverty, of health, of violence, of literacy, of armaments—of all the many themes to which the sections are devoted. In addition there are sections on evolution, humankind and civilisation. When we have absorbed all this we are led into the final conclusions as to how we ought to manage our planet. What we have then is a cyclopedia with a purpose. No reviewer can do justice to this magnificent enterprise which has over a hundred contributors.

As a concept enabling us to give form to a planetary survey Jim Lovelock's *Gaia Hypothesis* has proved fruitful. He has provided some scientific evidence related to the development of the atmosphere for what many of us feel intuitively: that the biosphere is capable of creative constructions that are not predicatable by purely chemical laws—as, for instance, the feathers on birds, the fur on animals or the thematic control of blood temperatures. If this hypothesis is true, then the network of all living things serves our biosphere as a life support system, as if our planet were a single personality (*Gaia* was the Goddess of the Earth) able to develop and sustain its own life by creative actions. Once this is understood our task, as planetary managers, is seen to be to assess the resources on which *Gaia* depends for her creative activities and make sure they are conserved and protected and, as far as in us lies, sustained and increased. We must help not hinder *Gaia*.

One reason why we cannot manage our national economy properly or devise an economic system in harmony with nature is that we have not arrived at a planetary perspective. We do not know what is happening on the planet as a whole; consequently, as nations are so interdependent, we run into booms and recessions caused by over production or scarcity. The free market system obviously leaves economics and ecology out of joint. This *Atlas* could mark the beginning of new political attitudes; as it is so lucid, comprehensive and easy to refer to, its 'message' could filter into the popular mind.

To put the world under new management we must replace the worn out policies of the unecological economists and the antiquated nationalist diplomats (with their invincible environmental ignorance and platitudinous and hypocritical ethics) with a new breed for whom the concept of planet earth is primary. The evidence that this new personality is emerging all over the world is to be found—as our *Atlas* shows in the section on *Management* called *The Voice of the World*—by the growth of the Non-Governmental Organisations (NGOs). The bureaucratic state structure is depicted as a huge elephant being gently prodded and guided by innumerable people of all nations who have strings attached to it on which they are pulling. These NGOs are symbolised as a safety net that is being linked and knotted around the planet.

Almost the sole criticism that I have to make of this book is that it does not sufficiently stress the destructive cultural effects of Western industrialisation. Western industry does not merely threaten the world's resources; it threatens the planet's soul by undermining the cultural traditions of half the world. That is why, for example, Fritz Schumacher's essay on *Buddhist Economics* made such an impression. But *Christian Economics* would be equally revolutionary. The Western economic system as at present applied runs directly counter to Christian teaching and humanitarian ethics: which makes the claim that we must spend one-sixth of our resources on armaments in order to defend Christian civilised values pretty ironic! I do not believe it is our 'selfish genes' that make us so evil, as many evolutionists claim; I think it is our cultural failure, our abandonment of Christian values to money making. Anthropological studies reveal cultures in the past that have treated nature's resources as a common inheritance, not as private property. The development of the deep sea bed and the arctic territories will be a tremendous challenge to the morality of the Northern nations: Will they say, 'Because we have the capital and the technical ability to exploit these resources we are going to own them and profit from them? The *Atlas* raises this question; it also shows how the high rates of interest prevailing in the moneterist system leads industry to extract resources faster than nature can restore them (whales for example) in order to meet the service on their debts, another example of the mismatch between the economy and nature. The moneterist is only concerned with his financial problems, not with what his principles do to nature.

The *Atlas* makes plain that the arms race is the greatest single threat not only to world peace but to planetary reconstruction and the revival of the economy.

A sardonic comment on this irrational situation is recorded in the section on *The Cost of Militarism*—that nations which will not surrender an inch of their territory allow huge areas of once fertile land to wash or blow away each year. The response of the British Government, incidentally, to the 'invisible enemy' of soil erosion has been to cut down the funding of the Soil Survey.

If we can liberate ourselves from the strait jacket of egocentric and nationalist economics and think globally we can save the planet; if we continue as we are we can't. If we can grasp the idea of the 'global village'—thinking locally in planetary terms—act even on the parish level, in such a way that we add to and do not detract from the world's renewable resources and health, then everybody can assist in saving the home of the earth on which they depend for their existence. We shall take the imaginative leap into collaborating with *Gaia*.

Robert Waller

Fuelling our Future

ENERGY: Crisis or Opportunity? An Introduction to Energy Studies, by Diana Schumacher with Israel Berkovitch, Ross Hesketh and Judith Stammers. Macmillans, London, 1985. £12.

The energy scene is hardly a stable or static one, and it is not surprising that members of the general public should find themselves somewhat bemused after hearing one day that we are in the throes of an energy shortage likely to cripple our aspirations for good old economic growth, and the next that we have got energy coming out of our ears and that prices in real terms are tumbling. A bit of thought and we realise that the world is simply bathed in energy; energy from the sun, energy from uranium locked away in the earth, energy locked up in biomass and the energy of ages past trapped conveniently in what we call the fossil fuels.

The question is not whether we will have enough energy to carry on, but how much energy we should be using to carry on. Can we expect all the developing world to catch us up in the industrialised east and west, and is it not our moral duty to see that it does? Or will that pursuit of growth, fuelled by increasing quantities of energy, not only jeopardise our profligately-used supplies but also threaten the stability of our life-support systems? What is happening to climate with all that carbon dioxide? And what about acid rain? What will we do with all those derelict nuclear power stations, or with nuclear waste once we shift to the nuclear-powered electric economy?

Schumacher's book doesn't answer all those questions; nevertheless it is an

excellent book at informing us where we stand in relation to the different energy sources available to us, and what the potentials are for developing further this or that type of energy, whether coal-gasification or energy from wind and wave. It is a book replete with facts, giving the present state of affairs with regard to any particular energy source, and a good account of the likely foreseeable potential of that energy source given current technological trends and development. Both the conventional and alternative, renewable energy sources are given a good hearing, and if there is a bias it is towards conservation of energy, through house insulation for example, and towards the renewables, with reference to some encouraging results coming from different parts of the globe in the use of wind and biomass.

One of the major problems in our highly centralised industrial economies is that we like and depend on highly concentrated forms of energy, whether in the guise of nuclear power or of fossil fuels. The trouble with the renewables for our kind of society is that the energy tends to be more diffuse and has to be collected, involving a relatively large capital investment per energy unit, even though the energy may then be 'free'. In effect government and industry commitment to such alternatives tends also to be diffuse, especially now that real prices of fossil fuels are once again falling because of the current energy glut. And where a country, such as Brazil, has gone hell for leather to develop an alternative energy source, in its case alcohol fuel for its motor vehicles, the cost has been tremendous in land use and in pollution of rivers and groundwater. People too have been displaced from the land, and in real terms the cost of the fuel has been far higher than that of the petroleum it has replaced. Thus even the renewables have their price, especially when slotted into the running of a modern industrial society.

My feeling about *Energy: Crisis or Opportunity?* is that it is essential reading for anyone seriously interested in energy studies who wants to get a good grounding in the subject, and I shall certainly find it a good reference work for years to come. But, as I have intimated in this review, it is when you have finished reading the book that the arguments about energy and the kind of society we can afford really begin.

Peter Bunyard

Saving the World's Forests

THE PRIMARY SOURCE. Tropical forests and our future, by Norman Myers, Norton, London, 1984. £17.95. IN THE RAINFOREST by Catherine Caufield, Heinemann, London, 1985, £10.95. VICTIMS OF THE MIRACLE, by Shelton H Davis, Cambridge University Press, 1977. £7.95. TIMBER: AN INVESTIGATION OF THE UK TROPICAL TIMBER INDUSTRY, by Francois Nectoux, Friends of the Earth, London, 1985, £4.

The camera has made the tropical forest accessible to any who have never had the chance to penetrate its mysteries, and we are now increasingly aware of the threat to the forest and its inhabitants, including humans, through the process of modern exploitation and development. But while the camera offers a fleeting impression, books play an essential role in filling in some of the details. In many ways the books listed above are complimentary to each other. Shelton Davis's vividly written survey of the history of encroachment into Brazil's Amazon provides a necessary background to the kind of forces that bring change and destruction, while Nectoux's account for Friends of the Earth, of Britain's tropical wood imports is part of the campaign to stop the destruction before it is too late and the forests have gone. Norman Myer's *The Primary Source,* as the title suggests, is more concerned with providing the reader with a broad survey of tropical forests across the globe, hinting at their biology and giving a widely accepted view of the rate and extent of damage to the forests since World War 2. Caufield's book, meanwhile, is a journalist's account of trips to areas where the pressure on the forests is on; where people are being displaced as in Brazil, to make way for massive inundation for electricity generation, or where the forest is being hacked down and burnt to make way for the resettling of hundreds of thousands of unfortunate peasants as in Indonesia's 'Transmigration Programme' in which the original intention, as expressed by President Sukarno in the 1950s, was to reduce Java's population from 54 million to 31 million between 1950 and 1985 by moving millions of people to the outer islands. Nor did much change in that respect after Suharto pushed Sukarno out and took control of the government, and between 1979 and 1984 as many as 1½ million were forced to migrate. Twice as many are to be moved over the next five years in a bid to Javanise the many islands, Sumatra and Sulawesi included, that now comprise Indonesia.

Davis's poignant documentary of the clashes between Amazon Indians and those who see the forest as an obstacle to the modernising and development of Brazil, is one to anger and sadden the reader. Not that all the 'Whites' were brutal and bad, and enlightened Brazilian's there were and are. For instance, Da Silva Rondon, a colonel in the Brazilian army who in 1910 became the first director of the new Indian Protection Service, believed (and helped formulate legislation to that effect) that Indians should have the right to exist on their own lands and to continue their ancient and traditional ways of life. His was the famous motto that on contacting Indians his men should "Die if it be necessary, but kill never".

Unfortunately the pacification of Indians removed the major obstacle to the penetration of the jungle and its exploitation by adventurers, and in went the rubber and nut collectors, the people seeking gold and other minerals, the cattle ranchers and those seeking land for agriculture. Inevitably the Indians lost out, disease decimating their numbers and the residue for the most part ekeing out a miserable existence in 'White' settlements. The broken promises, the ruthless killing of Indians by cattle men, mineral prospectors and later even by the Indian Protection Service itself, reminds one of the tragedy of the North American Indians as portrayed in Dee Brown's *I Buried my Heart at Wounded Knee.* In fact, as Davis makes clear, the world, through the activities of the World Bank and the multinationals bears much of the responsibility for what has happened in Brazil. But that part of the story is well documented in *The Ecologist* Vol. 1 and 2, 1985.

In recent years, as Catherine Caufield describes, the forest has become a safety valve for governments battling to find a solution for their burgeoning populations. To governments such as those of Brazil and Indonesia, the forest is a vacuum waiting to be filled and used, and to date there has been scant willingness to face facts and to recognise that much of the soils underlying the luxuriant primary forests of the tropics are abysmally poor and incapable of supporting a population of farmers for any length of time. Much of the problem of the landless poor in Brazil as in other parts of Latin America stems from inequitable land distribution. According to Caufield, Brazil without including the Amazon rainforest, has the same population density as the United States, some 65 people to the square mile, to be compared with more than 10 times that amount in Western Europe and Japan. Yet 4.5 per cent of Brazil's landowners own 81 per cent of the country's farmland, while 70 per cent of rural households

are landless. In the main the best land in Brazil is taken for the growing of cash crops, soybean for example, or sugar cane, both of which have more to do with Brazil's balance of payment problems than with providing land and food for the rural poor.

Caufield's travels take her to Papua New Guinea where the Japanese are dismantling the forests for their paper and packaging industry while ensuring that their own forests are protected; to the Philippines to see how well the Paper Industry Corporation of the Philippines (PICOP) is getting on with its agroforestry scheme whereby farmers get commissioned to grow trees for the paper company, to Central and South America to see what cattle ranching and dambuilding can do to the environment and to Indonesia where she came across people being 'transmigrated' for the second time in a few years. It is quite clear from *In the Rainforest* that we in the industrialised world have an awful task and responsibility if we are going to help stem the tide of destruction.

Norman Myers reckons that as much as 200,000 square kilometres of primary tropical rainforest are being destroyed each year. According to his figures, between 1950 and 1980 the rate of logging timber increased nearly 20 fold from 4 million cubic metres to 70 million cubic metres and today, commercial logging causes some 45,000 square kilometres to be damaged every year. Fuelwood gatherers are responsible for the destruction of another 25,000 square kilometres, the cattle rancher, primarily in Latin America, for some 20,000 square kilometres and the slash and burn peasant for at least 160,000 square kilometres per year. The total destroyed each year is equivalent to some 2 per cent of the boime, and at that rate all the primary forest will have gone within 50 years.

The Primary Source is not just a book about destruction. In much of the book Myers extols the potential of the forest and the food and medicinal products that we already know about, and for the great many that are yet to be discovered given our present day lack of knowledge. As a genetic resource the primary forest is invaluable, and Myers stresses that countries with tropical forests are more likely to benefit economically from preserving their forests and exploiting the innumerable essential products that can be obtained from them, than in destroying the forests and converting them to cattle ranches and for crop growing.

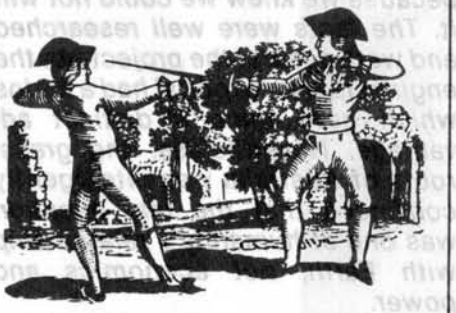
Unlike trees in temperate climates which will often survive in isolated patches, many species in the rainforest are dependent for their own survival and propagation on large areas of forested land remaining intact. Myers therefore questions current thinking as expounded by governments and other organisations that a few per cent of primary forest left intact will be enough to ensure the survival of its fauna and flora. It may well be that relatively large areas will have to be left untouched if the remaining forest is not gradually to decay from the edges owing to the climatic changes brought about by deforesting the remainder. Moreover, as Myers points out, the world's tropical forests play an important if poorly understood role in stabilising global climate.

Friends of the Earth Tropical Rainforest Campaign, launched on 9th May, 1985, should have the effect both of raising consciousness in Britain and in Europe as to the role of the industrialised nations in causing some of the present day deforestation, and of bringing pressure to bear on the tropical hardwood importers as well as the government to pursue policies that lead to sustainable exploitation of hardwood plantations without causing further destruction of primary forests. In his book, *Timber,* Nectoux points out that three British giant multinational corporations, Unilever, Inchcape, as well as Harrisons and Crosfield, are actively involved in felling tropical forests in South-east Asia and West Africa, and are likely to contribute to all accessible rainforests in South-east Asia being cleared within a few years.

Britain is the second largest importer in Europe of tropical hardwoods after France and is the second largest importer of plywood in the world after the USA. According to FAO, the UK imported $442 million worth of tropical timber in 1981 against $1,994 million by Japan and $581 million by the USA.

Friends of the Earth has therefore set out to persuade the UK timber industry to adopt a Voluntary Code of Conduct to regulate the import of tropical hardwoods, it being written into the Code that the imported timber should come from concessions that included 'ecologically positive management policies'. Meanwhile retailers are asked to stock only those tropical hardwood timber products that comply with the Code. In addition the suggestion is that one per cent of all profits from the tropical hardwood trade should be levied to ensure sustainable management of the forests. Surely the timber industry will have the good sense to accept that the small step asked for by FOE, is in its best interest, as well as in that of the rest of us.

Peter Bunyard



Letters

Can Public Opinion save our Wildernesses?

Dear Sir,

I have just read Brian Martin's thoughtful article in which he says "It can be reasonably said, from the perspective of 1982 and 1983, that the flooding of the Franklin was an urgent short-term goal necessitating appeal-to-elites methods. But the Tasmanian Wilderness Society was formed in 1975: that was the time to have begun formulating a long-term grassroots strategy" (Vol. 14 No. 3 1984).

Locked away in one of the world's wildest tracts of country, the Franklin River was known only to a few pine-cutters and Hydro Electric Commission (HEC) engineers in 1975. Other Australians had not heard of it.

TWS was set up in 1976. It began with 16 members, no premises, staff or money. We reckoned that the dam plans would be announced and works begun within a year: the urgency was there from the start. It is a tribute to the campaigners that the start of works was delayed for a further six years.

Those six years were vital. They enabled the growing TWS to have everyone in the country familiar with their Franklin heritage. Grassroots strategies depend upon their goal being widely understood. We worked on the basis that if the people knew about the Franklin they would oppose its destruction.

Our job was to have the river speak for itself through pictures, film and description. It did. And Australia responded. The 'elites' had no answer to the Franklin's powerful beauty.

The debate on the economic merits of the dam came second

because we knew we could not win it. The facts were well researched and were against the project but the engineers and 'experts' had a kudos which gave them a distinct advantage. Nevertheless, the grassroots of Australia was intelligently convinced that the real question was one of humanity's relationship with Earth, not economics and power.

In Tasmania the Franklin, through TWS, kept solid public support despite hostile predictions of economic, employment and energy doom by all of the 'power-elites'—the HEC, both major political parties, both Houses of Parliament, unions and business and the three newspapers. At the height of the furore, with Risdon gaol swollen by blockade internees, 20,000 people rallied in tiny Hobart to oppose the dam works.

I reckon TWS' involvement in the 1973 national elections was crucial to success. Whatever the sephological analyses, the campaign's impact on the Labor Party was profound. The groundwork had been done over the preceding years. The new Prime Minister (Hawke) made only one specific commitment in his victory speech: 'the dam in Tasmania will not be built'.

That the Franklin campaign has led to discussion and optimism about grassroots strategies and to a distinct nervousness (i.e. loss of confidence) in Tasmania's power elites, is a bonus. By the way, I believe the Franklin 'loss' is the beginning of the end for the HEC as Tasmania's de facto government: its power and prestige is in irreversible decline.

The world, however, is on the road to hell. Its consumerist aspirations, fuelled by the powers that be, is leading us towards dreadful events; the more dreadful because they are avoidable. We need a reformation of thinking about the handling of Earth's fragile environment, the right of all people to a 'fair go', and the dismantling of the arsenals which our scientists and politicians have created.

What is not clear, is how to reform the world's political structures. We cannot do without structures. We need a world watchdog, for one, if we are ever to do away with the present danger of nuclear weapons shared by adversaries.

As yet there is no panacea. One thing is for sure however: information is power. The Franklin was saved because the people knew about it in time.

After a full stomach, any successful grassroots strategy must begin with ensuring that people are informed: it is our fundamental democratic right: the fate of the Earth depends on it.

Yours faithfully,
Bob Brown
Former Director TWS
Independent Member
House of Assembly, Tasmania

Good Guys vs. Bad Guys

Dear Sir,

Is orthodox medicine really as bad as Alwyn Jones suggests in the latest edition of The Ecologist? His article on "Alternative Medicine— Alternative Society" contrasts orthodox medicine with various forms of "holistic medicine" such as acupuncture and radionics. While conceding that orthodox medicine has its practical uses, the article implies that only alternative medicine has a real concern for the whole individual in his or her social and ecological context.

This "Good Guys and Bad Guys" presentation is an affront to holistically minded doctors, and only serves to cloud important issues. It is true that the "medical model" usually suggests specific treatments for specific diseases, but this does not mean that orthodox doctors are incapable of treating their patients holistically. Treating an epileptic child with anticonvulsant medicines, for example, is not incompatible with exploring the role of emotional, educational, environmental and social factors, with a view to fostering a healthier life style. Good medicine can and should proceed on several fronts simultaneously.

The first medical journal that I read after finishing Alwyn Jones' article provided a striking example of the presence of some holistic thinking even within high technology areas of orthodox medicine. The Lancet of 22 December 1984 contains an article by D J Weatherall, the Nuffield Professor of Clinical Medicine at Oxford, on the medical implications of current developments in molecular biology. Despite his commitment to the scientific and technical sides of medicine, Professor Weatherall is keenly aware of medicine's failings. Discussing arterial disease, cancer, congenital malformations and neuropsychiatric disease, he says that "we have largely failed to control these diseases, except by high-technology patch-up procedures." He sums up his view of medicine's future: "The overall effect of molecular medicine on clinical practice in the developed countries is difficult to forecast; it is unlikely to change it overnight. Nor will it lessen the need for good doctoring on the holistic approach to patient care."

Although it shares many of the faults of our technological society in general, orthodox medicine has many positive aspects as well. Doctors are more likely to change their practice for the better if they receive reasoned suggestions rather than blanket condemnations. Anathematisation of all orthodox medicine will narrow the base of the ecology movement. The way of persuasion and reconciliation must surely be better than the way of rejection and polarisation.

Yours faithfully,
Robert Goodman
Bethlem Royal Hospital, Kent

Classified

MISCELLANEOUS

FREELANCE APPLIED STATISTICIAN, all projects considered. Telephone Dr Brian Williamson on Bangor (0248) 713933 or 051-639-8744.

ECOLOGISTS FARMING and working in social and educational projects in rural Southern Chilean Andes need help. If interested in visiting or participating in working community please contact FLOR DEZ BOSQUE, Casilla 175, Pucon, Chile. Financial help available.

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Applications in writing enclosing a full C.V. should be made to Jim Walker, Chairman, Ecology Building Society, 43 Main Street, Cross Hills, via Keighley, West Yorkshire BD20 8TT.

DIARY DATES

The British Kinematograph, Sound and Television Society hold their 3rd International Wildlife Film-maker's Symposium 1985 at Bath, Somerset, UK from 14th September to 18th September. For more details contact BKSTS, 110 Victoria House, Vernon Place, London WC1B 4DJ (Tel 01 242 8400).

RSPCA Mallydams Wood Field Study Centre and Wildlife Sanctuary will hold an OPEN DAY on 1 September. Further information from Nigel Ford, BA, Peter James Lane, Fairlight, Hastings, Sussex.

International Conference on THE NATURE AND TEACHING of Environmental Studies and Science in Higher Education. The third in a series of international conferences on Environmental Education September 9-12, 1985. Details from Conference Secretary c/o Dept of Geography and History, Sunderland Polytechnic, Forster Building, Chester Road, Sunderland, Tyne and Wear, UK.

The Southampton MIND BODY SPIRIT FESTIVAL will be held in Southampton, Guildhall from October 25 to 27. Further details from: New Life Designs Ltd, 159 George Street, London W1H 5LB.

ONE WORLD WEEK — October 20-27 1985: Recipes for Justice, Food for the World. A study and action Programme of the World Development Movement. For ideas and details write to One World Week, PO Box 1, London SW9 8BH.

MAN'S ROLE IN CHANGING THE GLOBAL ENVIRONMENT. International Conference, University of Venice, Fondazione Cini 21-26 October 1985. Details from Universita Degli Studi Di Venezia, Ufficio Culturale, Dorsoduro 3246, 1-30123 Venezia, Italy.

EDUCATION 2000 CONFERENCE. This three day gathering will take place from Friday, September 20th to Sunday, September 22nd at Edinburgh University and will bring together people from all walks of life with an interest in life-long education. The underlying theme will be the Potent focus in time offered by the year 2000 coupled with the realisation that children born now will finish their formal education in the 21st century. Speeches, panels and workshops will be balanced by artistic inputs including sacred dance with Ingrid Mann, of Findhorn Foundation, Piano recitals, and a traditional Scottish 'Ceilidh'. The gathering promises to be uplifting and entertaining as well as informative and useful. The cost is £15 per day, inclusive of first rate vegetarian cuisine. Bookings to and further information from: Planetary Initiative, Centre for Human Ecology, 15 Buccleugh Place, Edinburgh. Tel: 031 667 1011 Ext 6696. The daily themes will be: *Earth-Wise Education, Dimensions of Creativity,* and *Education — Ways to Work.* Speakers include Satish Kumar of the Small School and *Resurgence* magazine, Daniel Levy of Planetarium of the Arts, Venice, Brien Masters of Steiner Schools Fellowship and Michael Lindfield of Findhorn Foundation.

CALL FOR PAPERS

First announcement and call for papers for the THIRD INTERNATIONAL SYMPOSIUM ON ENVIRONMENTAL MANAGEMENT FOR DEVELOPING COUNTRIES on Tourism-Industry-Environment and Appropriate Technology for Treatment and Disposal of Hazardous Wastes. The Symposium will take place in Istanbul, Turkey, between August 6-12, 1986. Papers describing techniques appropriate for developing countries will have priority. Engineers and scientists of any nationality are welcome to submit a copy of a maximum 500-word abstract by December 15, 1985. For further information please contact: ENVITEK, Bahariye Cad. 56, Kadiköy-Istanbul, Turkey. Tel. (90-1) 336 47 95.

Third International Conference on ECOLOGY AND ENVIRONMENTAL QUALITY. Jerusalem, Israel June 1986. Authors are invited to submit papers, no longer than ten pages on a variety of subjects ranging from Aquatic Ecology to Toxic Waste Disposal, by January 31st 1986. Further details from Israel Society for Ecology and Environmental Sciences, The Hewbrew University of Jerusalem, PO Box 1172, Jerusalem, Israel.

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